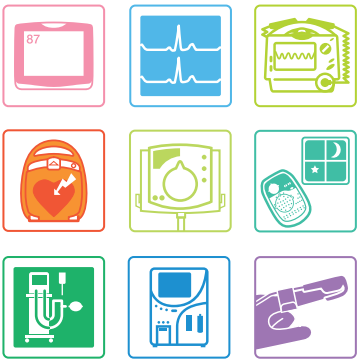
Product Guide



Fighting Disease with Electronics

NIHON KOHDEN

2020.01

Nihon Kohden's Expa

Becoming a global leader of medical solutions

Every year Nihon Kohden is expanding its global network, from research and development to manufacturing, sales, and service, in order to fulfill its mission to save lives with the most advanced medical technology.

Nihon Kohden began its overseas expansion with Nihon Kohden America in 1979. The Company now has the sales subsidiaries in the US, Mexico, Colombia, Brazil, Germany, France, Spain, Italy, the UK, China, Singapore, Thailand, Malaysia, India, UAE, Korea, and Kenya. A network of distributors covers the countries where Nihon Kohden does not have a direct sales system. Nihon Kohden products are exported worldwide.

Europe

Sales

Nihon Kohden Europe, GmbH
Nihon Kohden Deutschland GmbH

Nihon Kohden France Sarl

Nihon Kohden Iberica S.L.

Nihon Kohden Italia S.r.l.

Nihon Kohden UK Ltd.

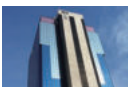
Production, Sales

Nihon Kohden Firenze S.r.l.

Asia

Sales

Nihon Kohden
Singapore Pte Ltd



NKS Bangkok Co., Ltd.

Nihon Kohden India Pvt. Ltd.

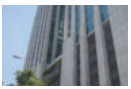
Nihon Kohden Middle East FZE

Nihon Kohden Korea, Inc.

R&D, Sales

Shanhai Kohden Medical
Electronics Instrument Corp.

Production, Sales



Nihon Kohden
Malaysia Sdn. Bhd.

Production

Shanghai Kohden Medical
Electronics Instrument Corp.

Nihon Kohden India Pvt. Ltd.

nding Global Network

Nihon Kohden products are used in more than 120 countries

Since its founding in 1951, Nihon Kohden has continued to provide a wide range of medical electronic equipment including EEG, EMG/EP measuring systems, electrocardiographs, bedside monitors, defibrillators, hematology analyzers and ventilators. In particular Nihon Kohden has a high market share in EEG. Demand for medical equipment varies by country and region so the Company makes the most appropriate strategy for each region.

Americas

Sales

Nihon Kohden America, Inc.

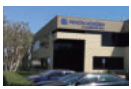
Nihon Kohden Mexico S.A. de C.V.

Nihon Kohden Latin America S.A.S.

Nihon Kohden Do Brasil Ldta.

R&D, Production, Sales

Defibtech, LLC



Nihon Kohden OrangeMed, Inc

R&D

Neurotronics, Inc.

NKUS lab

Nihon Kohden Innovation Center, Inc.

Japan

Headquarters

Nihon Kohden Corporation

Nihon Kohden Corporation, Tokorozawa Office

R&D

Advanced Technology Center

Production

Nihon Kohden Tomioka Corporation
Nihon Kohden Corporation, Kawamoto factory

Network in Japan

Sales
12 branch offices and over 120 sales offices in Japan

Service
11 area service depots and
over 70 service centers / service stations in Japan

History Over half a century of contributing to

1951

ME-1D

1951: Yoshio Ogino founds Nihon Kohden with the unique vision of “fighting disease with electronics.”

1951: Nihon Kohden develops the world’s first electroencephalograph which is completely AC powered (ME-1D).

1960s

ICU-80 patient monitor

1967: Japan's first ICU monitor is installed at Tohoku University School of Medicine in Sendai city. This monitor, the ICU-80, is developed by Nihon Kohden.

1970s

OLV-5100

1974: Nihon Kohden researcher Takuo Aoyagi develops the principle of pulse oximetry. All pulse oximeters today are based on Dr. Aoyagi's original principle of pulse oximetry.

1979: Nihon Kohden is commissioned by NASDA* (National Space Development Agency of Japan) to develop instruments for Japan's first contribution to experiments onboard the US space shuttle.

* Now JAXA (Japan Aerospace Exploration Agency)

1980s

OEC-5501

1982: Nihon Kohden pioneers arrhythmia analysis in patient monitors. This epoch-making technology first appears in the company’s Life Scope 10 OEC-5501 heart monitor.

1982: After 30 years of impressive growth, Nihon Kohden is listed on the 1st Section of the Tokyo Stock Exchange.

ECG-8210

1987: Nihon Kohden develops the world’s first electrocardiograph with an LCD display, the ECG-8210. This revolutionary development allowed checking of the ECG before starting recording.

1990s

BSM-8502

1991: Nihon Kohden develops the world's first digital multi-parameter telemetry bedside monitor, the Life Scope 12 BSM-8502.

EEG-2100

1994: Nihon Kohden introduces the world's first Windows® based digital EEG, Neurofax EEG-2100. It provides unparalleled ease of use.

2000s

cap-ONE

2003: Nihon Kohden develops the world's smallest CO_2 sensor. It enables measurement of mainstream CO_2 for nonintubated patients.

ZS-940P

2004: Nihon Kohden introduces the world's first wireless monitoring of ECG, respiration, SpO_2 and NIBP with its ZS-940P transmitter.

2010s

esCCO

2010: Nihon Kohden America received the Outstanding Service Achievement award from Medical Strategic Planning (MSP) for the highest customer satisfaction among patient monitoring vendors for the fifth consecutive year.

synECG 18

Synthesized Electrocardiogram

2012: Nihon Kohden introduces bedside monitors with esCCO, and electrocardiograph with synthesized 18-lead ECG.

2015: Nihon Kohden's Dr.Takuo Aoyagi receives 2015 IEEE Medal for Innovations in Healthcare Technology.

AE-120A

2018: Nihon Kohden receives the Red Dot Award : Product Design 2018 for the telemetry amplifier, AE-120A EEG headset.

NKV-330 / cap-ONE NPPV mask

2019: Nihon Kohden introduces NPPV ventilator system with O_2 therapy mode. NPPV mask is also introduced which is specially designed to fit any facial shape.

Bedside Monitors

The genesis

Life Scope G9

CSM-1901

Site Optimization

OR

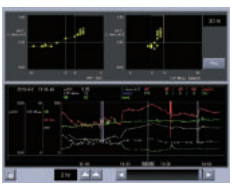
- Providing complete information for anesthesiologist, physician and heart-lung machine operator with triple display
- Multigas measurement
- MAC value calculation
- BIS/TOF monitoring
- Respiratory loops

ER

- Seamless monitoring by using Life Scope PT as a transport monitor and an input box for Life Scope G9

ICU/CCU

- 12-lead ECG analysis
- Hemodynamics Review Program, Advanced Intensive Therapy Management Calculation/Trend
- PPV/SPV (Pulse Pressure Variability)
- CVP-ET
- esCCO measurement



NICU

- OCRG (oxycardiorespirogram)
- Dual SpO_2
- aEEG (amplitude-integrated EEG)
- Original sensors for neonate

# of monitoring

19-inch TFT LCD touch screen

Local purchase display: 18.5/21.5/24-inch

Number of waveforms: 17/display

Basic parameters

ECG, RESP, NIBP (iNIBP), SpO_2, TEMP

MULTI connector parameters: Up to 15

IBP, TEMP, CO, CO_2 (mainstream), BIS, SpO_2-2*, NMT

*depending on the monitor configuration

Options

Hemodynamic unit (PiCCO, ProAQT, CeVOX), Multigas, FLOW/Paw, EEG (CSA/DSA, aEEG), esCCO, synECi18

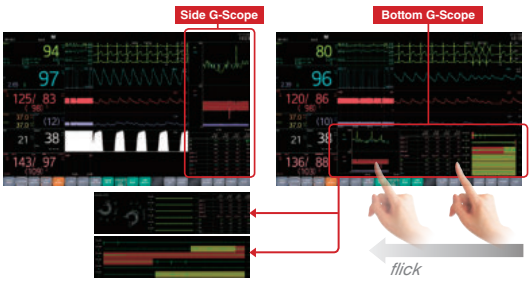
Other features

- 12-lead ECG analysis
- 168 hours, all waveforms full disclosure

Decisive Information

Review data without hiding the current vital signs

Life Scope G9 allows reviewing previous data without hiding the current vital signs and waveforms. Just swipe the side or the bottom of the screen and select from three pre-assigned review screens.



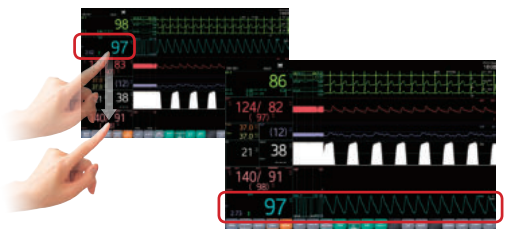
Efficient Operation

Interbed monitoring

Numeric data for 32 patients or numeric data and 5 waveforms for 1 patient can be displayed on the interbed screen.

Drag and drop screen builder

The position of numeric values and waveforms can be changed by drag and drop the numeric value.



Bedside Monitors

Revolutionizing

Life Scope G7

CSM-1701/1702

Input unit: separate

TFT LCD touch screen
CSM-1701: 15.6-inch, CSM-1702: 19-inch

Number of waveforms:
CSM-1701: 15, CSM-1702: 17

Basic parameters
ECG, RESP, NIBP (iNIBP), SpO_2, TEMP

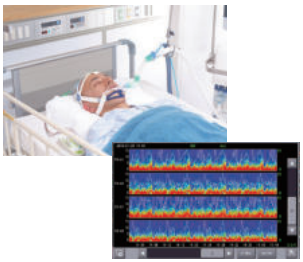
MULTI connector parameters:
Up to 11
IBP, TEMP, CO, CO_2 (mainstream), BIS, SpO_2-2*, NMT
*depending on the monitor configuration

Options
Hemodynamic unit (PiCCO, ProAQT, CeVOX), Multigas, FLOW/Paw, EEG (CSA/DSA, aEEG), esCCO, synECi18

Other features
- 12-lead ECG analysis

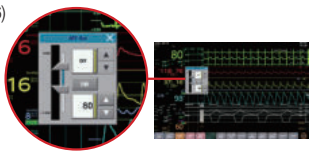
Human Machine Interface

- Continuous NeuroMonitoring
- Synthesized 18-lead ECG (synECi18, refer to page 24-25)
- cap-ONE CO_2 sensor provides accurate and stable CO_2 monitoring for both intubated and non-intubated patients



Efficient operation throughout the hospital

- Smart cable system (refer to page 16)
- Interbed function
- Arrhythmia analysis ec1
- Review data without hiding the current vital signs (refer to page 7)
- Quick access to change setting
- Flexible installation with triple display



Relationship

Life Scope G5

CSM-1501/1502

Input unit: on the back

TFT LCD touch screen
CSM-1501: 12.1-inch, CSM-1502: 15.6-inch

Number of waveforms:
15

Basic parameters
ECG, RESP, NIBP (iNIBP), SpO_2, TEMP

MULTI connector parameters:
Up to 11
IBP, TEMP, CO, CO_2 (mainstream), BIS, SpO_2-2* , NMT
*depending on the monitor configuration

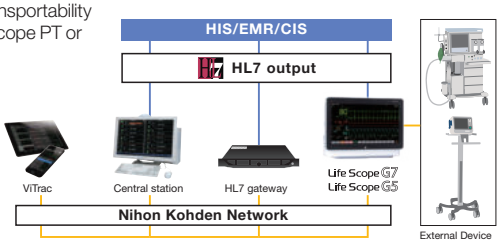
Options
Hemodynamic unit (PiCCO, ProAQT, CeVOX), Multigas,FLOW/Paw, EEG (CSA/DSA,aEEG), esCCO, synECi18

Other features
- 12-lead ECG analysis

Holistic care platform

Life Scope G5/G7 can be interfaced with various devices and the data including data from external devices will be sent to an integrated system.

- Superior transportability using Life Scope PT or input unit



Preventive Intervention

The integrated data will be analyzed and used to select optimal treatment for each patient and provide early preventive measures.

- Hemodynamics graph (refer to page 15)
- Estimated continuous cardiac output (esCCO, refer to page 14)
- iNIBP - Speedy and gentle NIBP monitoring (refer to page 14)

Bedside Monitors

A real transport monitor

Life Scope PT

BSM-1700 series

TFT LCD 5.7-inch touch screen

Number of waveforms: 9

Basic parameters
ECG, RESP, NIBP (iNIBP), SpO_2 (Nihon Kohden, Nellcor OxiMax or Masimo SET), TEMP

MULTI connector parameters
IBP, CO_2, CO, BIS, SpO_2-2

Option
esCCO

Other features
- 12-lead ECG analysis
- 72-hour, 5 waveforms full disclosure (Standard mode)
- 5-hour battery operation

One action to go

To transport the patient, just remove the Life Scope PT from the cradle with one action without losing parameters.
It is easy to carry and you can hook it onto a bed rail without a bed rail adapter.

Powerful input unit

Life Scope PT can be used as input unit of BSM-6000 and CSM bedside monitors.

Superior visibility

Large 5.7-inch screen clearly displays all parameters. MULTI connectors allow flexible parameters and optimal monitoring based on the patient condition.

Standard mode

Transport mode

Mobile solution

Life Scope G3

Vital Sign Telemeters
GZ-130P
GZ-140P

3.2-inch touch screen

Basic parameters
GZ-130P: ECG, RESP, SpO_2
GZ-140P: ECG, RESP, SpO_2, NIBP (iNIBP)

IEEE 802.11a/b/g/n WLAN network

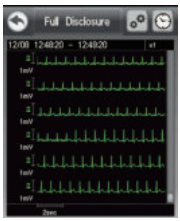
Safety

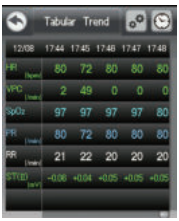
Life Scope G3 is a wearable vital sign telemeter to support various phases of ambulatory patient care such as rehabilitation or transport.



Streamlining

Life Scope G3 lets you confirm alarm and review data intuitively at patient side to help streamline your work flow.



Seamless

Robust network configuration, data backup and water resistant construction ensure valuable patient data.


Mobile Viewer

ViTrac

Unified gateway, QP-988P

ViTrac network server provides you with monitoring information on multiple patients, any time and any place.

Mobile viewer, QP-989P

App for iPad / iPhone

ViTrac provides monitoring information of multiple patients on an iPhone or iPad.

Anywhere anytime

Patient data can be viewed in near real-time on an Apple mobile iOS device within the hospital network or remotely via a VPN connection.

iPad iPhone

Waveform screen

iPad iPhone

Arrhythmia recall

Complete review capability

Patient data includes waveforms, 12-lead ECG, full disclosure, arrhythmia and ST recall, trends and other information, just like on the bedside monitor.

Guaranteed security

The administrator can create multiple user accounts and control who can review which patients.

Central Monitors

CNS-6201

- 24-inch wide display
- Dual display
- 32 patients*
- LAN, WLAN and telemetry
- 120-hour data storage
- 12-lead ECG analysis
- Full disclosure
- Transport function

*Option required

CNS-9101

- 24-inch display
- 48 patients*
- Dual display
- 120-hour data storage
- 12-lead ECG analysis
- Full disclosure

*Option required

HL7 Gateway

QP-993PK

The gateway server enables data communication between the hospital or clinical information system (HIS, CIS) and Life Scope Network.

Waveforms are also transferred by MFER, which is the new standard for medical waveforms.

Monitoring Technology

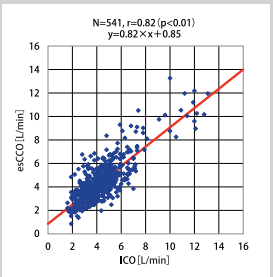
Redefine quality of care
Continuous Cardiac Output from ECG and SpO_2

Nihon Kohden is redefining Quality of Care with new, non-invasive technologies like PWTT and esCCO by introducing volumetric information to all care levels.

Estimated Continuous Cardiac Output (esCCO) is a new technology to determine the cardiac output using Pulse Wave Transit Time (PWTT). PWTT is obtained by the familiar vital sign parameters of ECG and pulse oximetry. With esCCO, cardiac output can be measured continuously with a very simple and totally non-invasive process.

Performance of esCCO

In 2009, a multi center study at seven facilities verified the effectiveness of esCCO as a practical application.

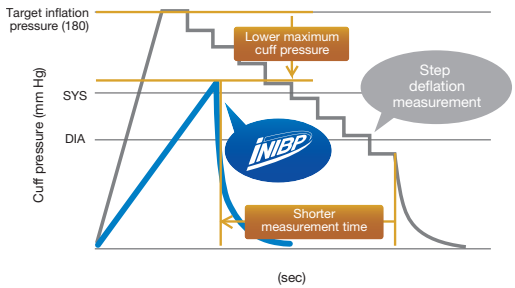


Comparison between esCCO and cardiac output by cold bolus thermodilution(ICO)

Be impressed, free from stress

Non-invasive blood pressure measurement with speed, gentleness, and reliability.

iNIBP is Nihon Kohden's unique algorithm to measure NIBP during inflation. It provides fast and painless measurement of NIBP. YAWARA CUFF 2, Nihon Kohden's special cuffs, prevent subcutaneous bleeding, increase patient comfort and reduce noise for more accurate measurement.



iNIBP completes the measurement faster with lower cuff pressure.

New Hemodynamics Graph

The Hemodynamics Graph is a new monitoring tool which shows overall hemodynamic information. A trendgraph at the top and two target graphs below show the relationship of two hemodynamic parameters.

Hemodynamics Graph

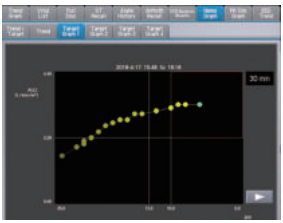
Target Graph Features

- Preload parameters such as CVP and PPV on the X axis
- Cardiac function parameters such as cardiac index on the Y axis
- Brightness level of the traces and plots shows hemodynamic change over time
- Red target zones show target areas of treatment

Various Combinations of Hemodynamic Parameters

The Target Graphs can show different hemodynamic parameters for different clinical conditions. You can select appropriate hemodynamic parameters from invasive to non-invasive depending on the condition. For example, target graphs for PPV and esCCO provide minimally invasive hemodynamic monitoring for fluid management. Intermittent invasive parameters such as cardiac output by bolus thermodilution and pulmonary wedge pressure can also be used for the Target Graphs.

The Hemodyanamics Graph can open up new ways to manage hemodynamics for all care levels more efficiently and effectively.



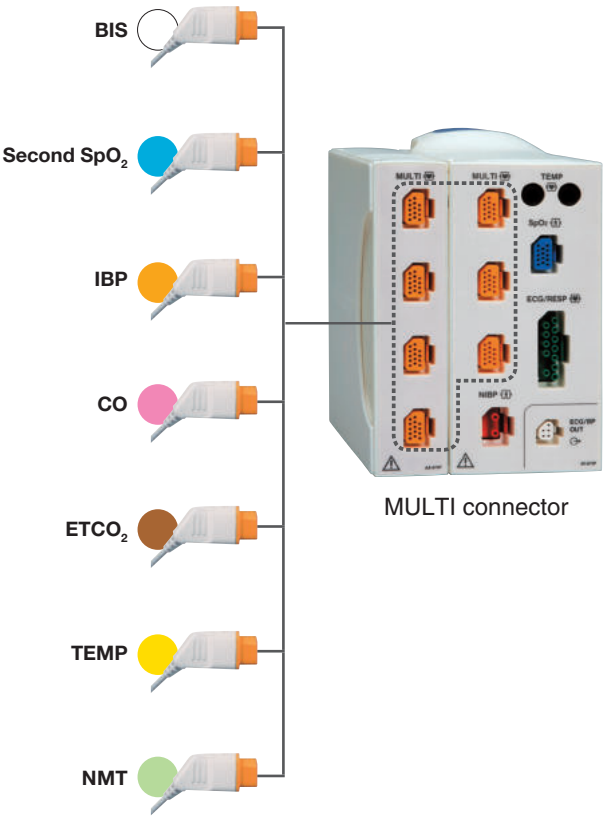
AP-170P Hemodynamic unit supports PiCCO, ProAQT and CeVOX technologies with one unit.

Monitoring Technology

Smart Cable Systems - new modular technology

Smart Cable technology miniaturizes circuits found in traditional modules and embeds that circuitry into the cable.

When you plug a Smart Cable into a MULTI connector, it automatically detects the type of parameter and starts measuring.



MULTI connector

*Available parameters depend on monitor

Bedside Monitors

Life Scope VS

BSM-3000 series

BSM-3500

BSM-3700

TFT LCD touch screen
BSM-3500: 12.1-inch, BSM-3700: 15-inch

Number of waveforms
BSM-3500: 15, BSM-3700: 15

Basic parameters
ECG, RESP, NIBP, SpO_2 (Nihon Kohden, Nellcor OxiMax or Masimo SET), TEMP

MULTI connector parameters
IBP, CO, CO_2 (mainstream), BIS, NMT

Options
Hemodynamic unit (PiCCO, ProAQT, CeVOX), Multigas, FLOW/Paw, EEG, esCCO, iNIBP

Other features
- 12-lead ECG analysis
- 72-hour, 5 waveforms full disclosure
- Battery operation

Life Scope TR

BSM-6000 series

TFT LCD touch screen
BSM-6301: 10.4-inch, BSM-6501: 12.1-inch, BSM-6701: 15-inch

Number of waveforms: 15

Basic parameters
ECG, RESP, NIBP (iNIBP), SpO_2 (Nihon Kohden, Nellcor OxiMax or Masimo SET), TEMP

MULTI connector parameters: up to 7
IBP, TEMP, CO, CO_2 (mainstream), BIS, SpO_2-2*, NMT

Options
Hemodynamic unit (PiCCO, ProAQT, CeVOX), Multigas, FLOW/Paw, EEG, esCCO

Other features
- 12-lead ECG analysis
- 72-hour, 5 waveforms full disclosure
- Dual battery configuration
- Transport function*

*depending on the monitor configuration

Detachable input unit

Bedside Monitors

Peace of mind monitoring

Vismo

PVM-4763/4753/4733/4761/4751/4731

10.4-inch color TFT LCD touch screen

Number of waveforms
PVM-4763/4753/4733: 6
PVM-4761/4751/4731: 4

Basic parameters
ECG, RESP, NIBP (iNIBP), SpO_2 (Nihon Kohden, Nellcor, Masimo), TEMP

MULTI connector parameters (PVM-4763/4753/4733 only)
IBP, CO_2

Option
esCCO

Other features
- Illustrated tutorial guide

Vismo

PVM-2701 **PVM-2703**

PVM-2701/PVM-2703

10.4-inch color TFT LCD touch screen

Number of waveforms
PVM-2701: 4, PVM-2703: 5

Basic parameters
ECG, RESP, NIBP, SpO_2, TEMP

MULTI connector parameters (PVM-2703 only)
IBP, CO_2

Option
iNIBP, esCCO

Other features
- 3-hour battery operation
- 120-hour, 1 waveform full disclosure

CO_2 Monitors

cap-TEN

OLG-3800

7-inch color TFT LCD touch screen

- $ETCO_2$, RESP, SpO_2*, Pulse rate*
- Audible cue function for appropriate manual ventilation (Refer to page 28)
- 120-hour trend graphs/ Tabular Trend/Full disclosure
- Alarm function
- AC or 5-hour battery operation

*Options

Smart workflow to improve patient outcomes

SVM-7160/7130

8-inch color TFT LCD touch screen

Number of waveforms : 1

Basic parameters
NIBP (iNIBP), SpO_2 (Nihon Kohden, Masimo), TEMP

Other features
- Illustrated tutorial guide
- Scoring

SVM-7260/7250/7230

8-inch color TFT LCD touch screen

Number of waveforms : 1

Basic parameters
NIBP (iNIBP), SpO_2 (Nihon Kohden, Nellcor, Masimo), TEMP

Other features
- Illustrated tutorial guide
- Scoring

Ventilators

Treasure Every Breath®

NKV-550

- Adult, pediatric and neonatal
- Comprehensive modes and breath types
- Invasive ventilation, non-invasive ventilation, and high flow oxygen therapy
- Gentle Lung® package for lung protection applications
- Protective Control® for contagious disease and radiologic procedure applications
- Airway care apps (inline and open airway suction app's)
- Built-in SpO_2 and CO_2 monitors
- Nihon Kohden connectivity (bedside and central monitoring

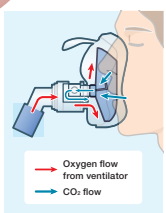
Seamless Care: Every Patient, Every Breath

NKV-330

- Multiple non-invasive ventilation modes including PC, PRVC, PS and S/T
- High flow oxygen therapy
- Intuitive interface
- Continuous CO_2 and SpO_2 monitoring
- 72 hours full disclosure waveforms, alarm and operation logs, patient measurements.
- Easily viewable ventilator alarm
- Superior Transportability: one action to detach from the cart
- 'Hot swap' main battery to ensure continuous operation
- Dual HEPA filter protection

NPPV mask

- Designed to fit any facial shape with minimal patient disconform and skin damage
- CO_2 monitoring during NPPV therapy with the combination of cap-ONE, Nihon Kohden's new class of ultra-compact CO_2 sensor
- Adjustable forehead cushion support arm



Electrocardiographs

cardiofax G

ECG-2550

- 12 or 15 channels
- 210 mm paper
- 15-inch backlit color and flexible arm display
- Actual paper size display and touch screen
- Onscreen guide and lead check function
- Synthesized 18-lead ECG (option)

cardiofax V

ECG-2450

- 12 or 15 channels
- 210 mm paper
- On screen guide and lead check function
- DICOM/PDF output
- Synthesized 18-lead ECG (option)
- Stress test (option)
- Signal Average ECG (option)
- 12-inch backlit color display, touch screen

cardiofax M

ECG-2350/2360

- 12 channels
- 210 mm paper
- 7-inch backlit color LCD
- Flexible display
- Synthesized 18-lead ECG (option)
- DICOM/PDF output

cardiofax S

ECG-2250

- 6 channels
- 110 mm paper
- 7-inch backlit color LCD
- DICOM/PDF output

cardiofax S

ECG-1250K

- 6 channels
- 110 mm paper
- 5.7-inch backlit color LCD

cardiofax C

ECG-2150

- 3 channels
- 63 mm paper
- 4.8-inch backlit LCD

cardiofax C

ECG-3150

- 3 channels
- 63 mm paper
- 5-inch color TFT
- DICOM/PDF output
- Web Server realizes simple ECG viewer on your PC/tablet/smartphone

Veterinary Use

cardiofax VET

ECG-1950K

- 6 channels
- 110 mm paper
- 5.7-inch backlit color LCD
- Interpretation

You can set animal type, age and position.

Electrocardiographs

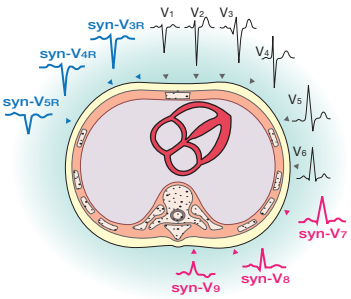
Synthesized 18-lead ECG

What is Synthesized 18-lead ECG?

The most common ECG exam is the standard 12-lead ECG. It is simple to measure, has low burden on the body, and observing the heart from these 12 directions provides a lot of information which has a wide range of clinical applications.

However, some areas, especially pathological change in the right ventricle and the posterior wall cannot be observed from the 12-lead ECG.

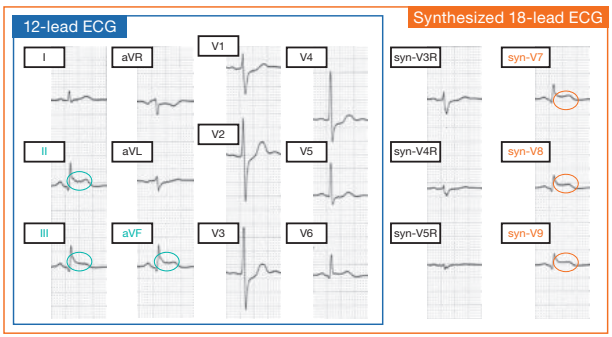
In order to actually measure the right chest (V3R, V4R, V5R) and back (V7, V8, V9) areas, it is necessary to use different electrode positions than the standard 12-lead ECG. In particular, electrodes must also be attached to the patient's back so that normal suction cup electrodes cannot be used. Also, the patient must be turned over in some cases and in an emergency it is often difficult to use back electrodes. This complicates the exam procedure.



Synthesized right side leads (V3R – V5R) and synthesized back leads (V7 – V9) are added

Synthesized 18-lead ECG uses the 12-lead ECG waveforms to mathematically derive the waveforms of the right chest leads (V3R, V4R, V5R) and back leads (V7, V8, V9).

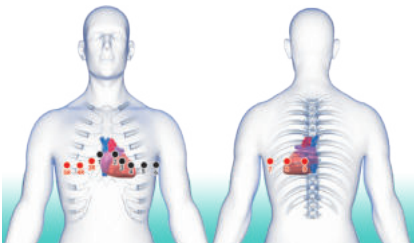
The measurement procedure is the same as the standard 12-lead ECG but more information can be obtained. 18-lead synthesized ECG is expected to be useful in detecting right side and posterior infarction.



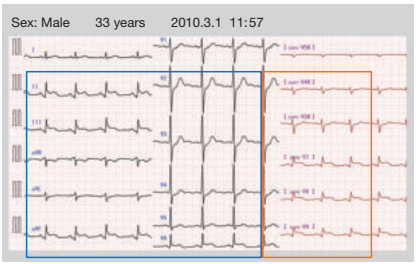
synECi 18
Synthesized Electrocardiogram

Principle of synthesized waveforms

Instantaneous cardioelectric vectors are continuously measured from the standard 12-lead ECG data and ECG of the right leads (V3R, V4R, V5R) and back leads (V7, V8, V9) is synthesized from this data.

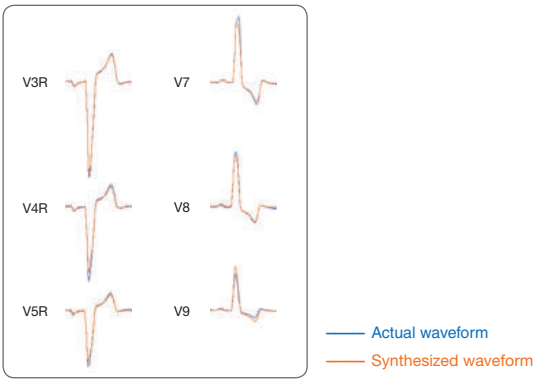


Instantaneous cardioelectric vectors are continuously calculated from actual leads.



Right leads (V3R - V5R) and back leads (V7 - V9) are synthesized from the cardioelectric vector data.

The following example shows actually measured waveforms and synthesized waveforms. Other data also has good correlation with actually measured ECG. This suggests that we can obtain useful information which corresponds to the condition of the heart.



Defibrillators

cardiolife

TEC-5601/5611/5621/5631

- 6.5-inch TFT LCD
- Smart Cable (Refer to page 16)
- SpO_2, CO_2, ECG, NIBP (iNIBP, refer to page 14)
- Artifact suppression pads, P-700
- Audible Cue function for appropriate manual ventilation
- CPR feedback

CPR assist

CPR-1100

Improve quality of resuscitation

See and hear, evaluate, and manage the quality of resuscitation.

cardiolife

TEC-8321K, TEC-8322K, TEC-8332K, TEC-8342K, TEC-8352K

- 8.4-inch TFT LCD
- Smart Cable (Refer to page 16)
- SpO_2, CO_2, ECG, IBP, Temp, NIBP (8342K, 8352K)
- synECi synthesized 18-lead ECG (Refer to page 24-25)
- esCCO (Refer to page 16)
- 12-lead ECG data transmission

Transitioning Back to Life

Ensure quality of CPR

Early indicator for ROSC during CPR

Confirm tracheal tube position

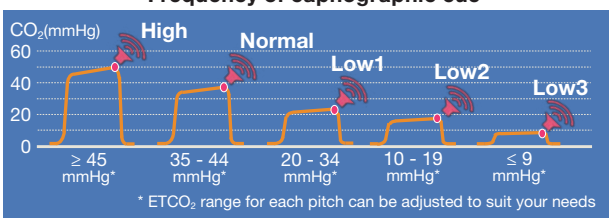
cardiolifeEMS

EMS-1052

- 6.5-inch color LCD with touch screen
- Smart cable (Refer to page 16)
- SpO_2, CO_2, ECG, IBP, Temp, NIBP (iNIBP, refer to page 14)
- synECi synthesized 18-lead ECG (Refer to page 24-25)
- esCCO (Refer to page 14)
- Data transmission for 12-lead ECG and other parameters
- Artifact suppression pads, P-700
- Audible Cue function for appropriate manual ventilation
- CPR feedback

Improve Manual Ventilation and CPR with $ETCO_2$ Audible Cue

Frequency of capnographic cue



$ETCO_2$ Audible Cue helps the caregiver manage $ETCO_2$ during manual ventilation and CPR by delivering 5 different, easily recognizable sounds to indicate 5 ranges from high to low $ETCO_2$. Audible Cue provides the caregiver with instant feedback about $ETCO_2$ level changes – without needing to look at the monitor.

Defibrillators

Options

CO_2/SpO_2/NIBP/CPR

- interface unit for SpO_2/CO_2 unit (QI-564V), for TEC-5600
- interface unit for SpO_2/CO_2/NIBP (QI-565V), for TEC-5600
- NIBP unit, SG-565V, for TEC-5600
  iNIBP available (Refer to page14)
- CPR assist, CPR-1100, for TEC-5600/EMS-1052

cap-ONE
ORAL NASAL EXPIRATION
cap-ONE mask

- CO_2 sensor kit, TG-920P (P907)
- CO_2 sensor kit, TG-980P (P910A)
- Airway adapter
- Nasal/oral adapter
- CO_2 sensor kit oxygen mask (All above items: Refer to page 40)

- SpO_2 connection cord, JL-900P, 2.5 m (K931)
- Reusable SpO_2 probe, TL-201T2 (P225F)

Internal paddles for TEC-5600/8300

- Without switch
  (ND-863V/864V/865V/866V/867V)
- With switch
  (ND-893V/894V/895V/896V/897V)

Disposable pads

P-711

P-713

- Disposable pads
  for adult/pediatric, P-711 (H329)
  for infant, P-713 (H330)
- Disposable pads for X-ray,
  P-511X (H327A)
- Disposable pad adapter cable,
  JC-865V (K342B), 2m
  JC-165V, 1m

Other

- Defibrillator report viewer software for PC (QP-551VK)

- Battery charger
  (SB-551V), for TEC-5600
  (SB-801V), for TEC-8300
  (SB-101V), for EMS-1052

Take action, Save a life

Step 1. Open the lid

Step 2. Attach the pads to the patient

Step 3. Push the button

cardiolife AED

AED-3100

Options
- Carrying bag (YC-310V)
- Wall mount kit (KG-202V)
- Defibrillator report viewer software (QP-551VK)
- AED box (YZ-042H8)
- Rescue kit (YZ-043H3)

Consumables
- Battery pack (SB-310V)
- Defibrillation pads (P-740K)

cardiolife AED

AED-2152K
(with display and semi-auto mode)

Options
- Carrying bag (Y184A)
- Wall mount kit (KG-202V)
- Defibrillator report viewer software (QP-551VK)
- AED box (YZ-042H8)
- Battery Charger for SB-220V (SB-205V)

Consumables
- Battery pack (SB-212VK, SB-214VK)
- Rechargeable battery for AED-2152K (SB-220V)
- Defibrillation pads (P-740K)

Transfer patient to a Nihon Kohden defibrillator

The AED-2152K/3100 defibrillation pads can be connected to an EMS-1052 defibrillator and a TEC-5600/8300 series defibrillator with JC-165V or JC-865V (K342B). This lets you transfer the patient from the rescue site to the ambulance and hospital without removing the pads.

Electroencephalographs

Routine EEG

Neurofax

EEG-1200J/K

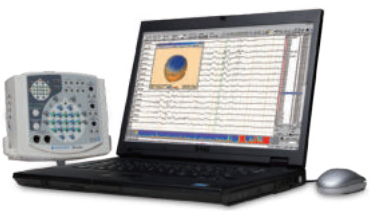
- 32-channel junction box with SpO_2/$ETCO_2$ connector
- Zooming function
- Voltage mapping
- Frequency mapping
- DSA trendgraph for a fast review
- EEG Portaview software
- NeuroWorkbench software for data management
- Syncronized video image (resolution adjustable up to Full HD)

Portable EEG

Neurofax μ

EEG-9100J/K

- 32-channel junction box with SpO_2/$ETCO_2$ connector
- Zooming function
- Voltage mapping
- DSA trendgraph
- EEG Portaview software
- NeuroWorkbench software for data management



Epilepsy Monitoring

Neurofax

EEG-1200J/K with JE-120A

- 256, 192, 128 or 64-channel junction box
- 10 KHz sampling rate
- LAN connectivity by QI-123A (IP addressable)
- EEG report software
- Zooming function
- Voltage mapping
- Frequency mapping
- DSA trendgraph for a fast review
- EEG auto editor for a fast clipping
- Slide show function for conference
- EEG scope for look back
- Full HD video synchronized with EEG waveforms (option)
- Heart rate, SpO_2, $ETCO_2$ for vital sign monitoring (option)
- Neuro Portaview can transfer data by CD-R
- NeuroWorkbench software for data management

Functional brain mapping test

PE-210AK + MS-120BK with JE-120A

- Sophisticated software control for functional brain mapping test
- Electrode position map with brain images
- Online quick report generation
- Alternative, Biphasic stimulation with MS-120BK

Electroencephalographs

ICU/ NICU aEEG Monitoring

Neurofax

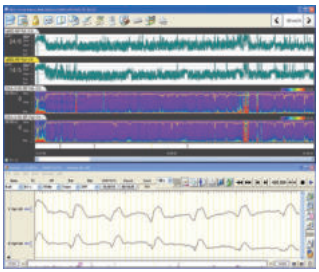
EEG-1250

Save lives with aEEG monitoring in the ICU/NICU

- Space-saving design EEG
- 32-channel junction box with SpO_2 / $ETCO_2$ connector
- aEEG monitoring with QP-160AK software (option)
- Shielded electrodes (option)
- Synchronized digital video with QP-110AK (option)
- Remote monitoring with NeuroWorkbench

QP-160AK EEG trend program

EEG trend monitoring program is designed to monitor long term EEG trends at ICU/ NICU.



- aEEG
- DSA (Density Spectral Array)
- DSA asymmetry
- FFT power
- FFT asymmetry
- FFT power ratio
- Burst suppression ratio
- Burst per minute
- Inter burst interval

EEG head set

CerebAir

AE-120A

Quick and simple EEG monitoring for ER/ICU

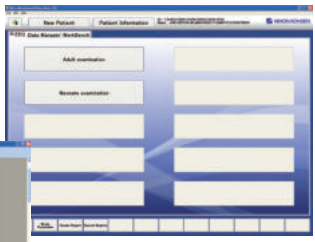
- Fixed electrode position
- Disposable electrode with refilled gel
- No skin preparation needed
- User friendly software guides
- Wireless transmittion using Bluetooth
- Noise-robust

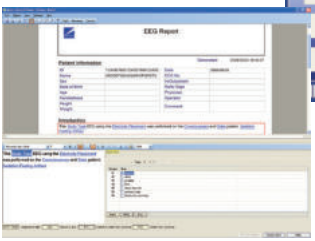
*Use with EEG-1200/1250/9100

Standard Software

NeuroWorkbench

- Scheduling
- Patient database
- EEG reports



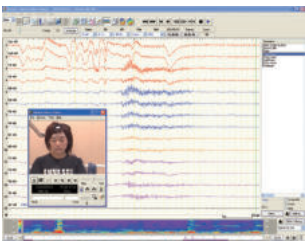


NeuroReport

- Create customised report
- Export reports as PDF

Optional Software

Digital Video Software (QP-110AK)



Synchronized digital video for EEG systems

- Precise synchronized patient image with EEG waveforms
- IP camera connectivity for up to Full HD (1,920x1,080) resolution with software PTZ (Pan, Tilt, Zoom) control
- Video data management by NeuroWorkbench database

Wireless Input Unit

aireeg

WEE-1200

Wireless gives freedom

- Comfortable, wearable transmitter
- Simple operation
- Seamless data acquisition
- Long battery operation
- Wide range of wireless channel options
- 32/64 channel model

*Use with EEG-1200/1250

EP/EMG Measuring Systems

Routine EP/EMG

Neuropack X1

MEB-2300K

- 6 or 12-channel junction box with head montage
- 18 bit A/D conversion rate for smooth waveform
- Integrated NCS & NCS2 menu (MCS, SCS, F-wave)
- EMG, EMG2, QEMG, SFEMG
- Reflex study (Blink, H-reflex)
- Auditory Evoked Potential (ABR, MIR, SVR, VEMP)
- Visual Evoked Potential (Pattern, Goggle, Flash, ERG, EOG)
- Somatory Evoked Potential (SEP)

Optional Software

Trend monitoring software

- IOM (Intraoperative Monitoring)
- EP/CSA, EP/DSA, CSA/DSA, Multi-trend

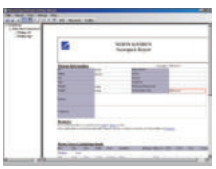
Event related potentials software

- P300
- MRCP (Movement Related Cortical Potential)
- CNV (Contingent Negative Variation)

Autonomic nervous system test software

- Micro-N (Microneurography)
- SSR (Sympathetic Skin Response)
- R-R interval analysis

Standard Software



NeuroReport

- Create customized reports
- Save reports as PDF

NeuroNavi

- On-screen guide to examination procedures

Routine, Portable EP/EMG

Neuropack S3

MEB-9600K

- 2 or 4-channel junction box
- 18bit A/D coversion rate for smooth waveform
- Laptop model can be fit into hand-carry luggage
- Angle adjustable stimulator RY-960B (Option)
- Function keys and numeric keys are on the main unit for faster operation
- NeuroNavi (On-screen examination guide)
- NeuroReport for customized report

- Select only necessary program

QL-971BK	Somatosensory Evoked Potential
QL-972BK	Auditory Evoked Potential
QL-973BK	Visual Evoked Potential
QL-974BK	EMG examination
QL-975BK	Nerve Conduction
QL-976BK	Quantitive EMG
QL-977BK	Single Fiber and macro EMG
QL-978BK	Autonomic Nervous system
QL-979BK	Event related potential

Intraoperative Monitoring System

Neuromaster G1

MEE-2000

- Flexible and multimodality monitoring is available, including SEP/TcMEP/ABR/Auditory nerve function, Facial nerve mapping and spontaneous EMG
- Choice of Panel PC and Laptop PC
- Selection from 16 channels or 32 channels
- Up to 4 Breakout boxes with 16 inputs
- Up to 4 daisy chain stimulation pod
- In-built High current/High voltage stimulator
- ESU detection probe to mute the sound
- Remote access from review station

JB-916B Amp unit

- 16 channels (Evoked Potential 4 channel, EMG 12 channels)
- Head montage image on the junction box for easy connection
- Preset condition for quick setting (Neurosurgery, Orthopedic, Cardiovascular)
- Stimulators connection guide with illustration

Sleep Study

Sleep Study

PSG-1100

- Full 10-20 recording capability with PSG channels
- 100 MΩ input impedance
- Internal pressure transducer
- Internal SpO_2
- Internal $ETCO_2$ with exclusive cap-ONE technology (option)
- Dedicated EKG reference
- Internal memory
- IP addressable

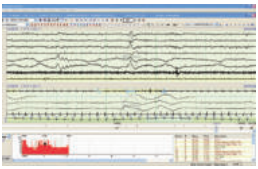
PMU800
(Home sleep testing device)

- Thermistor airflow
- Pressure airflow
- Snore sensor
- 2 respiratory effort
- Built-in body position sensor
- Built-in SpO_2
- 2 PLM leg movement

Polysmith Software

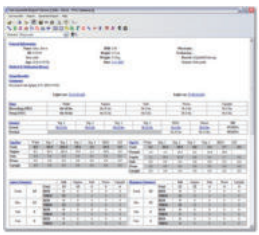
Polysmith sleep systems
Polysmith software is used in a variety of sleep lab environments and provides a comprehensive approach to studying your patients. From easy to use scoring and recording tools to convenient remote access solutions, Polysmith allows you to work with your entire lab's data from the convenience of the control room.

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



- Live trending of multiple parameters
- Selectable video and audio quality
- On-line scoring and editing
- On-line AHI and sleep time
- Remote viewing of live data
- Auto append
- Automatic MSLT timer and recording tool
- Off-line video monitoring

In the ever changing sleep medicine environment, the only constant is the need for quick and efficient data scoring and processing.
– Polysmith offers the following features:

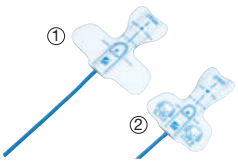


- Automated analysis
- Manual scoring and editing of data
- Custom montages
- Single click editing
- Auto updating of patient information
- Auto record tracking
- LTM tool for use with LTM EEG or EMU file
- Configurable keyboard and mouse key
- Edit scoring from trend plots

Report generator view

SpO_2 Probes, single-patient use

BluPRO

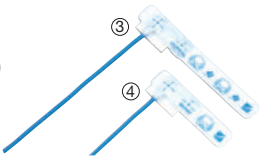


① Adult finger/toe, TL-271T
(P203A/P203E/P204A/P204E)

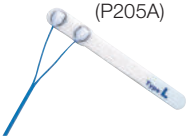
② Child finger/toe, TL-272T
(P203B/P203F/P204B/P204F)

③ Neonate instep, TL-273T
(P203C/P203G/P204C/P204G)

④ Infant finger/toe, TL-274T
(P203D/P203H/P204D/P204H)



Premature baby, for premature's skin, TL-260T
(P205A)



Tape S
(P260E)

Tape L
(P260F)

Ear clip
(P256)

Neonates and preterm infants, for premature's skin,TL-535U
(P206)

Attachment tape for TL-535U,
⑤ Tape S, YS-102P0 (264A)
⑥ Tape L, YS-102P1 (264B)

NIBP Cuffs

Yawara(kai) means "soft to the touch"

YAWARA CUFF 2, YP-710 Series
S951A infant, 5 cm
S951B child, 7 cm
S951C adult, 10 cm
S951D adult, 13 cm
S951E adult, 16 cm
S951F thigh, 19 cm

SpO_2 Probes, reusable

BluPRO

Finger,
TL-201T (P225F)

Multi-site,
TL-220T (P225G)

Finger-tip, regular
TL-631T3 (P311C)

Finger-tip, large
TL-630T3 (P310C)

Disposable cuff for neonate, YP-840 Series

S954A 5 cm
S954B 7 cm
S954C 10 cm
S954D 13 cm
S954E 16 cm
S954F 19 cm

CO_2 Sensors

cap-ONE ORAL NASAL EXPIRATION

Both intubated and non-intubated patients

cap-ONE, an ultra compact and highly durable sensor, will change your image of main stream CO_2 sensors being easy to break. cap-ONE provides accurate and stable CO_2 monitoring for both intubated and non-intubated patients.

cap-ONE mask

Ensure quality of care during sedation

cap-ONE mask is an originally designed open face oxygen mask for patients who are receiving supplemental oxygen. The combination of cap-ONE (TG-980P) and cap-ONE mask reliably detects respiratory depression and avoid serious complications in all care levels.

CO2 sensor kit cap-ONE ORAL NASAL EXPIRATION

CO_2 sensor kit, TG-980P (P910A)
with MULTI connector

CO_2 sensor kit, TG-920P (P907)
with MULTI connector

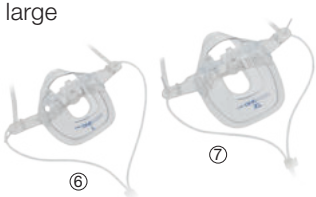
TG-921T3 (P908)
with mini DIN connector

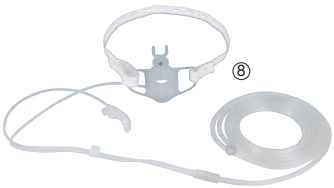
Use with TG-980P

Airway adapter,
① YG-211T (R805) adult
② YG-213T (R806) neonate/infant
③ YG-214T (R807) neonate/infant
with flow sensor

CO_2 sensor kit oxygen mask,
④ YG-242T (V935) infant
⑤ YG-232T (V933) pediatric
⑥ YG-272T (V938A) adult
⑦ YG-282T (V938C) adult, large

cap-ONE mask

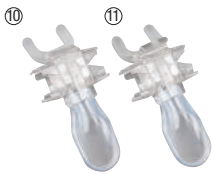




Adult cap-ONE biteblock
⑧ YG-227T (V939A)

Use with TG-920P/TG-921T3

Airway adapter,
⑨ YG-111T (R804)



Nasal/oral adapter,
⑩ YG-121T (V922)
⑪ YG-122T (V923)

Nasal/oral adapter,
(for PSG measurement)
⑫ YG-125T (V928) adult
⑬ YG-135T (V929) child

Disposable Electrodes

Vitrode L **general use**

L-150X (G207) radiolucent
35 mm dia, 150 pcs

Vitrode F **less irritation**

Adult, low irritation,
F-150M (G210D)
25 x 45 mm, 150 pcs

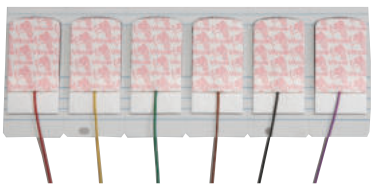
Neonate to child, low irritation,
F-150S (G210C)
19 x 36 mm, 150 pcs

Vitrode M

Adult, exercise test,
M-150 (G236)
40 mm dia, 150 pcs

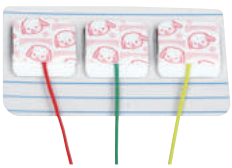
Disposable Electrodes, prewired

Vitrode V



Adult/Child
25 x 45 mm
3/4/6-lead type
available

Infant/Neonate
V-120S3 (G271A)
20 x 20 mm
3 x 40 packs



Paste and Gel

Elefix

EEG paste
Z-401CE (F510), 400 g jars x 3

Z-181JE (F509), 180 g tubes x 10
Z-181BE (F507), 180 g tubes x 2

skinPure

Skin preparation gel, 135 g x 2
YZ-0019 (F020)

cardioCream

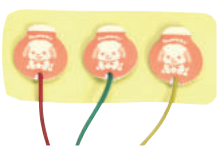
Paste for ECG, 100 g x 2
Z-101BC (F010)

Gelaid

Paste for defibrillation, 100 g x 2
Z-101BA (F015A)

Vitrode N

NICU
N-03IS3 (G300A)
14 x 25 mm
3 x 10 packs



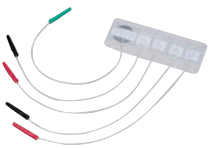
NICU
N-01IS3 (G300D)
15 mm dia
3 x 10 packs

Accessories and Consumables

NCS Disposable Electrodes

NM-317Y3 (H690)
2 recording electrodes and
1 ground electrode

NM-319Y (H691)
4 recording electrodes



NM-316Y (H692)
4 recording electrodes and 1 ground electrode

NM-310Y (H693)
1 large ground electrode

NM-314YS (H694A)
4MEP/SEP electrodes

Disposable Electrodes for aEEG

NE-05IS3 (H544A)
5 leads, 0.6 m
5 x 5 packs

ECG Resusable Chest Electrodes

Child

Code	Type	Qty	Tip size
H042C	Octopus	3	3 mm
H042D	Bear	3	3 mm
H044A	Octopus	3	4 mm
H044B	Bear	3	4 mm
H042E	6 colors	6	3 mm
H044C	6 colors	6	4 mm

Suction rubber

Code	Type	Qty
H052A	Octopus	3
H052B	Bear	3

Adult

Code(Model)	Qty	Tip size
H041A (-)	3	3 mm
H043A (-)	3	4 mm

Suction rubber

Code(Model)	Qty
H049 (-)	3

Shielded Connection Cable

BM-120A (K640)
2.1 m

Hematology Analyzers

Celltac G

MEK-9100

- 33 parameters with WBC 5 part differential
- Up to 90 samples per hour
- Continuous loading of samples via rack fed system up to 7 racks of 10 tubes
- STAT / manual sample analysis
- Integrated validation station with touch screen
- Reagent and controls management with barcode
- Smart ColoRac Match system

Celltac ES

MEK-7300K

- 23 parameters with WBC 5 part differential
- 10.4-inch TFT-LCD
- Open/Closed/Pre-dilution/WBC high/WBC low/Capillary
- Advanced count for low PLT or WBC
- Over 15,000 results stored in SD card

Celltac α

MEK-6500J/K, MEK-6510J/K

- 19 parameters with WBC 3 part differential
- Open/Closed/Pre-dilution/WBC high/WBC low/Capillary
- Closed mode (available on MEK-6500 J/K series)
- Over 15,000 results stored in SD card

Reagents and Controls

Hematology control

MEK-5DN, normal
MEK-5DL, low
MEK-5DH, high

Hematology control

MEK-3DN, normal
MEK-3DL, low
MEK-3DH, high

Calibrator

MEK-CAL

Diluent

Isotonac・3

Hemolyzing reagent for CBC

Hemolynac・3N
Hemolynac 310

Hemolyzing reagent for Diff

Hemolynac・5
Hemolynac 510

Detergent

Cleanac
Clearnac 710

Detergent (Bleach)

Cleanac・3
Clearnac 810

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Some products may not be available in your country.
Contact your Nihon Kohden representative for details.

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