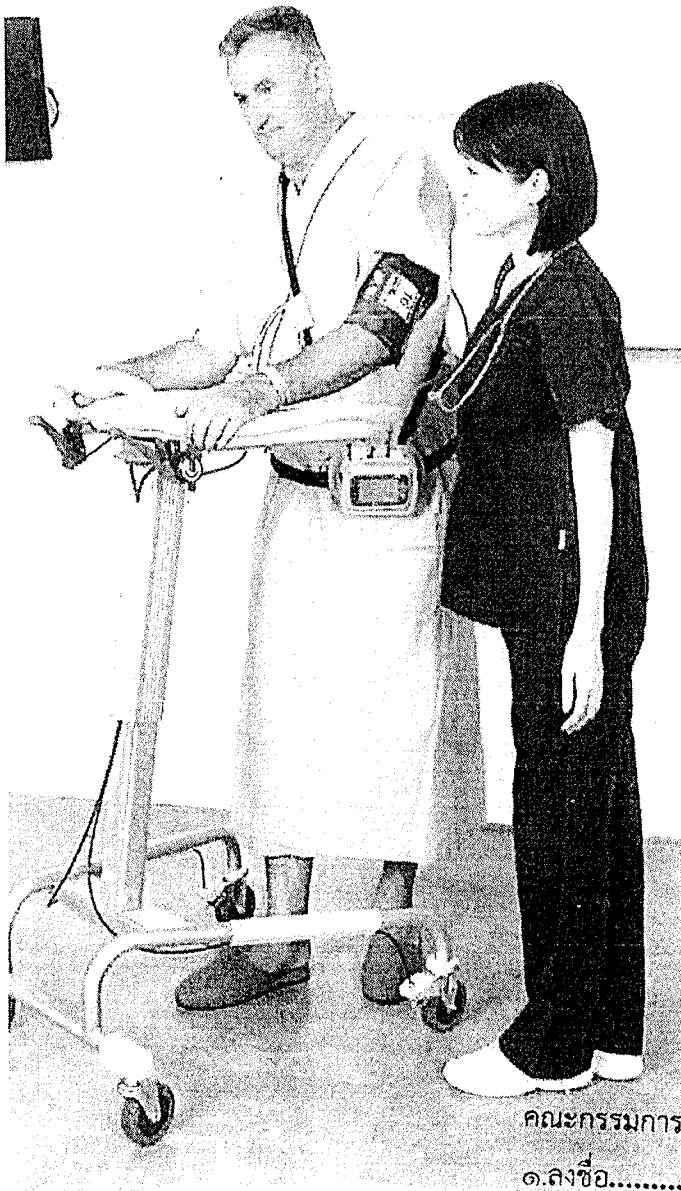


# Safety

The Life Scope G3 is a wearable vital sign telemeter which monitors ECG, respiration, SpO<sub>2</sub> and NIBP to support various phases of ambulatory patient care such as rehabilitation or transportation.

## Anywhere

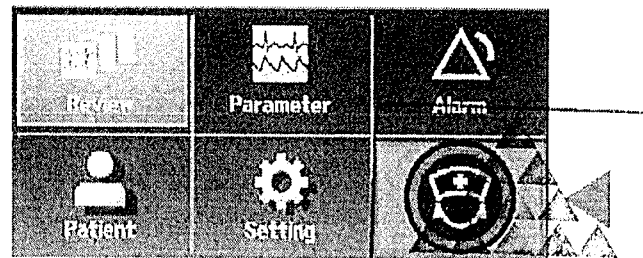
You can confirm the patient's vital signs and waveforms on the Life Scope G3 display. Even if the patient is outside the telemetry network area, the Life Scope G3 alarm gives notice of sudden change in patient condition.



## Nurse call



The patient can notify the caregiver with the nurse call key.



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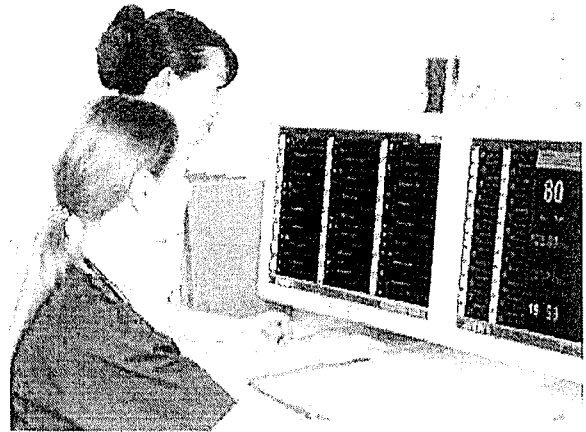
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# Streamlining

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



## Advanced alarm management

Life Scope G3 has two alarm modes. When directly monitoring the patient, monitor mode sounds alarms at both the central monitor and the Life Scope G3. To create a quiet bedside environment for the patient, telemetry mode silences alarms at the patient side and alarms only sound at the central monitor.

An alarm indicator shows the patient's alarm status with three different colors.



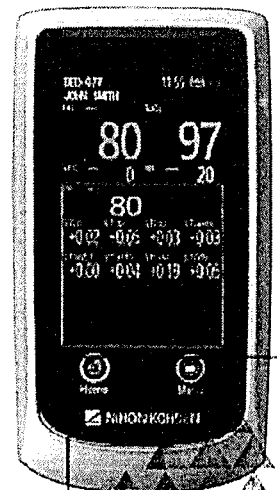
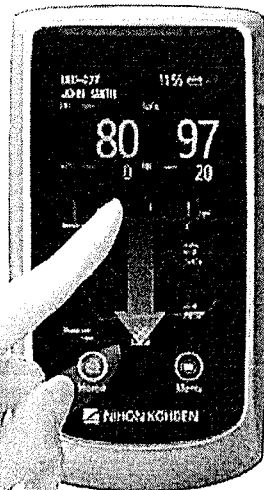
## Long battery operation time

With AA batteries, the Life Scope G3 can monitor ECG, SpO<sub>2</sub>, respiration and NIBP for at least 24 hours in telemetry mode.

To save battery power, the display turns off after a specified period of inactivity.

## Intuitive operation

Intuitive touch panel operation, such as swiping of numeric values to show details or swiping to scroll waveforms, makes the Life Scope G3 very easy to use. You have fast access to important information.



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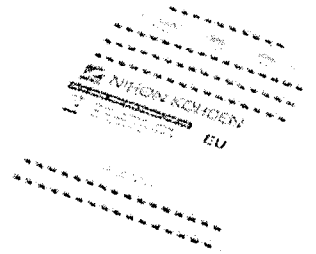


# Seamless

Robust network configuration, data backup, and water-resistant construction ensure reliable patient care.

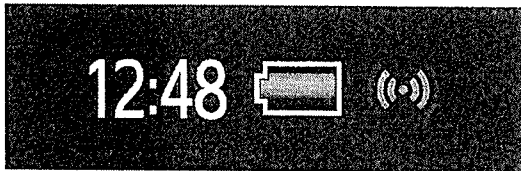
## Robust network configuration

Life Scope G3 uses IEEE 802.11a/b/g/n protocols for robust and faster communication. Life Scope G3 supports WEP, WPA-PSK (TKIP), WPA2-PSK (AES) and IEEE802.1X (PEAP, EAP-TLS) encryption for advanced data security tailored to your hospital environment.



## Data backup

The communication status icon shows the radio field strength. Even if the patient goes outside the telemetry area, you can check the latest 1 hour vital sign data stored in Life Scope G3.



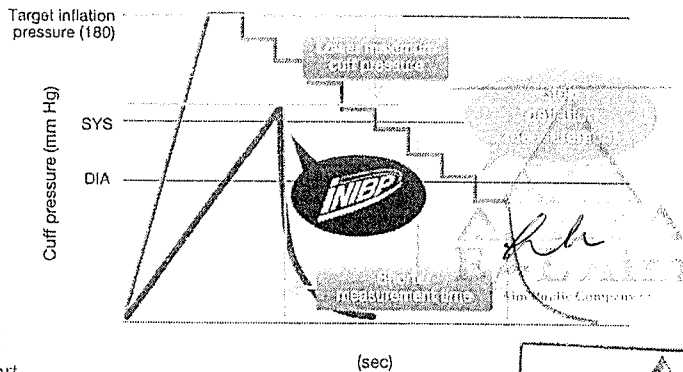
## Nihon Kohden technology inside

**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.

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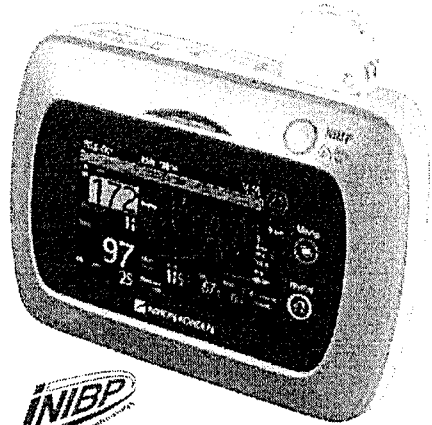
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GZ-130P:  
ECG, Respiration, SpO<sub>2</sub>



GZ-140P:  
ECG, Respiration, SpO<sub>2</sub>, NIBP

## Quick intervention

A 3.2-inch wide screen shows waveforms and helps when quick action is needed.

Even if patient's blood pressure gets increased, iNIBP provides fast and painless measurement of NIBP.



## Enhanced cardiology care

Life Scope G3 supports 3- and 6-lead ECG and detects 23 types of arrhythmia. It also has an arrhythmia recall screen. This reduces the chance of missing a change in the patient's cardiac status.

## Review at the patient's side

You can review full disclosure waves, vital sign trend and a wide range of data\* at the patient's side without going to the central station.

\*24 hours data can be displayed when Life Scope G3 is connected to the central station.

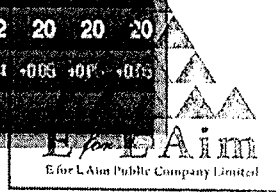
Arrhythmia Recall	
12/08 12:51:49	V FB
12/08 12:51:54	VPC
12/08 12:52:00	V TACHY
12/08 12:52:55	V TACHY
12/08 12:53:00	VPC
12/08 12:53:05	VPC

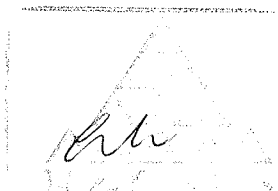
Total Items: 15

Full Disclosure	
12/08 12:48:20 - 12:49:20	
1mV	[ECG waveform]
1mV	[ECG waveform]
1mV	[ECG waveform]
1mV	[ECG waveform]
1mV	[ECG waveform]
1mV	[ECG waveform]
1mV	[ECG waveform]


Tabular Trend	
	12/08 17:44 17:45 17:46 17:47 17:48
HR (b/min)	80 72 80 80 80
VPC (b/min)	2 49 0 0 0
SpO <sub>2</sub>	97 97 97 97 80
PR (b/min)	80 72 80 80 80
RR (b/min)	21 22 20 20 20
ST/ST (mV)	-0.08 +0.01 +0.03 +0.1* +0.13

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Photographs taken at: Medical Design Studio, Paramount Bed Co., Ltd., Tokyo, Japan  
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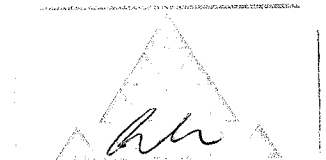
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# Technical Data

Life Scope G3

GZ-140P

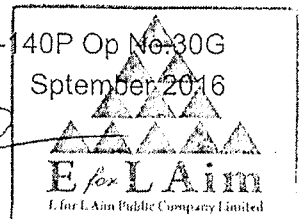
Vital Sign Telemeter



Fighting Disease with Electronics

**NIHON KOHDEN**

TD. GZ-140P Op No-30G  
September 2016



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## FEATURES

The Life Scope G3 GZ-140P vital sign telemeter is an ultra compact telemeter with 4 parameters. You can connect it to a patient and use it as a vital sign telemeter in Nihon Kohden monitoring system. The patient's vital signs are displayed on a small color touchscreen.

It can also generate alarms in Monitor mode.

Life Scope G3 GZ-140P is designed for use by qualified medical personnel in a medical facility such as a hospital or clinic. It is not designed for use outdoors or in a home environment, and is not designed to be operated by the patients themselves.

### Built-in arrhythmia analysis

Life Scope GZ-140P has the same advanced arrhythmia analysis (EC1 library, 25 items) as Nihon Kohden bedside monitors.

### High resolution, TFT color touchscreen 3.3.1, 4.3.1

The 3.2-inch TFT color touchscreen can display 3 waves and 7 numeric data so you can confirm the vital signs and review data at the patient side.

### Review function

#### Full disclosure

The full disclosure window displays a single trace 1-hour full disclosure waveform.

#### Tabular trend

The tabular trend window displays the past 1 hour of measured data for all parameters. The display interval can be set to 1, 5, 10, 15, 30, or 60 minutes.

#### Arrhythmia recall

The arrhythmia recall window displays the latest 720 arrhythmias.

#### Alarm history

The alarm history window shows the time and details of all alarms and alarm-off operations for up to 1,000 events.

#### Review data from central monitor

The vital sign telemeter can display review data and 24 hours of data from the central monitor.

NOTE: The alarm history saved on the central monitor is not displayed on the Life Scope GZ-140P. Only the 1,000 items saved on the vital sign telemeter can be displayed.

### Long battery operation time 3.3.1, 4.3.2

With just three AA (LR6) batteries, the Life Scope G3 GZ-140P can continuously monitor ECG, SpO<sub>2</sub>, NIBP and respiratory for 24 hours in telemetry mode.

### SpO<sub>2</sub> analysis algorithm NPI

Life Scope G3 GZ-140P has the same strong artifact rejection as Nihon Kohden bedside monitors.

### IPX1 water resistance

Life Scope G3 GZ-140P meets the IPX1<sup>1</sup> water resistant standard and is protected against accidental spilling of water and cleaning.

<sup>1</sup>When the vital sign telemeter is placed on a flat surface with the display side up

### LS-NET (Life Scope Network) compatible

You can connect the Life Scope GZ-140P to Nihon Kohden central monitors and bedside monitors via LS-NET (Life Scope Network) wireless LAN.

### Wireless communication

Wireless LAN allows large scale telemetry installation. (IEEE 802.11a/b/g/n)

### Alarm escalation

The alarm escalation function automatically escalates the alarm priority if the alarm continues or the SpO<sub>2</sub> drops. Alarm escalation applies to vital alarms (SpO<sub>2</sub> limit and apnea) and technical alarms (ECG and SpO<sub>2</sub>). Alarm escalation can help reduce medical accidents and improve the quality of care.

### iNIBP:

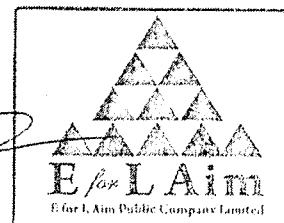
iNIBP is Nihon Kohden's original technology to deliver fast and painless NIBP measurement with lower cuff pressure during the cuff inflation stage. Nihon Kohden's original YAWARA CUFF 2 cuffs reduce bruising for patient comfort and reduce noise for more accurate measurement.

### Arrhythmia detection

Upgraded arrhythmia detection lets you analyze multi-channel ECG.

The multi-template matching method reduces false alarms and assures high quality detection.

25 arrhythmia items can be detected.



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# SPECIFICATIONS

3.4.4.1

## ◆ Measured Parameters

**Waveforms:** 4.4.5.1

ECG, respiration (impedance method), pulse

**Numeric data:**

Heart rate, Respiration rate, SpO<sub>2</sub>, NIBP 4.4.4.4

## ◆ Display

**Size and type:**

3.2-inch TFT color LCD touch screen

3.4.1.1 **Viewing area:**

41.4 × 69.0 mm

4.4.1.1 **Resolution:**

480 × 800 dots

## ◆ Displayed Data

**Numeric data:**

Heart rate, VPC rate (per minute), ST level, respiration rate, SpO<sub>2</sub>, pulse rate, NIBP (Systolic (SYS), diastolic (DIA), mean (MAP))

**Waveform display mode:**

Non-fade fixed

3.4.1.2 **Maximum number of waveforms:**

3

4.4.1.2 **Sweep speed:**

12.5 mm/s

**Waveform display time:**

3.8 s

**Waveform color:** 3.3.4.5.1

ECG: green, Respiration: white, SpO<sub>2</sub>: blue, NIBP: Pink

**Display delay time:**

Filter Off in Monitor mode: ≤250 ms

Filter Maximum mode: ≤1 s

**Sync icons:**

QRS/pulse, respiration

**Other display items:**

Waveform sensitivity, ECG filter, bed ID, patient name, time, battery level, communication status icon, ECG lead

## ◆ Alarm

**Alarm items** 3.4.1.3

**Vital sign upper/lower limit alarms:**

Alarms when the measured value exceeds a limit.

**Arrhythmia alarms:**

Alarms when an arrhythmia is detected.

**Technical alarms (Instrument and measurement environment related alarms):**

Alarms when an abnormality occurs in the device or measurement status.

**Alarm levels**

**CRISIS:**

The highest priority alarm, generated when the patient's life is at risk or there is a risk of injury. Also generated in cases that may affect the maintenance of the Life Scope GZ-140P or system.

**WARNING:**

The priority below CRISIS, generated when the patient's life is at risk or there is a risk of injury or discomfort. Also generated in cases that may affect the functions of the Life Scope GZ-140P or system.

**ADVISORY:**

The lowest priority, generated when there is a risk of minor injury or discomfort to the patient. Also generated when measurement is not possible.

## Alarm indications

3.4.1.4 Alarms are indicated with a message (alarm item), highlighted numeric value, blinking alarm indicator, and alarm sound.

4.4.1.4

**CRISIS:**

Highlighted red message, highlighted numeric value in the parameter color, alarm indicator LED blinks red

**WARNING:**

Highlighted yellow message, highlighted numeric value in the parameter color, alarm indicator LED blinks yellow

**ADVISORY:**

Highlighted cyan or yellow message (selectable), highlighted numeric value in the parameter color, alarm indicator LED lights in cyan or yellow (selectable)

## Alarm silence

Alarm sound and alarm indicator are temporarily deactivated by the Silence Alarms key.

**Silence period:**

1, 2, 3 min, selectable

## Alarm reset

Alarm sound and alarm indicator are indefinitely deactivated by the Reset Alarms key.

## Alarm pause

Alarm is temporarily paused by the Alarm Suspend key.

**Pause period:**

1, 2, 3 min, selectable

## Alarm settings:

Alarm on/off and upper/lower limits can be set separately for each item.

## ◆ Full Disclosure 3.4.1.5

**Storage capacity:**

1 hour (24 hours)<sup>1</sup>

**Stored waves:**

[With 3-lead]

1 ECG

[With 6-lead]

I, II, III, aVR, aVL, aVF, V<sub>a</sub>, V<sub>b</sub>, and Trace1 respiration, SpO<sub>2</sub>



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Display time:  
GZ-140P 10s, 30s, 1min, 3min

◆ **Tabular Trend** 3.4.1.6

Storage capacity:  
1 hour (24 hours)<sup>1</sup> 4.4.1.6

<sup>1</sup> Review data and 24 hours of data from the central monitor

Parameters:  
GZ-140P

HR, VPC, SpO<sub>2</sub>, PR, RR, ST(I), ST(II), ST(III), ST(aVR), ST(aVL), ST(aVF), ST(V1), ST(V2), ST(V3), ST(V4), ST(V5), ST(V6), QT, QTc, QT+HR, QRSd, NIBP-SYS, NIBP-DIA, NIBP-MAP, NIBP-PR

Interval:  
1, 5, 10, 15, 30, 60 min, selectable

◆ **Arrhythmia Recall** 3.4.1.7

Storage capacity:  
720 items (24 hours)<sup>1</sup> 4.4.1.7

<sup>1</sup> Review data and 24 hours of data from the central monitor

Arrhythmia types:

Asystole, VF, VT, Extreme tachycardia, Extreme bradycardia, VPC run, Ventricular bradycardia, SVT, Pause, Tachycardia, Bradycardia, Couplet, Early VPC, Multiform, Ventricular rhythm, Bigeminy, Trigeminy, VPC, Irregular RR, Prolonged RR, Frequent VPC, No pacer pulse, Pacer non-capture, A-FIB

◆ **Alarm History** 3.4.1.8

Storage capacity:  
1,000 items 4.4.1.8

Items:  
Arrhythmia, upper/lower limit, technical, operation

◆ **Sound**

Sync sound  
Generates sound synchronized with the heart beat or pulse when the screen is displayed.

Sync source:  
ECG (heart rate sync) or SpO<sub>2</sub> (pulse rate sync)

Sync sound tone:  
Fixed or SpO<sub>2</sub> pitch

Alarm sound

CRISIS alarm: 3.3.1, 4.3.2  
Continuous pip sound, continuous ping sound or IEC standard

WARNING alarm:  
Continuous bing bong sound, continuous ding ding sound or IEC standard

ADVISORY alarm:  
Single beep every 20 seconds or IEC standard

Key click sound

Click when a key is touched or pressed

Volume:

Sync sound:  
Fixed, can be silenced

Alarm sound:  
Changeable, cannot be silenced

Key click sound:  
Fixed, can be silenced

◆ **Data Backup**

Patient data:

Patient data remains after power off. Patient data can be deleted manually.

Settings:

Upper and lower alarm settings and arrhythmia alarm settings remain after power off. The settings can be changed manually.

Review data:

Review data is deleted at power off.

◆ **Wireless Communication**

Wireless communication standard:  
IEEE 802.11a/b/g/n

Channels (frequency bands):

802.11b/g/n:  
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13  
(2.400–2.483 GHz)

802.11a/n:  
36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140  
(5.150–5.350, 5.470–5.725 GHz)

Security

- WEP
- WPA-Personal: TKIP, AES
- WPA-Enterprise: TKIP, AES, PEAP, EAP-TLS, EAP-FAST, EAP-TTLS, LEAP
- WPA2-Personal: AES
- WPA2-Enterprise: AES, TLS, PEAP, EAP-TLS, EAP-FAST, EAP-TTLS, LEAP
- 802.1X: WEP, PEAP, EAP-TLS, EAP-FAST, EAP-TTLS, LEAP

◆ **Power Requirements**

Operating voltage:  
1.6–3.2 V

Battery type:

GZ-140P: Three AA (R6) batteries. Use either new alkaline batteries or fully charged rechargeable nickel-metal hydride (NiMH) batteries.

Recommended batteries:

Alkaline batteries: Medipower  
NiMH batteries: Panasonic BK-200AAB2B

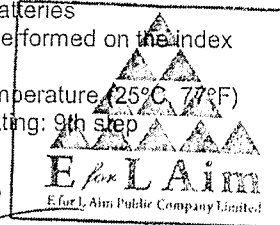
Operation time:

Battery Type	Alkaline	NiMH
Monitor Mode Off	24 hours	24 hours
Monitor Mode On	3 hours	7 hours

Operation time may vary depending on radio wave conditions.

Operation time is measured under the following conditions.

- New alkaline batteries or fully charged rechargeable NiMH batteries
- SpO<sub>2</sub> measurement performed on the index finger of a 60 kg male
- Operation at room temperature (25°C, 77°F)
- Screen brightness setting: 9th step



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- AP scan channel setting: 3 fixed channels (e.g. 36, 64, 100)
- Alarm not operating

◆ ECG

Compliance:  
IEC 60601-2-27:2011

3.4.2.1 Leads:  
3-electrode cable: I, II, III  
4.4.2.1 6-electrode cable: I, II, III, aVR, aVL, aVF, 2 leads from V1 to V6

3.4.2.2 Defibrillation-proof:  
ECG input protected against 400 Ws/DC 5 kV  
4.4.2.2 IEC 60601-2-27:2011 201.8.5.5.1 compatible  
Electrode offset potential tolerance:  
≥ ±500 mV  
Input dynamic range:  
≥ ±5 mV  
Internal noise:  
≤30 µVp-p (referred to input)  
Common mode rejection ratio:  
≥95 dB, IEC 60601-2-27:2011 compatible  
Frequency response:  
Filter Off mode: 0.05–60 Hz (-3 dB)  
Monitor mode: 0.3–40 Hz (-3 dB)  
Filter Maximum mode (hum elimination): 1–18 Hz (-3 dB)  
Input impedance:  
≥5 MΩ at 10 Hz  
≥2.5 MΩ at 0.67–40 Hz

3.4.2.2 ESU protection:  
Provided, IEC 60601-2-27:2011 compatible

4.4.2.2 Pacing pulse detection:  
0.1–2 ms, ±2–700 mV, On/Off selectable

Leads-off sensing:  
Each lead has own sensing  
Operation failure detection:  
Detects leads which may acquire deformed ECG due to offset potential.  
Auto lead number recognition:  
Automatically judges the number of electrodes by the ECG signal and sets the available leads.

Display:  
Display sensitivity:  
5 mm/mV ±5% (at 10 Hz, ×1 sensitivity in Filter Off mode)  
Sweep speed:  
12.5 mm/s ±10%

Channels:  
Up to 3

3.4.2.3 Sensitivity control:  
× 1/4, 1/2, 1, 2, 4, auto

4.4.2.3 Pacing icon display:  
Available

ECG recovery time after defibrillation:  
Within 5 s

Electrode condition:  
Displays CHECK ELECTRODE message

◆ Heart Rate Count

Heart rate detection  
Calculation method:  
Beat to beat moving average

3.4.2.4 Counting range:  
0, 15–300 bpm

4.4.2.4 Counting accuracy<sup>1</sup>:  
±2 bpm

<sup>1</sup> The essential performance is the larger of ±10% or ±5 bpm.

QRS detection (at ×1 sensitivity):

Adult:  
Width: 70–120 ms  
Amplitude: 0.5–5 mV  
Rate: 30–200 bpm

Child/Neonate:  
Width: 40–120 ms  
Amplitude: 0.5–5 mV  
Rate: 30–250 bpm

Heart rate display

Sync icon:  
Provided

Display refresh:  
Every 3 s and when alarm occurs

Alarm settings

Setting range:  
Upper limit: 16–300 bpm, Off  
Lower limit: 15–299 bpm, Off

Alarm detection items:  
Tachycardia, bradycardia

◆ Arrhythmia Analysis

Analysis method:  
Single: Performs arrhythmia analysis using the lead set in the lead setting  
Multiple: Performs arrhythmia analysis using the lead set in the lead settings and the lead set as the second analysis lead

Counting rate:  
0–99 VPCs/min

3.4.2.5 Arrhythmia messages:  
Asystole, VF, VT, V Rhythm, V Brady, Extreme Tachy, Extreme Brady, VPC Run, Couplet, Bigeminy, Trigeminy, Freq VPC, Prolonged RR, SV Tachy, Tachycardia, Bradycardia, VPC, Multiform, Irregular RR, No Pacer Pulse, Pacer Non-Capture, Pause, A-FIB, End A-FIB

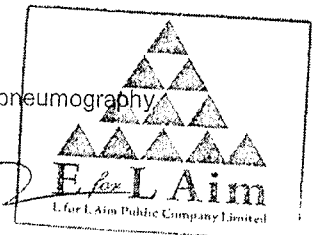
◆ ST Level Measurement

Measuring range:  
±2.5 mV  
Measurement point:  
Manual, provided (only from the central monitor)

◆ Respiration

3.4.3.1 Measurement  
Measuring method:  
4.4.3.1 Transthoracic impedance pneumography

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Measurement lead:  
R-F  
Measuring impedance available range:  
220Ω – 2kΩ  
Excitor current:  
30 ±10 μArms at 48 kHz  
Internal noise:  
≤0.2Ω (referred to input)

3.4.3.2 Respiration range:  
0–150 breaths/min

4.4.3.2 Respiration rate counting accuracy<sup>1</sup>:  
±2 breaths/min

<sup>1</sup> Essential performance

**Measurement detection:**  
Automatically detects electrode attachment and starts monitoring.

**Measurement On/Off:**  
Measurement can be turned on/off when not measuring impedance respiration.

**Heart beat rejection:**  
Available

**Respiration display**

**Display sensitivity:**  
10 mm/Ω ±25% (at ×1 sensitivity)

3.4.3.3 **Sensitivity:**

× 1/4, 1/2, 1, 2, 4

**Display refresh:**  
Every 3 s and when alarm occurs

**Alarm settings**

**Respiration rate setting range:**  
Upper limit: 2–150 breaths/min, Off  
Lower limit: 0–148 breaths/min, Off

**Apnea time setting range:**  
Off, 5–40 s

**Display message:**  
Apnea

**Respiration recovery time after defibrillation:**  
Within 10 s

◆ **SpO<sub>2</sub>**

**Compliance**  
ISO 80601-2-61:2011

**SpO<sub>2</sub> and pulse rate display refresh:**  
Every 3 s and when alarm occurs

**SpO<sub>2</sub> tone:**  
Pitch changes with SpO<sub>2</sub> value

3.4.4.2 **Pulse rate waveform sensitivity:**  
× 1/8, 1/4, 1/2, 1, 2, 4, 8, Auto

4.4.5.2 **SpO<sub>2</sub> measurement**

**Measuring method:**  
Two wavelength light absorption method

3.4.4.3 **Display range:**  
0–100% SpO<sub>2</sub>

4.4.5.3 **Declared range:**  
70–100% SpO<sub>2</sub>

**Measuring accuracy<sup>1</sup> (rms<sup>2</sup>):**  
80–100% SpO<sub>2</sub>: ±3%  
70–79% SpO<sub>2</sub>: ±2%

SpO<sub>2</sub> accuracy is guaranteed at surrounding temperature of 18–40°C (64–104°F).

**SpO<sub>2</sub> alarm settings**  
Upper limit: 51–100%, Off  
Lower limit: 50–99%, Off

3.4.4.4 **Pulse rate measurement**

**Display range:**  
30–300 bpm

4.4.5.3

**Declared range:**  
30–300 bpm

**Counting accuracy<sup>1</sup> (rms<sup>2</sup>):**  
±3% ±1 bpm

**PR alarm settings**  
Upper limit: 31–300 bpm, Off  
Lower limit: 30–299 bpm, Off

**SpO<sub>2</sub> recovery time after defibrillation:**  
Within 5 s

<sup>1</sup> Essential performance

<sup>2</sup> rms is the difference between measurement value and standard reference value calculated by root mean square.

◆ **NIBP**

**Complies with IEC 80601-2-30: 2009 +**  
Amendment 1: 2013.

Accuracy of the sphygmomanometer has been clinically investigated according to ISO 81060-2: 2013.

**NIBP measurement:**

**Measuring method:** Oscillometric 4.4.4.1

**Pressure measuring range:** 0 to 300 mmHg 4.4.4.2

**Pressure measuring accuracy<sup>1</sup>:** ±3 mmHg

<sup>1</sup> Essential performance in EMC standard

**Blood pressure measuring range:** 40 to 280 mmHg (SYS)

10 to 235 mmHg (DIA)

10 to 280 mmHg (MAP)

**Blood pressure measuring accuracy:**

Average of the difference ≤ ±5 mmHg

Difference variability ± ≤ 8 mmHg (depends on ISO 81060-2)

**Cuff inflation time:** DUTY100% ≤ 20 s (700 ml, at 0 to 20 mmHg)

DUTY50% ≤ 15 s (700 ml, at 0 to 200 mmHg)

**Maximum inflation pressure:** 300 mmHg

**Maximum measurement time:** ≤ 160 s

**Operation modes:** Manual, STAT (≤ 5 min or ≤ 10 min periodic)

**NIBP display:** 4.4.4.3

**Display items:** Systolic (SYS), diastolic (DIA), mean (MAP)

**Display update cycle:** Updated every measurement

**Measurement completion sound:** Generated at measurement completion (depending on the setting)

**Alarm:**

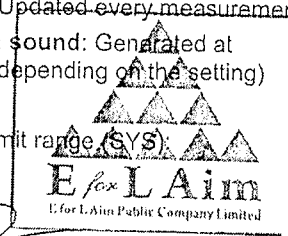
**Setting range:** Upper limit range (SYS)

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45 to 260 mmHg, OFF  
 Lower limit range (SYS): OFF, 40 to 255 mmHg  
 Upper limit range (DIA): 15 to 235 mmHg, OFF  
 Lower limit range (DIA): OFF, 10 to 230 mmHg  
 Upper limit range (MAP): 15 to 260 mmHg, OFF  
 Lower limit range (MAP): OFF, 10 to 255 mmHg

**Safety:**

The vital sign telemeter has following deflation functions.  
 Maximum pressurization value cuff inflation limiter:  
 300 to 330 mmHg  
 Cuff inflation time limiter: 161 to 165 mmHg  
 Interval time limiter: ≤ 30 mmHg/min  
 Deflate at power interruption: Immediately

**Other display:**

Cuff pressure: Displays cuff pressure during NIBP measurement

◆ **Electromagnetic Compatibility**  
 IEC 60601-1-2:2007

◆ **Safety Standards**

Applicable laws:  
 MDD Directive (Class IIb)  
 R&TTE Directive  
 WEEE Directive  
 RoHS Directive

3.3.2 **Safety standards: 4.3.3**

- IEC 60601-1: 2005 + Amendment 1: 2012
- IEC 60601-1-2: 2007
- IEC 60601-1-6: 2010 + Amendment 1: 2013
- IEC 60601-1-8: 2006 + Amendment 1: 2012<sub>1,2</sub>
- IEC 60601-1-9: 2007 + Amendment 1: 2013
- IEC 60601-2-27: 2011<sub>1</sub>
- IEC 60601-2-30: 2009 + Amendment 1: 2013
- IEC 60601-2-49: 2011<sub>1</sub>
- IEC 62304: 2006
- IEC 62366: 2007 + Amendment 1: 2014
- ISO 80601-2-61: 2011<sub>1</sub>
- EN ISO 14971: 2012
- EN 300 328 V1.9.1
- EN 301 893 V1.8.1
- EN 62311: 2008
- EN 62479: 2010

1 To comply with the requirements from international standards for distributed alarm systems, use the vital sign telemeter with a central monitor that complies with these standards. The system will not comply with some of the requirements from international standards for distributed alarm systems if used with a non-compliant central monitor.  
 2 NK1 sound, NK2 sound, and IEC sound (volume settings of less than 63) do not comply with section 6.3.3.2.

According to the type of protection against electrical shock:

Internally powered equipment

According to the degree of protection against electrical shock:

Defibrillation-proof type CF applied part

Degree of protection against harmful ingress of water or harmful ingress of particulate matter:  
 GZ-130P IPX7

Method of cleaning and disinfecting or sterilization:

Equipment NOT suitable for sterilization

Degree of safety of application in the presence of a flammable anesthetic mixture with air, or with nitrous oxide:

Equipment not suitable for use in the presence of FLAMMABLE ANAESTHETIC MIXTURE WITH AIR, OR WITH OXYGEN OR NITROUS OXIDE

According to the mode of operation:

Continuous operation

◆ **Environment**

Operating Environment:

Temperature: 5–40°C (41–104°F)

Humidity: 15–85% noncondensing

Atmospheric pressure: 700–1060 hPa

Storage and transport environment:

Temperature: -20–65°C (-4–149°F)

Humidity: 10–95%RH

Atmospheric pressure: 700–1060 hPa

Operating voltage: 2.3–3.2 V

◆ **Dimensions and Weight**

Dimensions:

GZ-130P

69(W) × 127(H) × 30(D) mm

Weight:

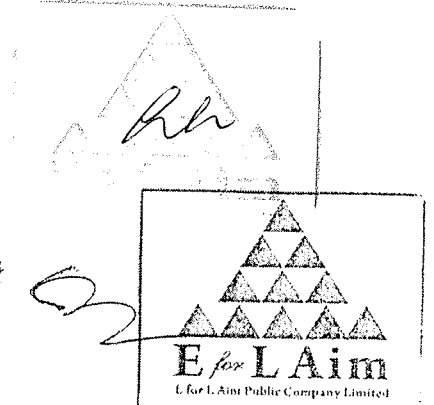
GZ-130P

185 g (excluding batteries and other accessories)

230 g<sup>1</sup> (including batteries, excluding other accessories)

**STANDARD ACCESSORIES**

GZ-130P	
Strap	1
Manuals CD	1
Setup Application for GZ Series CD	1



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# For ECG and Respiration (Impedance Method) Monitoring

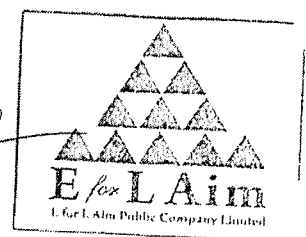
CE marking (as of Jan 2015)

Name	Description		Length (m)	Qty	Model	Supply Code		
Electrode lead	3 electrodes	IEC, clip type	0.8	1	BR-903P	K911		
					BR-933P	K903A		
	BR-943P				K904A			
	BR-906P				K912			
	BR-936P				K903C			
	BR-946P				K904C			
Disposable electrodes, Vitrode	General use	-	30 x 5	30 x 5	Bs-150	G201		
					C-150	G204		
			3 x 50	-	5 x 30	30 x 5	F-150M	G210D
							F-150ML	G203A
							F-150U3	G209A
			General use, radioflourescent	-	30 x 5	30 x 5	F-150U5	G209B
							M-150	G236
							G-600	G221
							J-150	G250
							K-600	G222
	L-150	G203						
	L-150X	G207						
	General use, DIN type lead	1.5	2	3 x 30	4 x 10	6 x 10	V-09IO3	G278A
							V-04IO4	G273A
							V-06IO6	G274A
							V-04IP4	G293A
							V-06IP6	G294A
							V-09M3	G272A
	General use, DIN type lead, radioflourescent	1	-	3 x 30	4 x 10	6 x 10	V-04M4	G272B
							V-06M6	G272C
							D-90	G217
	For neonates and children, NICU, DIN type lead	0.6	-	3 x 40	3 x 40	3 x 10	V-120S3	G271A
							V-120SK	G271K
				3 x 10	-	3 x 10	3 x 50	N-01IS3
N-03IS3								G300A
For neonates and children, NICU	-	-	3 x 10	3 x 50	-	F-30S		
						F-150S	G210C	
						E-150SL	G208B	

## ◆ CONSUMABLE ECG and Impedance Respiration Monitoring

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# For SpO<sub>2</sub> Monitoring

CE marking (as of Jan 2015)

Name	Description	Length (m)	Qty	Model/ Code No.	Supply Code
SpO <sub>2</sub> connection cord	For TL-535U	0.3	1	JL-030U1	K929A
		1	1	JL-030U2	K929B
Finger probe (BluPRO®)	Adult or child (20 kg or more) finger	1.6	1	TL-201T	P225F
	Adult or child (50 kg or more) finger	0.6		TL-630T1	P310A
		1.6		TL-630T3	P310C
	Adult or child (20 kg or more) finger or toe	0.6		TL-631T1	P311A
		1.6		TL-631T3	P311C
Multi-site probe (BluPRO®)	Adult or child (3 kg or more) finger or toe	1.6		TL-220T	P225G
	Neonate (less than 3 kg) instep and sole				
Disposable SpO <sub>2</sub> probe (BluPRO®)	Adult (30 kg or more) finger or toe	0.8	24	TL-271T	P203A
		1.6		TL-271T3	P203E
	Child (from 10 to 50 kg) finger or toe	0.8		TL-272T	P203B
		1.6		TL-272T3	P203F
	Neonate (less than 3 kg) instep	0.8		TL-273T	P203C
	Adult (40 kg or more) finger or toe	1.6		TL-273T3	P203G
	Infant (from 3 to 20 kg) finger or toe	0.8		TL-274T	P203D
		1.6		TL-274T3	P203H
Disposable Multi-site Y probe	<ul style="list-style-type: none"> <li>Type S attachment tape Low birth weight infant (1 kg or less) instep and sole</li> <li>Child, neonate (3 kg or more) finger or toe</li> <li>Type L attachment tape Neonate (3 kg or less) instep and sole</li> </ul>	1.6		TL-260T	P205A
Disposable SpO <sub>2</sub> probe	Adult (50 kg or more) finger	0.8	5	TL-051S	P225A
	Neonate (3 kg or less) instep and sole	1.6		TL-052S	P225B
	Child (from 15 to 50 kg) finger	0.8		TL-061S	P229A
	Infant (from 3 to 15 kg) toe	1.6		TL-062S	P229B
	<ul style="list-style-type: none"> <li>Type S attachment tape Low birth weight infant (less than 1 kg) Back of the hand and palm or instep and sole</li> <li>Type L attachment tape Low birth weight infant (less than 2.5 kg) Back of the hand and palm or instep and sole</li> </ul>	-		TL-535U	P206
Attachment tape for BluPRO®	For BluPRO® finger and multi-site probes		3 × 30		P263
Sponge attachment tape for TL-260T multisite Y probe	Type S attachment tape		24		P260A
	Type L attachment tape				P260B
Clip adapter	For TL-260T multi-site Y probe		1		P256
Foam tape	For TL-051S, TL-052S, TL-061S or TL-062S disposable probes		4 × 25		P260
Attachment tape for TL-535U	Type S attachment tape		6 × 4		P264A
	Type L attachment tape				P264B
Probe fastener	For TL-630T3 finger probe		30	YS-093P2	P267

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For NIBP Monitoring Only for GZ-140P

CE marking (as of Jun 2015)

Item	Width (cm)	Applicable Circumference (cm)	Length (m)	Qty	Model/ Code No.	Supply Code	
Air hose	-	-	0.8	1	YN-981S	S907B	
	-	-	1.5		YN-980S	S907A	
<b>Reusable Cuffs</b>							
Cuff for infants	YAWARA-CUFF1	5	8 to 13	0.15	1	YP-710T	S951A
Cuff for children	YAWARA-CUFF1	7	13 to 18			YP-711T	S951B
Cuff for adults	Small, YAWARA-CUFF2	10	18 to 23			YP-712T	S951C
	Standard, YAWARA-CUFF2	13	23 to 33			YP-713T	S951D
	Large, YAWARA-CUFF2	16	33 to 45			YP-714T	S951E
Cuff for thigh	YAWARA-CUFF2	19	45 to 55			YP-715T	S951F
<b>Disposable Cuffs</b>							
Disposable cuff for infants		6	8 to 14	0.17	20	YP-810P	S945C
Disposable cuff for children		8	13 to 20			YP-811P	S945D
Disposable cuff for adults	Small	10	18 to 26			YP-812P	S946E
	Standard	14	26 to 35			YP-813P	S946F
	Medium large	15	29 to 38			YP-814P	S946G
	Large	17	32 to 42			YP-815P	S946H
	Extra large	18	35 to 44			YP-816P	S946I
Disposable cuff for thigh		20	42 to 50			YP-817P	S946J

## ORDERING INFORMATION

When ordering, please specify the following information:

- 1) Power line voltage and frequency
- 2) Necessary consumables
- 3) Necessary optional accessories
- 4) Transmission frequency of your current telemetry system (Nihon Kohden or other manufacturer)
- 5) Supply code

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NIHON KOHDEN CORPORATION

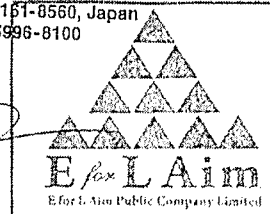
1-31-4 Nishiokichiai, Shinjuku-ku, Tokyo 161-8560, Japan  
 Phone +81 (3) 5996-8000 Fax +81 (3) 5996-8100  
 www.nihonkohden.com

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 (A Wholly Subsidiary of Nihon Kohden Corporation)  
 1 Maritime Square, #10-34 (Lobby C),  
 Harbourfront Centre, Singapore 099253  
 Tel: (65)6376-2210  
 Fax: (65) 6376-2264  
 Co. Reg. No. 199600802D / GST Reg. No. M2-8922802-X

January 1<sup>st</sup>, 2021

To Whom It May Concern

CERTIFICATE OF DISTRIBUTIONSHIP

Re: Nihon Kohden Distributor in country of Thailand

This is to certify that E for L Aim Public Company Limited having its registered principal place of business at 184 Rajhaviti Rd., Bangyeekhan, Bangplad, Bangkok 10700, Thailand, has been appointed our distributor to handle the sales and service of the following product range of Nihon Kohden Corporation currently exported by the company;

- Patient Monitoring System
- Electrocardiographs
- Neurology Products (EEG/EMG/PSG)
- Defibrillators/ AED
- The above includes all related consumables and accessories

This certificate will remain valid till December 31<sup>st</sup>, 2021 unless earlier termination subject to terms and conditions in the distribution agreement

Thank you

Hirotsune Kobayashi  
 Managing Director

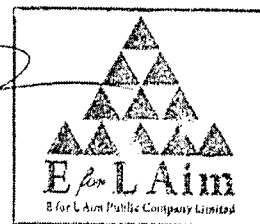
รับรองสถานะถูกต้อง

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23 มีนาคม 2564

เรียน ท่านผู้เกี่ยวข้อง

หนังสือรับรองบัญชีเงินฝาก

โดยหนังสือฉบับนี้ บมจ.ธนาคารกสิกรไทย สาขาสะพานกรุงธน ("ธนาคาร") ขอรับรองว่า ณ วันที่ทำหนังสือฉบับนี้ บมจ.อี ฟอร์ แอล เอ็ม มีบัญชีเงินฝากกับธนาคาร ตามรายละเอียดดังนี้

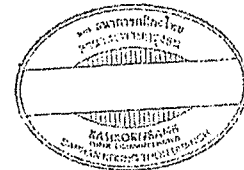
สาขา	เลขที่บัญชี	วันที่เปิดบัญชี	ประเภทบัญชี
สาขาสะพานกรุงธน	021-1-08553-3	19 มกราคม 2556	บัญชีกระแสรายวัน

ขอแสดงความนับถือ

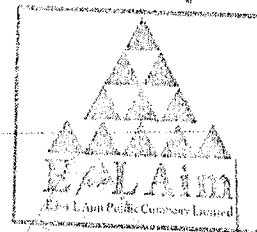
บมจ.ธนาคารกสิกรไทย

(นาง อชิรญาณ์ เสลานนท์)

ผู้ช่วยผู้จัดการสาขา



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K-Contact Center 02-8288666

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