

# cardiolifeEMS

Defibrillator EMS-1052



# cardiolifeEMS



When in an emergency situation, every second counts. And in order to save a patient's life, you need to do everything in your power.

This light and compact defibrillator/monitor helps you deliver fast response to the patient, on site and on the road.

Nihon Kohden's original innovative technology and integrated system for data transmission, contributes not just to better outcomes for the patient, but also empowers your team to improve the quality of communication and decision making during the entire rescue attempt.

**This is CardiolifeEMS.**

# Make your work lighter and faster

With one of the most compact designs in the market, you have full monitoring and defibrillation options by your side. Whether you want to measure vital signs, manually defibrillate, control your patient on AED mode or even evaluate the cardiac condition with 3-lead to 18-lead ECG<sup>1</sup> – in CardiolifeEMS everything is available without any compromise.



CardiolifeEMS is designed to fulfill the requirements of the demanding ambulance environment. With an IP55 rating and working on temperatures from -20 to 50 °C, it is suitable to use in almost all conditions out in the field. Thanks to its light weight of only 4.2 kg<sup>2</sup>, the rescue team won't have to worry about carrying another heavy device while rushing to the patient.

The side bags delivered with CardiolifeEMS contain all the needed supplies. In the internal part of the side bags, Nihon Kohden's Smart Connectors automatically detect which measurement cable has

been connected, and the 6.5 inch touch display will immediately switch to the desired curve or value. You can choose to see just 4 curves and basic blood pressure values, up to 7 curves including 3 ECG curves and any blood pressure, etCO<sub>2</sub>, SpO<sub>2</sub> and CPR feedback.

For patient's data documentation purposes, you can either wirelessly transfer it to the hospital while still on the way, print it on a 110 mm wide paper or archive it afterwards in the hospital database.



12-lead ECG and rescue data – Rescue linkage



Vital sign data (Real time) – Vitrac



Data acquisition – (after transportation)



<sup>1</sup> 18-lead ECG requires synECi18 synthesized 18-lead software  
<sup>2</sup> Weight of unit with one battery

# Straightforward and intuitive

Thanks to our experience in AED technology, CardiolifeEMS is able to be ready to shock in less than 4 seconds to 200 J, with a fully charged battery. This allows you to deliver energy quickly when a shockable rhythm is observed. The ECG baseline recovers within 3 seconds after defibrillation.

CardiolifeEMS can be used in AED mode for all patient groups without the need of any additional supplies. For patients under 8 years, a child-mode function is available. Switch back easily from AED mode to manual mode by turning the control dial.



The most critical component, the high voltage capacitor, has a unique reliable design: It is divided into thousands of individual cells in order to prevent total failure in case of a sudden breakdown. Even if one part fails, the remaining cells can still provide shock.

You can customize a maximum of 3 shortcut keys based on your personal workflow. The touch key off-function is helpful to prevent unnecessary screen transitions when touching the display during transport.

Sensors and cables for all parameters are compatible with all Nihon Kohden's defibrillators and monitors.

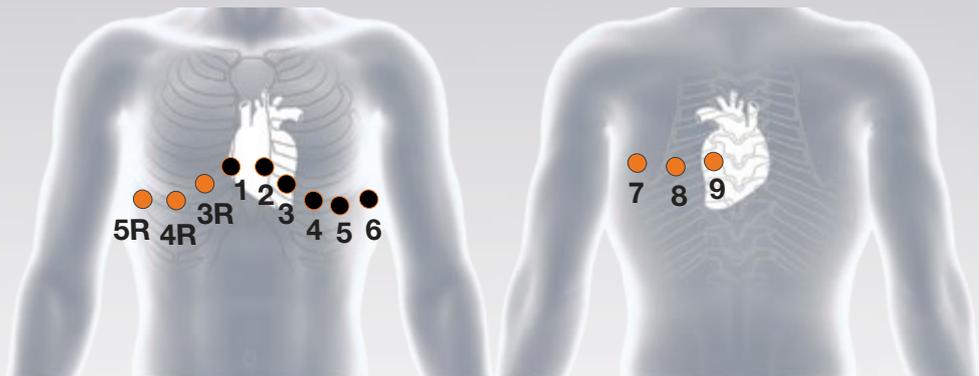
# Posterior wall and right ventricle ECG analysis without additional leads

**synECi18**  
Synthesized Electrocardiogram

Standard  
12-lead ECG

+

6 additional  
synthesized Leads



12-lead ECG is a gold standard diagnostic method in suspected acute coronary syndromes for patients with acute chest pain. However, it does not provide sufficient information of the posterior and right ventricle walls for ischemia detection. Additional leads (V3R-V5R, V7-V9) may enhance diagnostic accuracy with added sensitivity for ischemia detection.<sup>1,2</sup> In a hospital environment, the additional workload, patient's immobility and sometimes lack of confidence, often make the 18-lead ECG absent in routine patient care.

In a pre-hospital setting, an 18-lead ECG is hard to imagine. Nevertheless, the 2015 ERC guidelines recommend recording right precordial leads in all patients with inferior STEMI.<sup>3</sup>

## Nihon Kohden developed synECi18:

a synthesized 18-lead ECG (a standard 12-lead ECG plus 6 synthesized leads) that helps you overcome all obstacles and measure an 18-lead ECG without the need of additional cables.



synECi18 ST Review: With the help of the diagnostic radar chart, an ST elevation or depression can be clearly visualized.

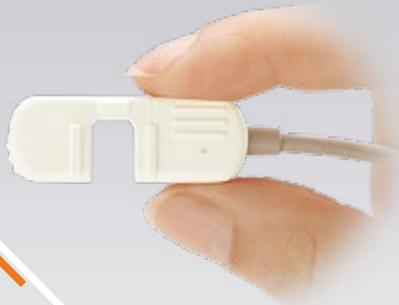
<sup>1</sup> Zalenski RJ et al.: Value of posterior and right ventricular leads in comparison to the standard 12-lead electrocardiogram in evaluation of ST-segment elevation in suspected acute myocardial infarction. Am J Cardiol. 1997 Jun 15;79(12):1579-85

<sup>2</sup> Amsterdam et al.: Testing of Low-Risk Patients Presenting to the Emergency Department with Chest Pain. A Scientific Statement from the American Heart Association Circulation. 2010;122:1756-1776

<sup>3</sup> NI Nikolaou et al.: European Resuscitation Council Guidelines for Resuscitation 2015, Section 8. Initial management of acute coronary syndromes. Resuscitation 95 (2015) 264-277

# Advanced resuscitation value

**cap-ONE**  
ORAL, NASAL EXPIRATION



Nihon Kohden's unique sensor solutions allow a whole new way of looking at monitoring. Our cap-ONE technology, world's lightest and smallest etCO<sub>2</sub> sensor, enables monitoring following the mainstream principle for both intubated and non-intubated patients even under high-humidity conditions.

The cap-ONE sensor is durable enough to use in harsh environments, and thanks to its anti-fogging membrane, a heater is not necessary and warm-up time doesn't exist, meaning that the sensor gives you immediate, real time response with no waiting time.

**BluPRO**<sup>®</sup>



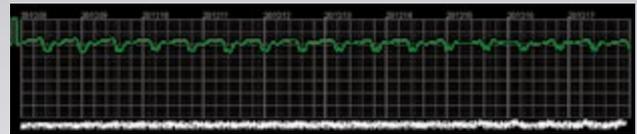
Pulse spectrophotometry, the principle of measuring SpO<sub>2</sub>, was invented in 1972 by Dr. Takuo Aoyagi of Nihon Kohden Corporation and was first applied to the pulse oximeter.

Instead of the typical clip near the fingertip, the BluPRO SpO<sub>2</sub> probe has a safe fitting with a comfortable mechanism using two sliding pieces, for the front and back of the finger with rubber guides along the sides. This allows a stable SpO<sub>2</sub> measurement and it's comfortable to wear for long periods of time. Brighter LEDs provide more accurate SpO<sub>2</sub> measurements for patients with thicker fingers or darker skin.

The probes are water resistant and durable, easy to clean under running water and soak it in disinfectants.



# Accurate ECG analysis with Clear Wave CPR



Clear Wave CPR pads – P-700 series



Conventional pads

Nihon Kohden's continuous VF/VT analysis algorithm was developed for the purpose of minimizing pauses in chest compressions. This algorithm analyses the ECG in the background while you and your team perform CPR. It studies the ECG during hands-on CPR, as well as during CPR pauses, to make a judgment.

In the moment the defibrillator judges the rhythm to be shockable or non-shockable, it performs a short confirmation step. If this result is in agreement with the result of ECG during CPR, then this result will be

determined. With this workflow, the analysis is faster than with common rhythm detections, therefore contributing to faster shock deliveries.

The "Clear Wave CPR" disposable defibrillation pads have the capability of reducing the noise in the ECG signal that is generated by chest compressions during reanimation. With this feature, stable ECG signals can be obtained giving a Clear Wave for the judgment by rescuers.

## CPR feedback

CPR assist is an optional CPR feedback device for chest compression depth and frequency, direction of the chest compression force and soft backgrounds. Together with cardiolifeEMS a direct indication on the defibrillator screen is possible. Also as a stand-alone rescue tool, CPR assist gives feedback by LEDs, sound and voice prompts. It detects when the compression force is not vertical and when the patient's back is sinking. Furthermore, it also works as a CPR training device in combination with CPR evaluation software.

**CPR assist**





## Improving Healthcare with Advanced Technology

Since its foundation back in 1951, Nihon Kohden's mission has been to improve the quality of life with advanced technology. We provide solutions for diagnosis, critical care, clinical information, and in vitro diagnostics – and we are dedicated to collaborate with you to meet the challenges of healthcare today and tomorrow.

Visit [www.nihonkohden.com](http://www.nihonkohden.com) to find out more.

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