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Simple Approach to Saving Lives

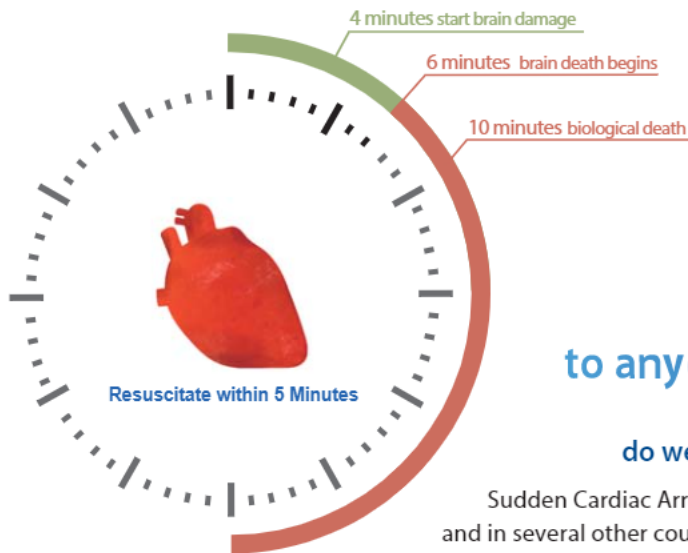


# HeartPlus

AED (Automated External Defibrillator)



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to anyone, at any place, at any time

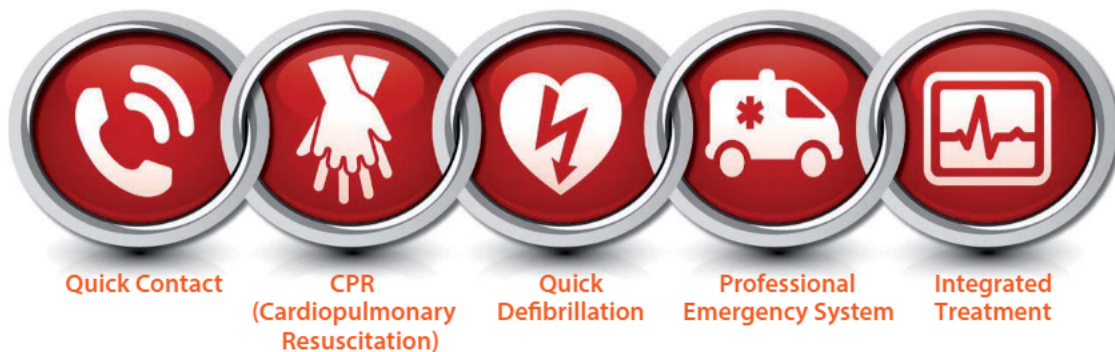
### do we need AEDs?

Sudden Cardiac Arrest (SCA) is the leading cause of death in the United States and in several other countries claiming more than 350,000 lives each year in the U.S. alone.<sup>1,2</sup> Approximately 92% of those who experience sudden cardiac arrest do not survive.<sup>2</sup> It is unfortunate there are so many fatalities related to this condition in the world each year, but many victims can be saved with the timely and proper use of AEDs by first responders performing CPR (cardiopulmonary resuscitation) until medical rescuers (EMS) arrive on scene.

1. Roger VL, Go AS, Lloyd-Jones DM, et al. Heart disease and stroke statistics—2012 update: a report from the American Heart Association. *Circulation*. 2012;125:e2–e220.
2. MMWR Weekly July 29, 2011. Surveillance Summaries Vol. 60/No.8. Out-of-Hospital Cardiac Arrest Surveillance – Cardiac Arrest Registry to Enhance Survival (CARES), United States, October 1, 2005 – December 31, 2010.

### Do I Use Heartplus AED?

#### “Chain of Survival”



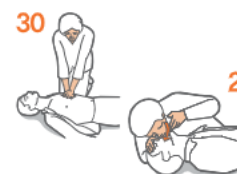
### Order of Response in the Event of an Emergency:



**1.** Press either the Adult or Infant/Child power button. Both power buttons are labeled accordingly.



**2.** Attach the pads as instructed by the voice prompts, stay clear of patient during analysis. Push electric shock button if advised to do so.



**3.** CPR is performed regardless of whether shock is given or not. Perform thirty chest compressions and two mouth-to-mouth breaths.





should AEDs be installed?

### Recommended locations for AEDs

Schools / Gyms / Public Facilities / Stadiums / Theatres /  
Medical Centres / Recreational Centers / Swimming Pools /  
Shopping Centres / Dental Office / Entertainment Venues /  
Sporting Venues / Pharmacies / Electrical Rooms / Tracks /  
Cruises / Airplanes / Subways / Bus Stations / Train Stations/  
Religious Centres / Police & Emergency Service Vehicles

and other places where many people congregate.



## HeartPlus AED?

### ○ Safety is our top priority.

- Our technology features accurate analysis to only advise shocks when necessary.
- If the electrodes are not attached properly, the electric shock process is halted.
- If the electric shock button isn't pushed within 20 seconds, battery will discharge.
- Inclusion of an overcharge prevention circuit for proper electric shock loads.
- Dual electric shock waveform control circuit prevents malfunction of device.

### ○ HeartPlus AED is a life-saving device that can be used safely and quickly in the case of an emergency.



#### Anyone can use by following voice prompts

Voice prompts are simple and easy to follow.



#### Easy to check the status of device

Check the status of device via status indicator, if some problem occurs.



#### Introducing our "all-in-one" cartridge

Electrode pads are pre-connected to the battery in an airtight cartridge. Just peel off the cover and it's ready to use.



#### One pad for both adults and children

Save time by using same electrode pads on both adults and infants/children.



#### Automatically analyzing accurate ECG

After attaching the pads to the patient, ECG is analyzed.  
An electric shock is advised, if shockable rhythm is detected.





# HeartPlus

AED (Automated External Defibrillator)



## HeartPlus AED Overview



### Basic Components

Defibrillator, Case, User Guide, Towel, Cartridge (Battery + Pads), NT-MPR CD-ROM, USB Cable.



### Informative Cover

Even before defibrillator is turned on, a quick glance gives first responder a general idea of what must be done.



### Step-by-Step Guide

Status LED light provides real-time, visual representation of each step to guide first responder through entire resuscitation process.



### USB

Upon installation of NT-MPR software, administrator is able to manage data such as self-diagnostics history, ECG recordings, and other operation data.





## Defibrillator

|                      |   |
|----------------------|---|
| Defibrillator Series | HeartPlus™ NT-180   |
| Set Configuration    | Defibrillator, battery pack, sealed electrode pads, HeartPlus™ User Guide, Protective Carrying Case, "NT-MPR" CD-ROM, USB cable                             |
| Waveform             | Truncated Exponential Biphasic  |
| Energy               | 180J (Adult, Impedance 50Ω)<br>50J (Pediatric, Impedance 50Ω)   |
| Shock Charge Time    | Approx. 13 seconds  |
| Shock Method         | Manual button (flashes when ready)  |
| Mode Conversion      | Adult/Child separate power buttons<br>Child Mode delivers 50J Pediatric shock for patients weighing less than 25kg, approximately 12 months to 8 years old) |

## Physical

|            |   |
|------------|---|
| Dimensions | 7.1cm(H) x 29.3cm(W) x 29.1cm(D)                  |
| Weight     | 1.9kg (including battery pack and electrode pads) |

## Environmental

|                              |   |
|------------------------------|---|
| Water Resistance             | IPX2 per IEC 60529                                |
| Temperature                  | Operating: 0°C to 40°C;<br>Storage: -20°C to 60°C |
| Humidity (operating/storage) | 10% to 95% Relative Humidity, Non-Condensing      |
| Altitude (operating/storage) | 0 to 2000 meters                                  |
| Drop Test                    | 1 meter   |

## ECG

|                   |  |
|-------------------|--|
| ECG Recording     | LEAD II  |
| Analysis Overview | Patient evaluated to determine whether ECG rhythm represents shockable or non-shockable state. Shockable rhythms are ventricular fibrillation (VF) and ventricular tachycardia (VT). |
| Analysis Time     | Less than 11 seconds<br>(Read: 5 seconds ± 2 seconds,<br>Analyze: within 4 seconds)  |

## Auditory/Visual Instructions

After device is powered on, step-by-step voice instructions guide first responder through resuscitation procedure, which includes pads placement, hands off times (analysis and shock process), and CPR instructions.

CPR instruction prompts user to commence cardiopulmonary resuscitation, while flashing metronome light sets pace at 100 compressions per minute for 30 compressions with brief pause for 2 mouth-to-mouth breaths (5 repetitions), in accordance with American Heart Association 2010 guidelines.

## Data

|                    |  |
|--------------------|--|
| Stored Contents    | ECG recordings, operation information (whether shock delivered or not), ambient noise, self-diagnostics history  |
| Memory Capacity    | ECG: 1,000 instances of 5 seconds recordings<br>Ambient Noise: Total 60 minutes<br>(4 instances of 15 minute cycles)<br>Self-Test: Times & results of 3,000 events |
| Storage Type       | Internal Memory  |
| Access / Retrieval | "NT-MPR" App (for PC) via USB connection   |

## Self-Diagnostics Test

Daily self-diagnostics tests ensure that circuits for measuring patient impedance, control circuit internal discharge of electric energy, and control circuit for charge/discharge of electric energy are functioning properly.

A voice prompt stating "Equipment check is needed" continuously in the event self-diagnostics check fails.

Upon completion of daily self-diagnostics test, results are automatically stored within device's internal memory.

## Battery Check

When battery reserve is at acceptable level to provide sufficient electric charges and there are no problems with circuitry detected during self check, three Status LEDs above the power button blink in order from left to right during self check.

All three Status LEDs blink at the same time continuously with low or critical battery voice prompts when battery is at low or critical levels (low: shock possible, critical: shock not possible).

|                                 |  |
|---------------------------------|--|
| Battery Status Audible Warnings | <i>Low:</i> Voice prompt states "Battery's voltage is low, check battery"<br><i>Critical:</i> Voice prompt states "Change cartridge" |
|---------------------------------|--|

## Battery Cartridge

|                   |  |
|-------------------|--|
| Type              | Non-rechargeable lithium (LiMnO <sub>2</sub> ) |
| Capacity          | 180 shocks @ 25°C, 130 shocks @ 0°C            |
| Voltage           | DC 21V & DC 9V / 1,400mAh                      |
| Standby Mode Life | Recommended five (5) years @ 25°C              |
| Dimensions        | 3.3cm(H) x 15cm(W) x 11cm(D)                   |

## Electrode Pads

|                    |   |
|--------------------|---|
| Shelf Life         | Two (2) years, for one-time use only      |
| Conductive Gel     | PE Foam, Hydrogel                         |
| Conductive Element | AgCl (Silver Chloride)                    |
| Cable Length       | 2.1 meters (±1%)                          |
| Applicable Ages    | All ages (12 months & older)              |
| Sealing            | Airtight                                  |
| Size               | 125mm x 95mm                              |
| Pads Placement     | Anterior-lateral (visual details on pads) |





### HeartPlus AED Trainer

- Voice prompts and sequence
- Offers 17 scenarios for various situations
- Voice and LED prompts
- Multiple devices can be controlled from one remote control
- Low maintenance
- Replaceable training pads
- Rechargeable battery and AC adaptor included



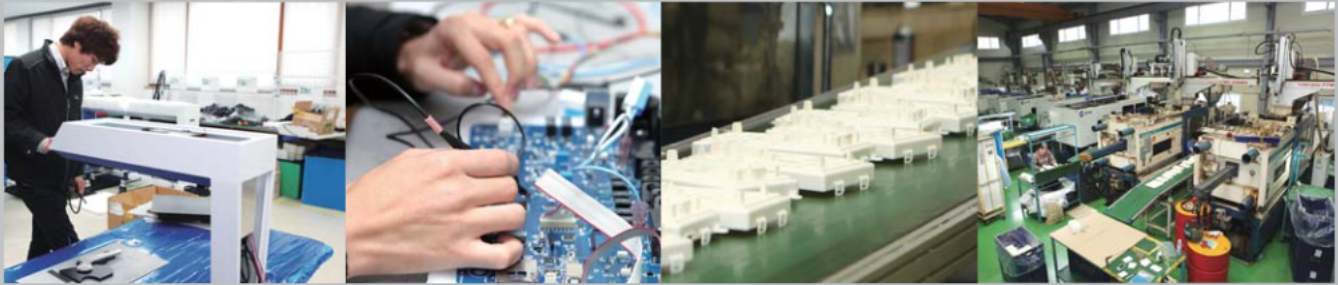
### User-friendly Remote Control

- Play/pause function.
- Load different scenarios via command sent to device.
- Remotely control several trainers within 10m (max. 99 units).
- Power OFF HeartPlus Trainer(s) at the end of training session.

## HeartPlus AED Trainer



HeartPlus AED(Automated External Defibrillator) Trainer



Nanoom Tech Co., Ltd. is a manufacturer of medical and electronic devices in South Korea. Established in 2005 as a medical device import / export company, Nanoom Tech has dedicated a significant amount of time and resources to the development of its patented proprietary software and hardware technologies, such as the HeartPlus AED, the Image Plus (endoscope imaging software), and the GPA-1000 (bone density diagnostics system).



Our goal is to provide businesses and governments with high quality products that are upgraded regularly through continued emphasis on research and development. We want our products to not only stay relevant in markets, but also lead the way by offering new features and solutions to enhance effectiveness and comfort for both users and patients. Since our entry into international markets in 2009, we have encountered strong demand for our products and services in over 40 countries.



|           |  |           |  |
|-----------|--|-----------|--|
| 2013. 12. | Obtained CE 0120   | 2005. 08. | Established  |
| 2013. 03. | Certified by COFEPRIS (Mexico)   | 2005. 09. | Medical Device Sales Report (Korea)  |
| 2012. 07. | Certified by TGA (Australia)   | 2005. 11. | Development of X-ray Bone Mineral Density Diagnostics System               |
| 2012. 01. | Development of U-healthcare AED functioned as patient monitor  | 2006. 10. | X-ray Bone Density Diagnostic Permit (KFDA)                                |
| 2011. 02. | Registration as "Excellent Product" under Government Procurement Act (Korea)                           | 2006. 10. | Medical Device Manufacturing Permit (KFDA)                                 |
| 2010. 11. | Selected as a Good Design Selection Product of Industrial Design Promotion Act                         | 2006. 12. | Recognized for quality management standard in medical devices field (KETI) |
| 2010. 04. | Acquired KOTRA Seal of Excellence  | 2007. 11. | Reproductive Sales, Communications Sales Report (Korea)                    |
| 2010. 03. | Filed Patents for AED Technologies in Korea (AED & Electric-Shock Selection Method Using ECG Analysis) | 2008. 11. | Construction of New Factory  |
| 2010. 02. | Obtained ISO 13485 certification   | 2008. 04. | MOU with Gwangju Institute of Science and Technology (GIST)                |
| 2009. 11. | Obtained CE 1023   | 2009. 02. | Approved ISO 9001:2008   |
| 2009. 08. | GMP Approved for AED Manufacturing   | 2009. 02. | Registration as Research Institution Company (KITANET)                     |
| 2009. 08. | Favored Status by Korean Public Procurement Service  |           |  |
| 2009. 04. | Designated as "INNO-BIZ"   |           |  |



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