

# Nurugo CPR manikin<sup>®</sup>

## INSTRUCTIONS FOR USE

 **bestCPR**  
bestCPR, Inc. [www.AED.kr](http://www.AED.kr)

Installation of "CPR add-on kit", the exclusive Application



This manual includes the information necessary for use of Nurugo CPR manikin.

Be sure to read this manual carefully in advance for accurate and safe use of the manikin.

※ For more detailed information, check out the homepage of bestCPR, Inc. Co., Ltd. at [www.aed.kr](http://www.aed.kr).

The Nurugo series products are manikins for CPR training. Designed to provide advanced features, such as visual and auditory feedbacks, the Nurugo series products improve the quality and efficiency of your CPR training.

## Features

Refer to the following for the enhanced features of the Nurugo series products.

### Note

Some features may not be available in your model. Refer to Specifications on page 5 for detailed specifications for each model.

- **Thick and sturdy chest**

The chest part was designed for realistic, deep chest compressions over 5 cm.

- **Visible clavicles (collarbones) and extended skin**

Clavicles are clearly visible, and the skin is extended on the left side of the manikin for more precise AED pad placement.

- **Realistic neck design resembling human body**

- The head rotates 15° to left and right.
- Double neck joints allow for vertical movements of the head.

- **Metronome-guided compression training (For Nurugo M200M/L300 only)**

Audible signals may be turned on (30 times, 110 times/min rate) at an early stage of compression to provide a guidance on the compression rate.

- **Visual and auditory feedbacks (For Nurugo L300 only)**

Feedbacks through visual display and sound provide guidance and show the performance of a CPR training. Also, information about a full cycle of contraction and relaxation by chest compression is provided as well, for more effective CPR training.

## Basic specifications

<b>Size</b>	35cm X 63cm X 21cm	<b>Operating temperature</b>	15°C ~ 30° (59°F ~ 86°F)
<b>Humidity</b>	5% ~ 95% relative humidity	<b>Storage temperature</b>	-10°C~ 50°C (14°F ~ 122°F)
<b>Product composition</b>	Body(1), Facial skin(1), face shield(20), lung bag(1), manual(1), carry bag(1), jacket(1) (L350 : face shield (50), lung bag(2), cleaning spray for manikins (1) added)		

## Additional specifications for each product

Division	Weight kg <sup>1)</sup>	Power supply <sup>2)</sup> (battery)	Function
B100 (Basic)	3.0	-	-
B150 (Basic)	3.0	AA type(2)	Checking result of CPR with exclusive application (App)
M200 (Metronome type)	3.5	D type(4)	Metronome sounds indicating chest compression speed are heard through the speaker
L300 (feedback type)	3.9	D type(4)	Visual and auditory feedback on CPR result / Feedback on relaxation from chest compression
L310 (feedback type)	3.9	D type(4) AA type(2)	L300 function + Feedback on CPR result through App
L320 (feedback type)	3.9	D type(4) AA type(2)	L310 function + 4 languages supportable other than Korean
L330 (feedback type)	3.9	D type(4)	L300 function + 9 languages supportable other than Korean
L350 (feedback type)	3.9	D type(4) AA type(2)	L310 function + 9 languages supportable other than Korean

1) Not including the weight of battery

2) Recommended to use alkaline battery (1.5Vx4)

# Product overview (in some models only)



Product overview

## Display



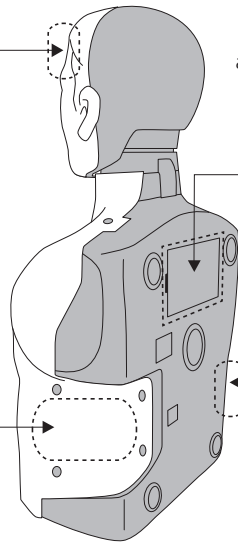
Depth and rate of the chest compression are indicated. The color of the display changes according to the quality of a chest compression.

## Battery cover

Used to replace batteries. Refer to Replacing the batteries on page 13 for information about replacing the batteries.

## Extended skin for AED pad placement

Extended skin provides a precise spot to attach the AED pad for a training of antero-lateral placement (middle-line from the armpit)



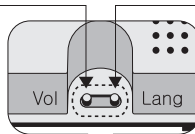
## CPR clicker switch

The CPR clicker is used to verify compression depth. It makes a “click” sound when the compression depth reaches 5 cm. You can turn it on or off by pushing in or pulling out the switch.

## Volume setting button

(located under the skin, at the bottom of the product)

Used to adjust volume of speaker output. The audio volume will change in the order of LOW-MEDIUM-HIGH each time you press the button.



## Language setting button

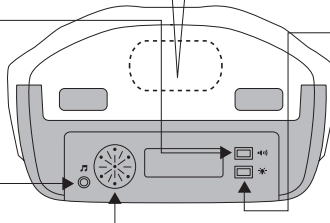
Used to change languages. Languages will change in the following order each time you press the button. (KOR-ENG-CHN-JPN-GER-FRA-SPN-UAE-INA-VN)

## Auditory feedback switch

Turns on or off the auditory feedback feature.

## Visual feedback switch

Turns on or off the visual feedback feature.



## Metronome switch

Turns on or off the metronome guide sound.

## Speaker

Used to provide voice instructions and audio instructions/feedbacks.

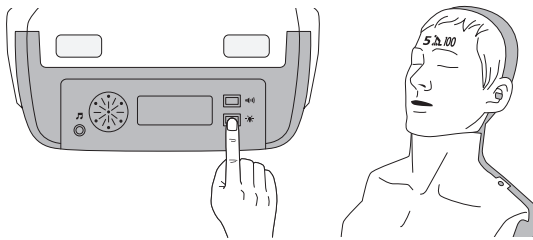
Refer to the following to utilize the enhanced features the Nurugo series products provide.

## Note

Some features may not be available in your model. Refer to Specifications on page 5 for detailed specifications for each model.

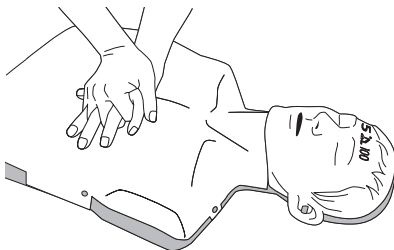
## Performing feedback-guided compressions

1. Push the feedback button to turn on the feedback.



- The power LED and the forehead display will be turned on.

2. Perform compressions on the chest following the visual and auditory feedbacks.



- The following feedbacks will be provided.

## Visual feedback

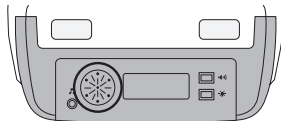


The color of the displayed information will change according to the depth and rate of your compression.

※The latest AHA GUIDE recommends a compression rate of 100 to 120 times per minute. Accordingly, NURUGO evaluates the average value of 110 times as an appropriate compression rate.

Indications		Description	
Compression depth	<b>5</b>	Green	Compression depth is exactly 5 cm.
		Red	Compression depth is less than 5 cm.
Compression rate	<b>100</b>	Green	Compression rate is 110 times/min.
		Red	Compression rate is less than 110 times/min.

## Auditory feedback



Voice instructions will be provided to inform you of the current CPR status and what you have to do to successfully complete the CPR session.

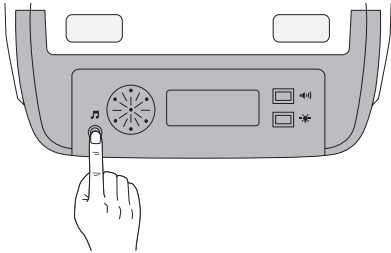
Voice instruction	Description
“Press it more deeply.”	Compression depth is shallower than 5 cm.
“Press it faster.”	Compression rate is less than 110 times/min.
“You are doing well.”	Compression depth is 5 cm, and compression rate is over 110 times/min.
“Press it a bit slowly.”	Compression rate is over 110 times/min.
“Press it a more deeply and slowly.”	Compression depth is less than 5 cm, and compression rate is over 110 times/min.
“Relax the chest.”	Your CPR session is completed.

### Note

- The visual feedback feature of your Nurugo manikin will enter standby mode if no chest compression is detected for 30 seconds.
- While in standby mode, the visual feedback operation will automatically resume when it senses compressions on the chest.
- The power indicator will blink if the battery is low, and a voice instruction will be made. (“The batteries is low. Please replace it with the new one.”) Refer to Replacing the batteries on page 13 for information about replacing batteries.

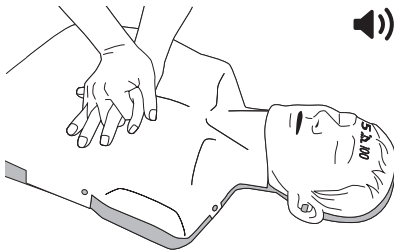
## Performing metronome-guided compressions

1. Push the metronome button to turn on the metronome.



- Audible signals will be output at a rate of 110 times/min.

2. Perform compressions to the metronome signals.

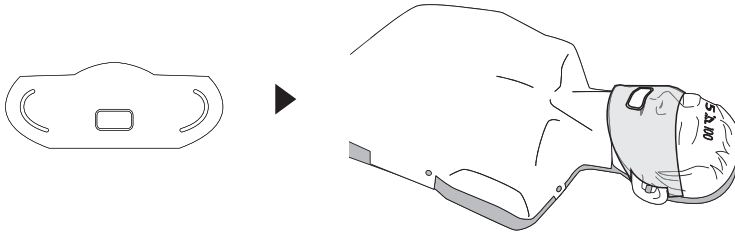


- The metronome signal will sound 30 times at a rate of 110 times/min, then it will turn off automatically.
- You can push the metronome button again to turn the signal sound on.



## Performing an artificial respiration (For all Nurugo models)

1. Unpack the face shield and install it to the face of the Nurugo manikin.

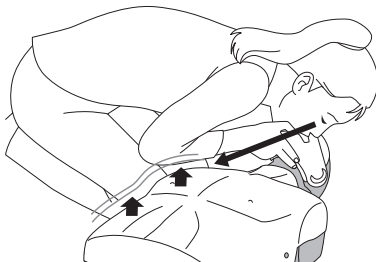


### ! CAUTION

- Replace the face shield and the lung bag between training sessions to avoid possible bacterial infection or transmission of diseases.
- If the product is used by multiple users, thoroughly clean and sanitize the face of the Nurugo manikin using alcohol wipes after each use, or let each user (trainee) use one's own face shield during the training.
- Clean the face of the Nurugo manikin using the MANI CLEAN spray and alcohol wipes whenever visible contamination is observed.

2. Adjust the head position to open the airway and hold the nose with your thumb and index finger.

3. Through the mouth, give 2 breathes per each second.



- While giving breathes, ensure that the air is reaching the lungs by observing the chest movement.



## Cleaning the product

Follow the instructions below to maintain your Nurugo product for safe and trouble-free use.

- Thoroughly clean and disinfect the product after each use (the face, inside the mouth, and the chest area, especially).
- For cleaning, remove the skin from the product. Use warm soapy water or detergent to clean the skin.
- Do not submerge the product for cleaning.
  - Moisture will get inside the product, causing damages to the batteries and electronic parts.

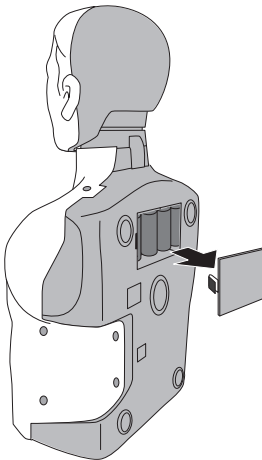
## Storing the product

- Store the product in a cool, dry place where the product is not exposed to direct sunlight.
  - Exposure to sunlight may cause discoloration and deterioration of parts, such as the skin.
  - Moisture may get into the product can cause damages to the internal electronic parts.
- Refer to the following table for storage conditions.

Storage temperature	-10°C - 50°C (14°F - 122°F)
Relative humidity	10% - 95%

## Replacing the batteries

Remove the battery cover on the back of the product and replace the batteries.



### Note

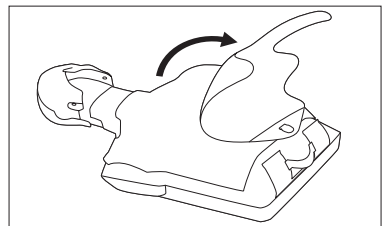
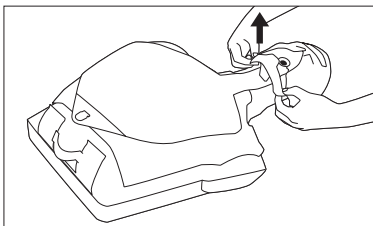
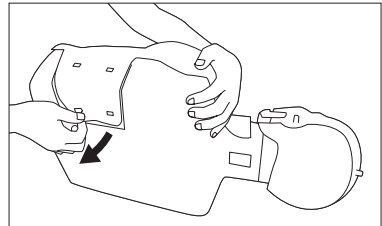
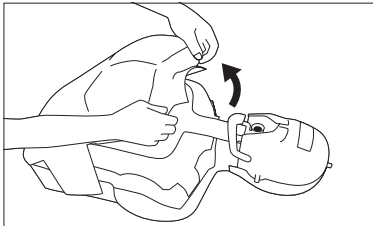
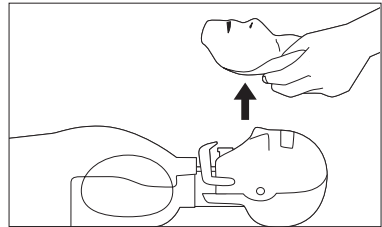
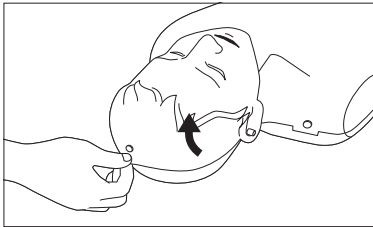
- The power indicator will blink if the battery is low, and a voice instruction will be made. (“The batteries is low. Please replace it with the new one.”)
- Use D-type 1,5V alkaline batteries only. Product damages caused by using unauthorized batteries may not be covered under the product warranty.
- Do not use new batteries and old batteries together. Replace all 4 batteries at the same time.
- If you plan on not using the Nurugo product for an extended period, remove the batteries before storing.

### ! CAUTION

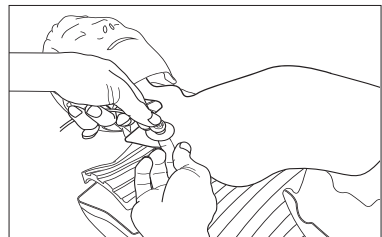
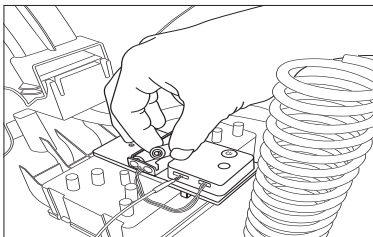
Keep the used batteries out of reach of children and safely dispose of them.

# Maintaining the product

How to separate and combine vinyl lung bag (Combining is done in reverse order of separation.)



How to install CPR-on kit breathing module and replace battery



## Real-time feedback with the Application (App) exclusive for CPR quality (iOS / Android )

- Possible to connect up to 6 sets of Nurugo to one device using Bluetooth function and monitor CPR quality in real time
- Possible to apply different CPR guidelines (AHA, KACPR, ERC, ANZOR) for evaluating compression depth, speed, recoil, and breath amount, and also hands-off time (graphic/text)
- Possible to export training data to SNS and PDF (graph)
- Possible for institutions to issue a customized certification after training completion (PDF, printout)

## 1. Installation of Application



Search 'CPR Add-on Kit' and download Student or Instructor app from both iOS and Android app stores.

## 2. Checking power supply



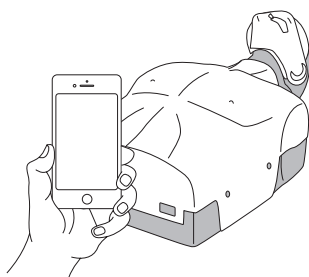
Check the buzzer sound made when the battery is inserted for the first time. The buzzer sound means that the power is on. If there is no input into the sensor for 10 minutes while the power is on, the device will be changed into standby position to save electricity. The manikin in standby position can be awakened again if chest compression is conducted a couple of times. The buzzer sound will be made if it wakes up.

## 3. Initial connection

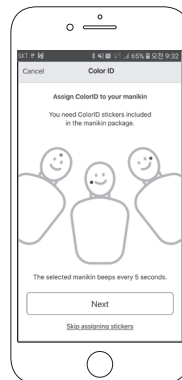
When the kit is connected for the first time, color ID set-up and breath calibration will initiate.

The color ID set-up and breath calibration will happen only once.

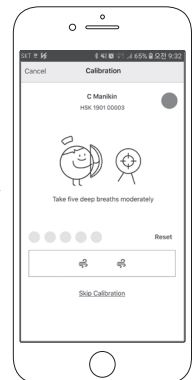
The Color ID (color and number sticker) attached to the manikin will be used as an identifier when searching the kit.



Initial connection

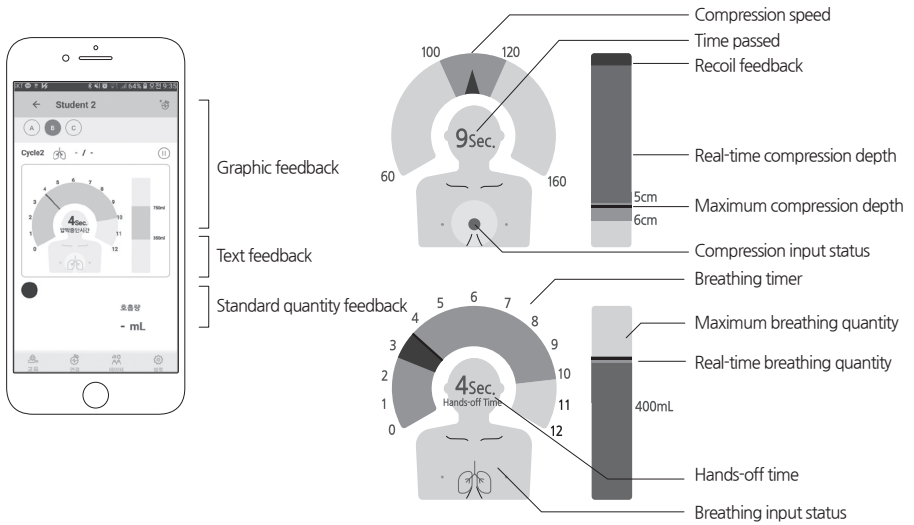


Setting Color ID

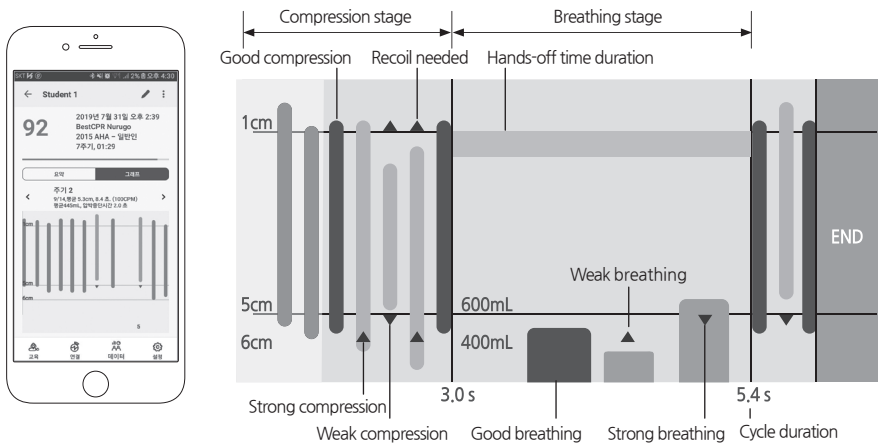


Breath calibration

## 4. Compression and breathing feedback UI

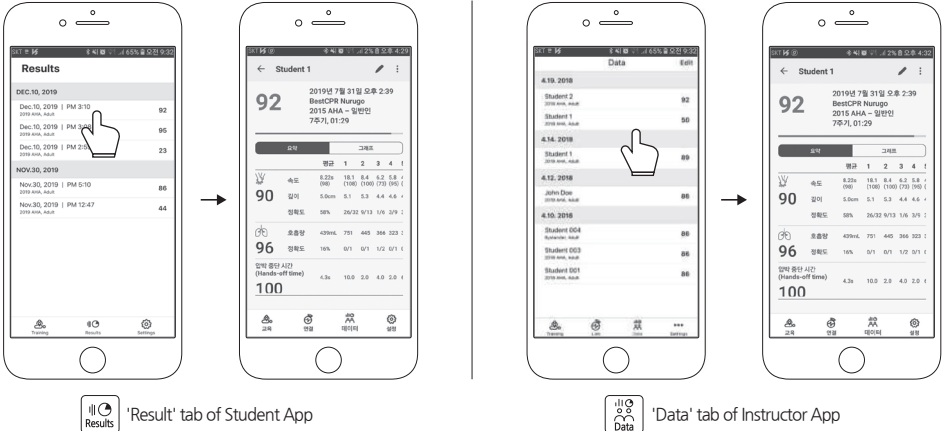


## 5. Graph UI (Instructor App)

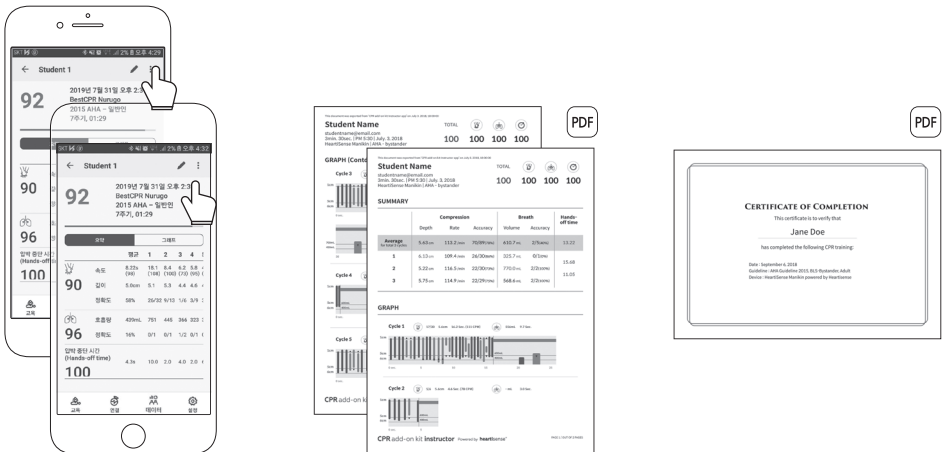


How to use CPR-on kit

## 6. Checking stored data (CPR-on kit student)



## 7. Exporting the result / certification



It is possible to print out the results or send a PDF file to another App by sharing the information with an icon in the upper right of the individual results of the Student App and the Instructor App.

The result records (left) and the certificate (right): The certificate can be sent out only from the Instructor App.

How to use CPR-on kit

## Note

- When practicing chest compression, students are to touch 'Nurugo CPR manikin' wearing rubber gloves. If the skin of the manikin becomes hand-stained repeatedly, it may not be removed easily.
- If several students are using one 'Nurugo CPR manikin', be sure to clean the facial part of the manikin with alcohol cotton whenever the students are changed.  
If it is difficult to clean it each time, the students should use their own 'vinyl face shield'.  
If a stain is found while using 'vinyl face shield', it is required to clean it with exclusive MANICLEAN and alcohol cotton for disinfection.
- Whenever an education class is finished, clean the surface of 'Nurugo CPR manikin' with exclusive MANICLEAN and alcohol cotton for disinfection for maintenance. In particular, clean the face, inside the mouth and chest part meticulously.
- Replace the vinyl lung bag after practicing artificial respiration with 'Nurugo CPR manikin'. If not, the vinyl lung bag may not be unfolded easily in the next class due to the moisture in the bag and the bacteria and fungus may increase inside the bag and give harm to the students.
- 'Nurugo CPR manikin' can be used cleanly for a long time if its skin is cleaned regularly.  
When cleaning the manikin, be sure to take the skin off the body and clean it with warm soapy water or cleanser.  
The body contains battery and electric circuit and thus it should not be dipped or soaked by water.
- The skin of 'Nurugo CPR manikin' may be discolored by lipstick, water color or greasy-based ink, latex gloves or other dyes and may be deformed if it is heated.

 **Note**








Free repair and maintenance services are provided for any problem of the product if a customer has used the product adequately according to this manual for 2 years (1 year for CPR-on kit) from the date of purchase.

(However, free maintenance services are not available in the following case even during the warranty period.)

- A failure or damage due to unfaithful wrong operation including an operation not done according to this manual
- A failure or damage caused by repair at another repair agency instead of the designated service agency or a repair or renovation at will
- A failure or damage caused by shock from the outside (including fall) after purchase of the product
- A failure or damage caused by natural disasters such as fire, earthquake, flood and thunderstroke and abnormal voltage
- A failure or damage caused by use of the product in an inadequate environment (Ex.: high temperature, high humidity)
- A failure or damage caused by entry of sand, soil, water, etc. into the product
- A failure or damage caused by serious mistake of the consumer

This warranty regulations are effective only in the Republic of Korea Thailand. Inquire with the place of purchase of this product about the terms and conditions of guarantee of our company.



	CE Mark		Serial No.
	Korea Certification (KC) Mark		RoHS Mark
	FCC Mark		Warning/ Caution sign
	WEEE symbol		



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