

BeneHeart Trainer II / IIs

Automated External Defibrillator Trainer
(AED Trainer)

Operator's Manual

mindray 

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1. Product Introduction and Product Features

1.1 Product Introduction

The BeneHeart Trainer II / IIs Automated External Defibrillator Trainer (AED Trainer) is designed specific for training first-aid personnel before they use C&S Automated External Defibrillator (AED). The trainer fully simulates the C&S automated external defibrillator in the training guide and drill program with a view to help first-aid personnel to get familiar with the AED and grasp required basic operation skills when using it in the first-aid process.

Note: Before using an AED clinically, first-aid personnel must first complete required first-aid training courses so that they can cope with various situations calmly in case of an accident. Such first-aid trainings also include studying the use of the AED trainer. Well-trained first-aid personnel must know very well how to assess the patient's conditions such as loss of consciousness, respiratory arrest, cardiac arrest etc. They are also proficient in CPR operation procedures and related medical procedures.

1.2 Product Features

The BeneHeart Trainer II/ IIs AED trainer has preset 6 training scenarios. Each scenario simulates sudden cardiac arrest of a real heart, which will help its users master the AED operation skills. These scenarios conform to the training standards required by AHA CPR guidelines. Please refer to the local medical guide and emergency medicine for other requirements of the training.

BeneHeart trainer II / IIs AED trainer can simulate shock but cannot output high energy, thus ensuring its safety during use.

Note: high-voltage shock is applied in Beneheart C&S series automatic external defibrillator, be sure to keep this in mind for operation safety.

The BeneHeart Trainer II / IIs AED trainer can simulate the semi-automatic and fully-automatic defibrillation modes.

The BeneHeart Trainer II / IIs AED trainer is equipped with a remote control, which is convenient for teacher to control the AED trainer and select different training modes.

2. Product Composition and Structures

The product consists of main unit, remote control, electrode pad & electrode wire, operator's manual and carry case.

2.1 Main Unit

2.1.1 Top View

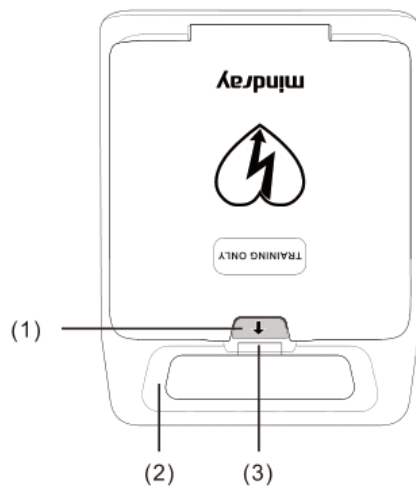


Figure 1. With lid closed

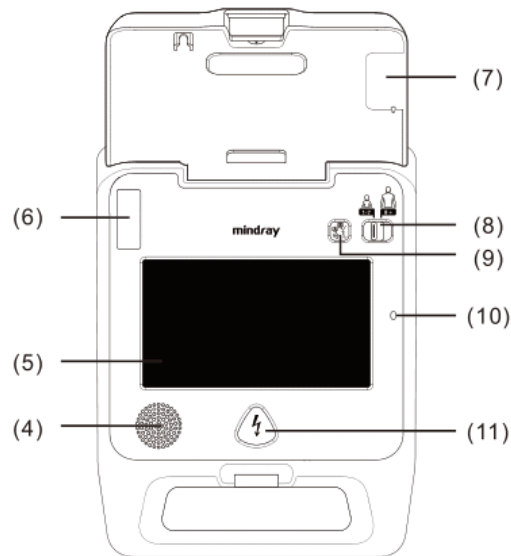


Figure 2. With lid opened

(1) Latch: opens or closes the lid.

(2) Handle

(3) Status indicator

Green: the device is turned on, and can work correctly.

Flashing green: the green light flashes when the remote control is used.

Off: the device is not powered on, or no batteries installed, or the batteries are failure.

(4) Speaker: play voice prompt.

(5) Display screen (Note: BeneHeart Trainer II is not configured with the screen)

(6) Pads connector: connects the electrode pads.

(7) Pads package holder: stores the electrode pads.

(8) Adult/Child mode switch: flip right or left to switch between adult and child.

(9) Language button: press to switch between the configured languages.

(10) Remote control receiver tube: when operating with a remote control, point it to the receiver tube.

(11) Shock button: press to deliver a shock.

2.1.2 Rear View of the Main Unit

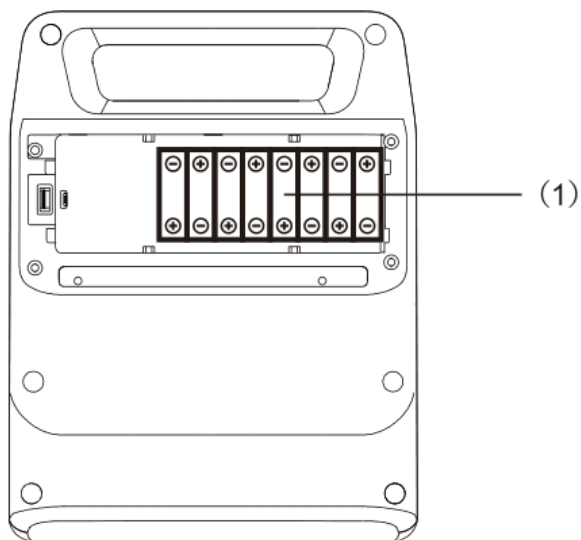


Figure3. Rear view of the main unit

(1) Battery compartment

2.1.3 Screen Display (for device configured with screen)

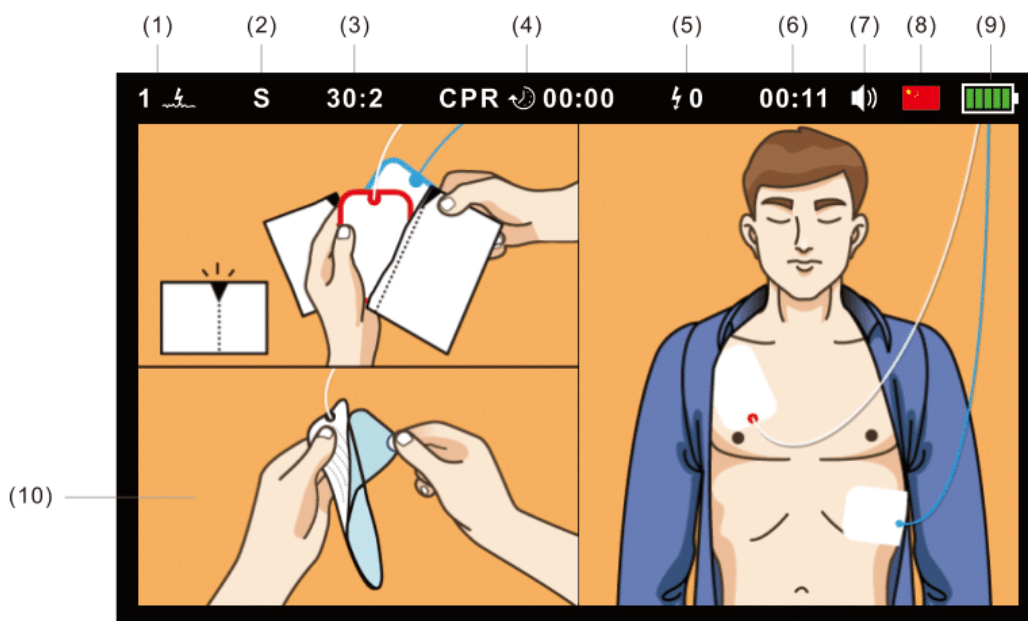







Figure 4. Screen display

Table 1: Screen Display Instructions of Main Unit

No.	Explanation	Icon Style	Description
(1)	Mode display	1/2/3/4/5/6 	Displays the 6 training scenarios modes 1-6. If a simulation mode is selected with the remote control, the corresponding simulation mode icon will be displayed on the right side of the scenario mode number.
(2)	Semi-automatic / Fully-automatic mode	S F	Displays the current defibrillation mode (semi-automatic / fully-automatic). S stands for Semi-auto (semi-automatic mode), F stands for Fully-auto (fully-automatic mode).
(3)	CPR mode	30:2	Displays the current CPR mode 30:2.
(4)	CPR time	CPR  00:00	Calculates the CPR time from the device is powered on to it is shutdown.
(5)	Number of delivered shocks	⚡ 0	Displays the total number of shocks in a single mode. If you switch to other mode such as the 6th scenario mode, the number of shocks will be re-calculated.
(6)	Runtime area	00:11	Displays the device's operating time since powered on.
(7)	Volume		Displays the four volume icons: mute/low/medium/high.
(8)	Language		Displays the current language with the national flag icon.
(9)	Battery status indicator		Indicates the battery status.
(10)	Treatment information area	Plays the operation instruction with pictures	Displays the corresponding operation instruction according to the voice prompt.

2.2 Remote Control

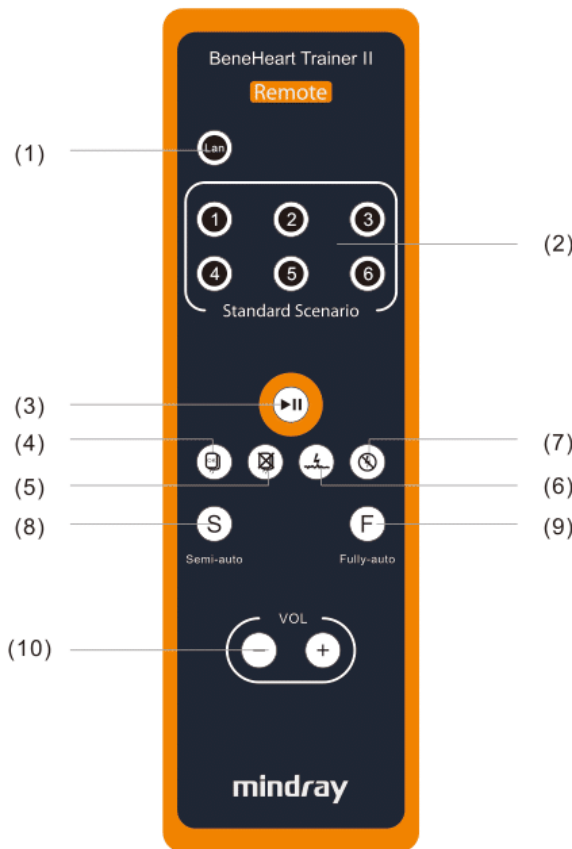


Figure 5. Remote control





(1) Language switch button: multi-languages are available for choice.

(2) Scenario selection: select from 1 to 6.

Table 2: Description of 6 Basic Scenarios Training Modes

Simulated Scenarios	Description	Operation
①	Shockable rhythm— Defibrillation succeeds in one shock	Shockable rhythm One shock Normal rhythm
②	Shockable rhythm— Defibrillation succeeds in two shocks	Shockable rhythm Two shocks Normal rhythm
③	Shockable rhythm— Defibrillation succeeds in three shocks	Shockable rhythm Three shocks Normal rhythm

④	Shockable rhythm – Defibrillation succeeds in one shock Shockable rhythm Defibrillation succeeds in one shock	Shockable rhythm One shock Normal rhythm Shockable rhythm One shock Normal rhythm
⑤	Shockable rhythm	Shockable rhythm throughout the whole course
⑥	Normal rhythm	Normal rhythm throughout the whole course

- (3) Play/pause button: when the trainer is playing, press this button, the trainer enters the pause state; when the trainer is under the pause state, press the button, it will continue its play.
- (4) Simulate the scenario that the pads have been connected properly
Press the button during scenario training process, the upper left corner of the main unit screen will display “” (for device configured with the screen), it enters the scenario of simulating good pads contact.
- (5) Simulate the scenario that the pads are not connected properly
Press the button during scenario training process, the upper left corner of the main unit screen will display “” (for device configured with the screen), it enters the scenario of simulating poor pads contact.
- (6) Simulate “shock advised” scenario (shockable rhythm)
Press the button during scenario training process, the upper left corner of the main unit screen will display “” (for device configured with the screen), it enters the scenario of simulating shock.
- (7) Simulate “no shock advised” scenario (normal rhythm)
Press the button during scenario training process, the upper left corner of the main unit screen will display “” (for device configured with the screen), it enters the scenario of simulating no-shock.
- (8) Semi-auto mode button: when it is on fully-auto mode, press this button, it will enter the semi-auto mode.
- (9) Fully-auto mode button: when it is on semi-auto mode, press this button, it will enter the fully-auto mode.
- (10) Volume +/-: High/medium/Low/Mute adjustable.

2.3 Other Components

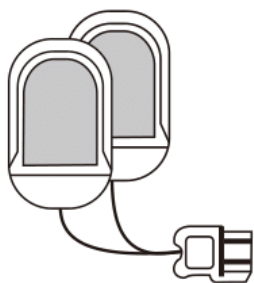


Figure 6. Electrode pad & electrode wire



Figure 7. Operator's manual



Figure 8. Carry case

3. Product Installation

3.1 Install Battery

- (1) Place the device on the worktable with face down.
- (2) Remove the screws from the battery door.
- (3) Remove the battery door as indicated.

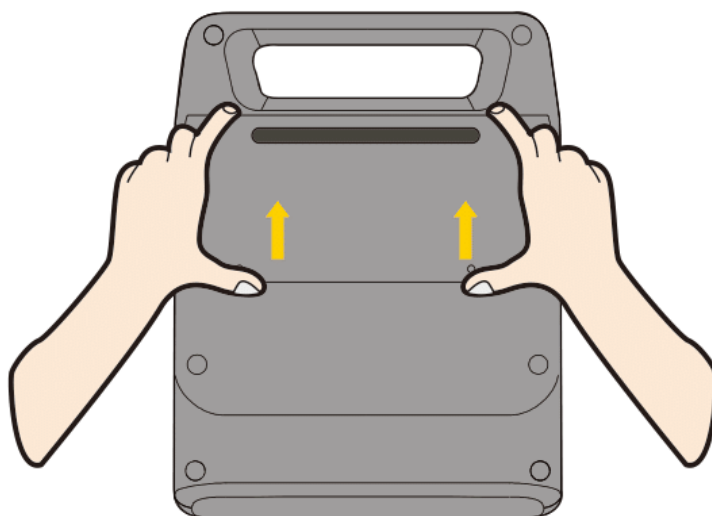


Figure 9. Removing the battery door

- (4) Install 8 AA batteries properly, pay attention to the battery polarity.
(Note: Batteries used by a C&S series defibrillator are disposable manganese dioxide lithium batteries.)
- (5) Close the battery door and reinstall the battery cover with the screws.

3.2 Connect Pads to Electrode Wires

- (1) Connect the pads and the electrode wires properly.

Note: The electrode wire of the C&S series defibrillator is connected to the electrode pad and does not need to be connected.

- (2) During the training, plug the electrode wire into the pads jack on the upper left corner of the machine by following the voice prompt.

Statement of electrode pad: The electrode pads for training are similar to the electrode pad used in a clinical AED machine, however, their external dimensions and materials are different and cannot conduct current. After the electrode wires are connected to pads, it may be used with any CPR manikin; when inserting the electrode wire terminal into the trainer jack, the trainer will demonstrate the process according to the training procedure.

Adult Electrode Pad



Child Electrode Pad

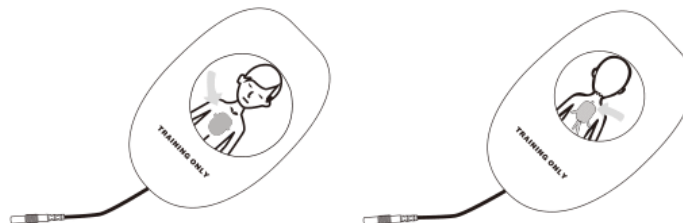


Figure 10. Electrode Pads

Note: The training pads are for training used only and should not be used with a real clinical AED.

The standard package only includes adult electrode pads, the child electrode pads are optional accessories.

4. Operation Instruction

4.1 Turn On the Device

Open the lid, then the device automatically powers on. Then the AED Trainer will detect the pads connection. If the pads have not been connected and plugged into the pads connector properly, the trainer will keep on prompting its user to connect the pads and the electrode wire plugs properly; if the adult pads are connected, the AED trainer will enter the Adult Mode; if the child pads are connected, the AED trainer will enter the Child Mode.

4.2 Apply Electrode Pads

Take out the pads for training and apply them to a CPR manikin body according to the following positions.

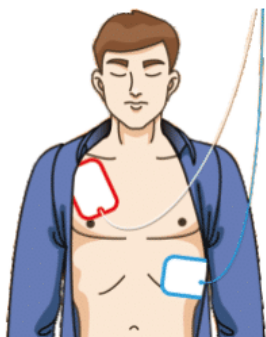


Figure 11. Apply pads (adult)

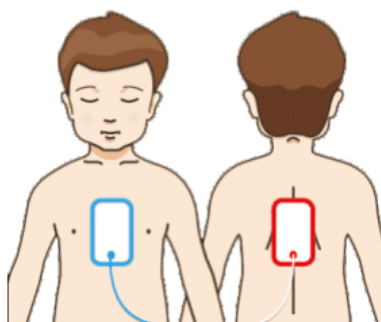


Figure 12. Apply pads (child)

4.3 Carry Out Operations According to Sound and Prompt Information

- ◆ If a shockable rhythm is detected, the AED trainer will prompt the user to press the Shock button to simulate a shock.
- ◆ If a shock is not advised, the AED trainer will perform CPR mode according to the current configuration.

4.4 Select Scenario Mode

The AED trainer has preset 6 basic scenarios and 4 optional simulation scenarios. Select different scenarios with the remote control for training.

4.5 Turn Off the Device

To turn off the device, pull out the electrode plug, store the electrode wire and electrode pads in the carry case, and then close the lid to turn off the device.

- ※ If no operation is found performed on the device within 30 minutes after the device is paused, the device will automatically shut down.

5. Care and Cleaning

5.1 Main Unit Maintenance Method

The main unit must be cleaned on a regular basis. At places with heavy environmental pollution or strong sandstorm, the main unit must be cleaned more frequently. Optional cleaning agents include hydrogen peroxide solution (3%) and ethanol (75%).

When cleaning the trainer:

- (1) Turn off the power and remove batteries.
- (2) Cleanse the display screen with soft cotton balls soaked with proper amount of cleaning agent.
- (3) Cleanse the trainer surface with a soft cloth soaked with proper amount of cleaning agent.
- (4) Remove excess cleaning agent with a dry cloth when necessary.
- (5) Place the trainer in a ventilated cool environment to let it dry.

5.2 Pads Maintenance Method

- (1) Pads must be kept clean to avoid dust, oily substances, sticky articles and other contaminants, otherwise, pads viscosity will decline.
- (2) Stick the pads to their original covers rather than to other articles randomly for preservation to avoid damaging them.
- (3) When pads viscosity declines due to contamination, clean directly with a small amount of water slightly, which viscosity will be recovered temporarily after being fully dried. If too much water is used for cleaning, pads viscosity will decline.
- (4) Do not wipe the sticky surface with tissue or cloth.
- (5) Do not scrape the sticky surface with nails or brushes.
- (6) Do not wash pads frequently and do not clean pads with cleaning agent or hot water.
- (7) Keep the pads away from direct sunlight, high temperature, moisture, dust and corrosive gas.

Considerations in Trainer Keeping

- (1) Do not immerse the trainer into liquid.
- (2) Do not pour any liquids onto the trainer or its accessories.
- (3) Do not allow liquid to enter the enclosure.
- (4) Do not use any abrasive material such as steel wool or polishing compound or any strong solvent such as acetone or cleaning agent containing acetone component for cleaning and disinfection.
- (5) Keep the trainer away from direct sunlight, high temperature, moisture, dust or corrosive gas.
- (6) Keep the main unit, pads, electrode wires, remote control and manual into the carry case.

※ Be sure to obey the above considerations to use the trainer correctly.

6. Product Specifications and Configurations

Main Unit Specification

Product Model: BeneHeart Trainer II / IIs

Product Name: AED Trainer

Power Supply: DC12V, 8 AA batteries

External Dimension: 210 x 286 x 78mm (± 20 mm)

Product Weight: 1.5 \pm 0.2kg (BeneHeart Trainer IIs)

1.3 \pm 0.2kg (BeneHeart Trainer II)

Maximum Working Current: ≤ 500 mA

Off Current: ≤ 10 μ A

Note: Support chargeable AA batteries, rechargeable batteries and charger must be purchased by the customer.

Remote Control Specification

Power: DC3V, 2 AAA batteries

Static Working Current: < 5 μ A

Maximum Working Current: < 10 mA

Product Configurations:

No.	Contents	Qty	Unit	Remarks
1	Main unit	1	EA	
2	Remote control	1	EA	
3	Electrode wire	1	EA	Adult electrode wire (with yellow terminal)
4	Electrode pad	1	EA	Adult pads, can be used repeatedly
5	Operator's manual	1	EA	
6	Carry case	1	EA	

Configuration Statement: child electrode wire and child electrode pads are optional accessories which are not included in the standard package. Customers can purchase the child electrode wire and child electrode pad separately according to their needs.