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PowerBeat X1 Trainer/ PowerBeat X3 Trainer

User Manual

VIVEST Medical Technology Co., Ltd

Before Use

Thank you for purchasing PowerBeat X1 Trainer/ PowerBeat X3 Trainer
Please read this manual carefully before using the trainer. Please keep the trainer
for easy access after use.

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Warranty Card

Name	
Telephone	
Address	
Post Code	
Model	
Serial No.	
Purchase date	
Order No.	
Distributor	

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For information concerning any of our products, please contact VIVEST.

Illustration:

Figure	Description
	Temperature
	Relative Humidity
	Atmospheric Pressure
	Manufacturer
	Fragile
	Up
	Keep Dry
	Do not tumble the package during handling

8. Warranty

The manufacturer provides a reasonable warranty service during warranty period. Once requesting a warranty service, you are obliged to provide proof of purchase from the distributor. And the warranty will be void in the case of:

Violation of instructions.

- Operation error.
- Improper use or handling.
- Unauthorized personnel have repaired the device.
- Force majeure such as lightning strikes.
- Transport damage due to improper packing when sending back.
- No maintenance.
- Damage due to excessive use (such components include batteries, disposable items, etc.).
- The original accessories were not used.

The manufacturer reserves the right to choose to exclude defects, provide non-defective components, or appropriately lower the purchase price based on product defects. If the warranty is invalid, the manufacturer will not bear the cost of transportation.

The manufacturer shall not be liable for any accidental injury caused by the operator's violation of user manual, misuse, or improper handling. Legal warranty requirements are not affected by above situation.

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1. General Information

This chapter describes the product models, specifications and features. Before using this product, please read the contents of this manual carefully to ensure that you can master the correct use method.

1.1 Specifications

Model: PowerBeat X1 Trainer and PowerBeat X3 Trainer. (Hereinafter called 'trainer'.) PowerBeat X1 Trainer has LED lights, graphic panel and voice prompt.

Powerbeat X3 Trainer has a color LCD display, full-color rescue images, voice prompt and text prompt.

WARNING:

Do not store the Trainer with your PowerBeat X series defibrillator, or where it could be confused with the defibrillator during emergency.

1.2 Features and Functions

The training machine completely simulates the operation of the real defibrillator in clinical use, and its main functions and features are as follows:

Voice Prompt and Indication Light

The trainer will guide the user during training.

PowerBeat X3 trainer guides the operator by features of LCD display, full-color rescue images, voice and text prompt.

PowerBeat X1 trainer instructs the operator by features of LED light, graphic panel and voice prompt.

Analyzing Heart Rhythm

The trainer will analyze the heart rhythm automatically when the pads are applied onto manikins properly. For pediatric manikins, apply the pads to the chest and the back as shown.

Simulation of Defibrillation

Trainer detects a shockable rhythm, then simulates to charging and instructs user to deliver a shock. Trainer detects a non-shockable rhythm, instructs users to begin CPR.

7. Technical Specifications

Physical	
Dimensions (with handle)	232 ±1mm (H) * 209±1mm(W) * 59± 0.5mm(D)
Weight	1.1kg (Including battery and electrodes)
Environment	
Operating and installation conditions	Temperature: 0~50°C Humidity: ≤80% (relative humidity, non-condensing) Atmospheric pressure: 86 ~106 kPa
Storage conditions	Temperature: -20~+60 °C Humidity: ≤93% (relative humidity, non-condensing) Atmospheric pressure: 70~106kPa
LCD display (PowerBeat X3 Trainer)	
LCD	5"
Resolution	800*480RGB
Trainer	
Power supply	4 AA alkaline batteries, voltage 6.0V
Shutdown current	≤50uA(max)
Working current	≤1A (max)
Operation life (standby)	5 years (max)
Remote Control	
Power supply	DC 3.0V(CR203 coin-cell battery)
Shutdown current	5μA (max)
Working current	25mA (max)

6. PowerBeat X1/X3 Trainer Kits Contents

Item	Quantity
Trainer	1
Remote Control (Optional)	1
Electrodes Wires with connector	1
Electrodes Pads	1
Carry Case	1
User Manual	1
Battery (Optional)	4

2. Product Overview

This product consists of host, remote control, training electrode, portable bag and instruction manual. Please check whether the components are complete before use.

2.1 Trainer

This section describes the components, appearance, and functions of buttons and indicators on the control indicator panel.

2.1.1 PowerBeat X1 trainer



Figure-1 PowerBeat X1 Trainer

Description	Functions
A: Power Button	To turn on the trainer by pressing this green button. To turn off the trainer, press the green button again and hold it down for over 1 second.
B: Shock Button	To press the Shock button to deliver the simulated shock after charging
C: Infrared (IR) Communications Port	In the power-on state, it is used to receive remote control signals. Keep remote control to be aligned to this port when sending signals.
D: Child Button	To enter the child mode by pressing and holding this button for 3 seconds, with a voice prompt "Enter the child mode, please press and hold the child button for 3 seconds", (To switch from child mode to adult mode, you need to shut down and restart)
E: Electrode Connector	Connect the electrodes with device

F: Speaker	When the trainer is being used, its voice instructions or beep sound come from this speaker.
G: Pads Icons	After the trainer is turned on, the pads icons is always on before the electrode connector are plugged into.
H: Heart Rhythm Analysis Light	This light is on as an indication of trainer “Analyzing Heart Rhythm Don’t Touch Patient”
I: CPR Light	This light is always on when a CPR advised.
J: Quick Start Guide	A brief introduction for the trainer’s basic operation steps.
K: Name Plate	Device and manufacturer information.
L: USB Port	This port is used for updating language and software program
M: Training Electrode	Consist of training electrodes cables and pads

2.1.2 PowerBeat X3 trainer



Figure-2 PowerBeat X3 Trainer

Description	Functions
A: On/Off button	To turn on the trainer by pressing this green button. To turn off the Trainer, press the green button again and hold it down for over 1 second.

Recommended disinfectant:

- 75% ethyl alcohol
- 70% isopropyl alcohol

Please disinfect the trainer regularly, every three months are recommended, or increase the frequency of disinfection according to the usage of the trainer. Please follow the steps below to do disinfecting:

- 1) Shut down, remove the battery from the trainer, and disconnected the electrode connector;
- 2) Clean the trainer case, handle and screen with soft, damp cloth using disinfectant
- 3) Wipe off excess disinfectant with a dry cloth
- 4) Put the trainer in a cool and dry place for at least 30 minutes;
- 5) Make sure the trainer is dry before installing batteries and electrodes.

5.4 Transportation

To ship the device to a service facility, the battery must be removed from the device, packaged separately, then shipped with the device. The general transportation is allowed, but it is necessary to prevent severe shock, vibration and rain and snow splashing during shipment.

5.5 Disposal treatment

The trainer with its components must be recycled according to local regulations when expired. If any question, consult your local recycling facility. Disposal of electrodes and batteries should also comply with relevant regulations, and they should be recycled or discarded according to your country's regulations.

5.6 Troubleshooting

Some common faults are listed below. If the item-by-item inspection cannot effectively assist in troubleshooting, please return to the ViVest technical support for service.

Behavior	Possible Cause	Recommended Action	Reminding
Trainer does not be powered on	No battery installed	Install battery	None
	Low battery or trainer faulted	Replace battery	None
	Equipment Failure	Contact ViVest Technical Support for service.	None
Trainer shuts down unexpectedly	Low battery	Replace battery	None
	Equipment Failure	Contact ViVest Technical Support for service.	None

4.6 Turn off trainer

After the simulated training, to press and hold on the "ON/OFF button" for turning off the trainer

4.7 Storage of electrodes cable and electrodes pads

After a training simulation, please put the electrode pads into the Ziplock bag, and then put it into the electrode pad compartment on the back of the trainer

5. Maintenance and Troubleshooting

This section describes the daily maintenance, cleaning, transportation, disposal and common troubleshooting of the device.

5.1 Maintaining of pads

- 1) Attach the electrodes pads onto a special paste board, don't paste it on other items, that will damage it.
- 2) Put the electrode pads in a zip lock bag, which will help prolong its service life.
- 3) Replace the electrodes pads regularly after 20-30 times of usage.
- 4) Keep the pads clean and far away from the oily substances, dust etc, that may cause its less sticky
- 5) Shelf the electrode pads in a cool, dry warehouse, avoid direct sun exposure.

5.2 Routine cleaning of trainer

After each use, clean the trainer with the following cleanser:

- 90% isopropyl alcohol
 - 96% ethyl alcohol
 - Soap and water, or chlorine bleach and water mixture (30 ml/liter water).
- Please clean the trainer regularly. Every three months recommended, or increase the cleaning frequency according to usage condition. To follow the steps mentioned below:

- 1) Shut down, remove the battery from the trainer, and disconnected the electrode connector;
- 2) Clean the trainer with soft, damp cloth. Do not splash water on the trainer, Do not immerse it in water.
- 3) Clean the case, handle and screen with soft, damp cloth.
- 4) Wipe off excess disinfectant with a dry cloth.
- 5) Put the trainer in a cool and dry place for at least 30 minutes;
- 6) Make sure the trainer is dry before installing batteries and electrodes.

5.3 Routine disinfecting of trainer

B: Shock button	To press the Shock button to deliver the simulated shock after charging
C: Infrared (IR) communications port	In the power-on state, it is used to receive remote control signals. Keep remote control to be aligned to this port when sending signals.
D: Child mode button	To press and hold this button for 3 seconds, with a voice prompt "Enter the child mode, please press and hold the child button for 3 seconds", (To switch from child mode to adult mode, you need to shut down and restart)
E: Electrodes connector	Connect the electrodes with device
F: Speaker	Voice instructions or beep sound come from this speaker.
G: Information button	Voice prompt "Information Button" after this button pressed during training mode.
H: Language button	To switch the language by pressing this button during training mode.
I: LCD display	To display with text and full-color rescue images during training.
J: Quick Start Guide	A brief introduction for the trainer's basic operation steps.
K: Name Plate	Device and manufacturer information.
L: USB Port	For updating software and language configuration
M: Training Electrodes	Consist of training electrodes cables and pads.

2.1.3 PowerBeat X3 rainer LCD display



Description	Functions
A: Shock times	Display the current total number of simulated shocks.
B: Information Icon	An icon for the information button that at the left side of trainer
C: Language Icon	An icon for the language button that at the right side of trainer
D: Battery Icon	Display the current battery capacity remaining.
E: Adult/Child Mode Icon	Display current training scenario is adult mode or child mode
F: Timer Icon	Show current working time
G: CPR Mode	Displays the current CPR mode.
H: Volume icon	Displays the current volume



Figure-13 Press Shock Button

Trainer will issue a voice prompt "Shock Delivered", "Safe To Touch Patient,Begin CPR", "Keep Arms Vertical, Push to Match the Tone". The on-screen shock counter updates to reflect the total number of shocks that have been delivered. If the shock button is not pressed, after 30 seconds, the trainer simulates a shock automatically and voice prompts "Shock button not pressed, shock canceled", "Safe To Touch Patient,Begin CPR", "Keep arm vertical, Press to the beat".

4.4.2 No shock advised

Trainer detects a non-shockable rhythm, voice prompt " No Shock Advised", "Safe To Touch Patient,Begin CPR", "Keep Arms Vertical, Push to Match the Tone", then instructs user to start CPR.

4.5 Begin CPR



Figure-14 Begin CPR

Entering the CPR scenario, user are instructed to do the CPR by following the CPR indicator light (only PowerBeat X1 Trainer), voice prompt and full-colour rescue images ((only PowerBeat X3Trainer).The user can touch the manikin, and perform chest compressions according to the prompt. After completing 30 compressions, the trainer prompts "Give Two Breaths", "Breaths", "Breaths"., the one set of CPR simulation is completed after 2 ventilations send.

When one CPR scenario completed, the trainer text prompts or voice prompts "Stop CPR" (only PowerBeat X3 Trainer), then the trainer starts the heart rhythm analysis again.

4.3 Plug in pads connector into port

The user should check whether the electrodes connector has been plugged into the corresponding socket, if not, the trainer will issue a voice prompt "Plug In Pads Connector"



Figure-11 Plug in Pads Connector

4.4 Analyzing heart rhythm

The trainer starts to simulate the heart rhythm analysis, after the electrodes connector inserted into. During the heart rhythm analysis, the trainer continuously check whether the electrode connector is plugged into or not. If its detached, the simulation of heart rhythm analysis will be interrupted, and the electrode indicator light will be flashing (Only for PowerBeat X1 Trainer) and voice prompts " Plug In Pads Connector".When the electrodes connector is plugged in , trainer voice prompts "Analyzing Heart Rhythm, Don't Touch Patient"



Figure-12 Heart Rhythm Analysis

4.4.1 Shock advise

PowerBeat XI Trainer /PowerBeat X3 Trainer:

In a shock advise scenario, user is instructed with voice reminds "Shock Advise", "Charging, Do not Touch Patient", then a voice prompt " Press Flashing Shock Button" after charging completed. A defibrillation will be released once the shock button was pressed.

2.2 Remote Control



Figure-4 Remote Control

The 6 standard Training Scenarios:

Buttons	Description	Functions
	Six standard training scenarios	The six pre-programmed standard training scenarios can be simulated by pressing these buttons. (The detail features are described below)
	CPR mode	To switch the CPR mode. (1) 30 compressions/2 ventilations (2) 15 compressions/2 ventilations Compressions only
	Language switch	To switch the language of voice prompt.
	X1/X3 trainer mode switch	To switch the working interface to X1 (without LCD display) or X3 trainer mode (with LCD display)
	Volume control button	(+)increase or (-) decrease the volume (Volume can be set among Low, Medium, and High.The default setting is Medium)
	Pause/Resume button	Pause (resume) current scenario
	Shock button	Simulate a shockable rhythm.
	NO Shock button	Simulate a non-shockable rhythm
	Shock button	Simulate a shockable rhythm.
	NO Shock button	Simulate a non-shockable rhythm

	Pads attached	Simulate good electrodes connection
	Pads not attached	Simulate loose electrodes connection
	Push harder button	Press the PUSH HARDER button during the CPR interval to force the trainer to say "Push Harder"
	Good Compressions button	Press the GOOD COMPRESSIONS button during the CPR interval to force the trainer to say "Good Compressions".
	Low Battery	Simulate low battery, voice prompt "Low Battery"
	Motion Interference	Simulate motion artifact, voice prompt "Keep Patient Still"

4. Operating Steps of AED Trainer

This section mainly introduces the using of trainer. The whole training is simulated according to real emergency scenarios. During the training, there are text (only PowerBeat X3 Trainer), full-color rescue images (only PowerBeat X3 Trainer), voice prompt and indicator lights to guide operator to learn how to use a defibrillator in an emergency.

Brief operation steps :

- 1) Press the green On/Off button to turn on the trainer.
- 2) Apply Pads to Patient's Chest as the shown
- 3) Plug In Pads Connector as instructed
- 4) Continue to follow the trainer's instructions for remainder of scenario.

4.1 Turn on trainer

The trainer starts to work after the power on button pressed, following with a "beep" sound. The green power button remains on, then a voice prompt of "Call for Help", the user follows the trainer's instructions for remainder of scenario.

4.2 Apply pads as shown

The appropriate placement of the electrode pads is an important factor for the success rate of defibrillation. Therefore, during the simulation training, the electrode pads should be properly attached to according to the type of patient. The trainer voice prompts "Remove Liner From Pads", "Apply Pads to Patient's Chest".

Note:

- * Place the electrodes pads on the manikins according to the graphics on the pads
- * Press the pad down firmly, then peel and place the other pad.



Figure-9 Placement of electrodes pads

Apply the Adult/Child Electrodes Pads to Patient's Chest as shown below :

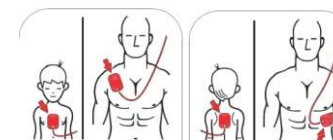


Figure-10 Placement of Adult/Child Electrodes Pads

3.2 Connecting the pads with cable connector



Figure-8 Connecting the pads with cable connector

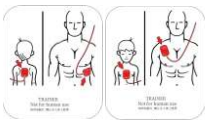
Connecting the pads with cable connector

Put the pads with electrodes wires into the pads compartment on the back of trainer

Warning: The electrode pads for training are similar in appearance and size to the electrode pads used in clinical defibrillation, but the materials are different. Its only for training use and should not be connected to the defibrillator for clinical emergency use.

Button	Standard Scenario	User Response
1	Shock for one time No shock Shockable rhythm detected, 1 shock needed for conversion	-Shockable rhythm -1 shock -2 minutes CPR -Non-shockable rhythm -2 minutes CPR-2 minutes CPR
2	Shockable rhythm detected, 2 shock needed for conversion	-Shockable rhythm -1 shock -2 minutes CPR -Shockable rhythm -1 shock -2 minutes CPR -Non-shockable rhythm -2 minutes CPR
3	Shockable rhythm detected, 3 shock needed for conversion	-Shockable rhythm -1 shock -2 minutes CPR -Shockable rhythm -1 shock -2 minutes CPR
4	Shockable rhythm detected, conversion, return to shockable rhythm, conversion	-Shockable rhythm -1 shock -2 minutes CPR -Non-shockable rhythm -2 minutes CPR -Shockable rhythm -1 shock -2 minutes CPR -Non-shockable rhythm -2 minutes CPR
5	Shockable Rhythm	-Shockable rhythm throughout
6	Non-Shockable Rhythm	-Non-shockable rhythm throughout

2.3 Other Components

Components	Description	Quantity
	Electrodes Wires with Connector	1
	Electrodes Pads	1
	Portable Bag	1
	User Manual	1

3. Installation and Preparation

3.1 Installing or Replacing the Batteries

3.1.1 Installing Batteries

- 1) Open the battery cover.
- 2) Insert 4 new AA alkaline batteries into the recess, oriented as illustrated in the battery

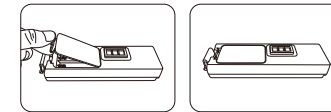


Figure-5

3.1.2 Installing Batteries Compartment

- 1) Insert the battery compartment into the bottom of trainer.
- 2) Press down to ensure the latch holds it into battery slot.
- 3) Check whether it is fully inserted into the battery slot.

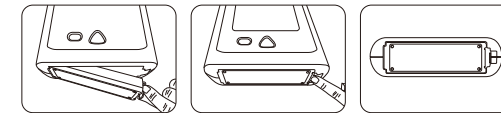


Figure-6

3.1.3 Removing the battery compartment

Replace the batteries immediately after a voice remind of "Low Battery". Remove the batteries as the below instructions:

- 1) Ensure the trainer is turned off.
- 2) Press down the battery compartment buckle.
- 3) Remove the battery compartment from the trainer.
- 4) Open the battery cover and take out the old batteries.



Figure-7