



**Title: AMRUT**  
**Instructions For Use**

**Document No:**  
NASAN-D&D-D-012

# AMRUT

(AUTOMATED EXTERNAL DEFIBRILLATOR)

## USER MANUAL

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NASAN MEDICAL ELECTRONICS PVT. LTD

Hope you don't require service at all.

But incase you require,

Please contact: 09371039255

For any working days 9.30a.m to 6 p.m

**Dear customer,**

We take this opportunity to thank you once again for your patronage. We reiterate our commitment to live up to the confidence you have shown in us. Our continued endeavor is to exceed your expectation by offering you products that have optimum features and reliable, high quality performance backed by prompt technical support.

It is our pleasure to give you this user manual. Please study the same thoroughly before using the system.

**Contact details:**

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# User manual for

# AMRUT

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## **1. INTRODUCTION**

Automated External Defibrillation (AED) is a battery powered, lightweight and portable device designed to deliver a biphasic shock only when advised.

This electrical energy is transferred through disposable multifunction electrode pads applied to the patient's bare chest.



## FEATURES

- Detailed voice prompts and visual icons for guidance to the user
- Battery capacity: 200 shocks or 4 hours
- 20 sec delay time between two shocks
- Evaluates patient ECG to determine if rhythm is shockable.

## Overview

Amrut is a safe and easy to use defibrillation device.

The Amrut;

recognizes ventricular fibrillation and other ventricular tachycardia and guides operators through the defibrillation process.

When properly connected to a patient who is unconscious, not breathing, and unresponsive (without signs of circulation), the Amrut

analyzes the patient's heart rhythm, provides audio instruction prompts, determines if a shockable situation exists, and, if appropriate, automatically arms the Shock button.

The Amrut delivers the defibrillation shock through two self-adhesive, pre-gelled, low-impedance electrode defibrillation pads. The pads, cable, and connector are sold as disposable kits.

# Intended Use

AMRUT(AEDs) are portable, life-saving devices designed to treat people experiencing sudden cardiac arrest. Amrut, recognizes ventricular fibrillation and other ventricular tachycardia and guides operators through the defibrillation process. The Amrut is intended for use by responders who have been trained in its operation.

The user should be qualified by training in Basic Life Support (BLS), in Advanced Life Support (ALS), or another physician-authorized emergency medical response program.

The defibrillation function of AED is intended to be used for Adult & Pediatric.

Note:Successful resuscitation is dependent on many variables specific to the patient's physiological state and the circumstances surrounding the patient incident. Failure to have a successful patient outcome is not a reliable indicator of monitor/defibrillator performance. The presence or absence of a muscular response to the transfer of energy during electrical therapy is not a reliable indicator of energy delivery or device performance.

# **2. GETTING ACQUAINTED**

The Amrut is designed with your needs in mind. Controls, indicators, and menus are carefully organized to facilitate easy use. This chapter acquaints you with the Amrut operational modes, display views, controls, and indicators. It also provides general information on device use.

## **UNPACKING AND INITIAL INSPECTION**

Examine the AED and accessories for any sign of damage during shipping. Make sure that all the required supplies and accessories, including pads and batteries, are present. Save the shipping container and foam inserts for use in reshipping the AED

**Front Panel:** The Front panel of Amrut has the On-Off switch, keyboard for defibrillation function and speaker.



**Side Panel:** The side panel consists of the connector for the disposable AED pads. These pads are for adults.



**CAUTION:** The equipment carries dangerous voltage at the paddle and cable during this mode, which are capable of causing serious injury or death. This equipment is to be used only by trained personnel.

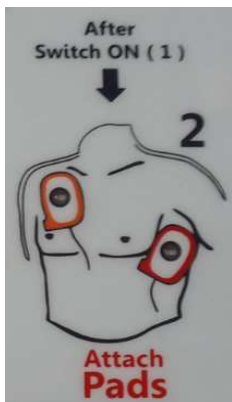
## CONTROLS, INDICATORS:



Green ON/OFF button turns the power on or off. The LED is lit whenever the AED is on.



Speaker provides audio voice prompts and tones.



If pads are not attached then "Remove Cloth from patient's chest ,Attach Pads on patient's bare chest" message will be prompted by the device and will lit the LED.



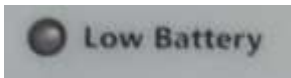
This LED is lit while the AED is analyzing the rhythm.



Once the device is charged ,the LED flashes to prompt the operator to press SHOCK



If patient pulse is not detected, start CPR LED is lit.



Low battery LED will be on if device is on low Battery.

### **AED OPERATION/Installation procedure:**

Prepare for ECG analysis and defibrillation:

1. Verify that the patient is in cardiac arrest (the patient is unconscious, not breathing normally and Shows no signs of circulation, e.g., no pulse, and/or no coughing, no movement).
2. Insert Fuse in fuse holder.
3. Press ON/OFF button to turn on the AED (the green LED will get lit).



4. Prepare the patient for electrode placement:

- If possible, place the patient on a hard surface away from water or conductive material.
- Remove clothes from the patient's torso.
- Remove excessive hair from the sites where electrodes will be attached. Shave if necessary & avoid cutting the skin.
- Clean the skin and dry it briskly with a towel.
- Do not apply alcohol, tincture of benzoin, or antiperspirant to the skin.

5. Apply the electrodes (pads) to the patient's chest:

- Place the electrode lateral to the patient's left nipple with the center of the electrode in the midaxillary line, if possible.
- Place the other electrode on the patient's upper right torso, lateral to the sternum and below the clavicle
- Starting from one end, press the electrodes firmly onto the patient's skin.

6. Connect the pads connector to the AED (if it is not already connected).

If pads are not attached then "Remove Cloth from patient's chest ,Attach Pads on patient's bare chest" message will be prompted.

- When pads are attached then analyzing will start and shock will be advised or not advised depending upon ECG captured.



- “Press the Flashing orange Button, Now” message will be prompted. Press the “**Shock**” Key to deliver the shock
- Once the shock is delivered, “Shock delivered” message is prompted and the CPR steps are prompted thereafter.

If the patient recovers consciousness and/or signs of circulation and breathing return, place the patient in the recovery position and leave the AED attached.

7. Low battery LED will be on if device is on low Battery.

**WARNING:**

- **Avoid touching any metal surface on the device and do not touch equipment connected to the AED during shock. Dangerous high voltage exists on the AED pads when the shock is delivered. Contact with this high voltage can cause death or serious injury.**

**(Note: If shock key is not pressed within 20 seconds, the capacitor is auto discharges through internal circuit).**

8. Press ON/OFF button to turn OFF the AED

## Prompts

These are the following voice prompts during the operation of Amrut

<b>VOICE PROMPT</b>	<b>Description</b>
Remove Cloth from patient's chest ,Attach Pads on patient's bare chest	The AED detects that the electrodes are not connected OR disconnected
Analyzing Heart Rhythm	The AED is analyzing the patient ECG rhythm
Shock Advised	The AED has analyzed the patient ECG and detected a shockable ECG rhythm.
Keep Away From Patient	Move away and do not touch patient.
Shock Not Advised	The AED has analyzed the patient ECG and detected a non-shockable ECG rhythm.
Charging	Capacitor is Charging
Press the Flashing orange Button, Now	To deliver a shock you need to press the shock button
Discharging	Capacitor is Discharging
Shock Delivered	Shock is delivered to

	the Patient
Shock Not Delivered	Shock is not delivered to the Patient
Be sure Emergency medical services have been called	Reminder for the Medical Services.
It is safe to touch the patient	Now you can touch the Patient
Place the heel of one hand, in the center of the chest, between the nipples, Place your other hand on the top of the first, Push the chest down firmly two inches	CPR Instruction
Begin CPR	If patient pulse is not detected, start CPR
Keep time with beep	Be with Beep
Bang sound	CPR Tune
Pinch nose, Tilt head and give two full breath, breath, breath	Instruction to Breath
Continue with CPR	Again the initialization of CPR process.
Stop CPR	Stop the CPR process.

# 3. ACCESSORIES

This chapter lists the various supplies and accessories for the AMRUT.

**WARNING:** Use of non-approved supplies and accessories could affect performance and results.

- AED Pads



**Note:** The AED pads are for one time use only and for ADULT only.




**NOTE:** Do not store any consumables after its expiry date.










Sr. No.	Material Name	Qty.	
1	AED pads	1	Detachable
2	User manual	1	-
3	AMRUT unit	1	-

# 4. APPENDIX -A









## A. Symbol description:

This manual contains WARNINGS, CAUTIONS and NOTES that provides, where appropriate, information relating to the following:

<b>Symbol</b>	<b>Description</b>
 CAUTIONS:	Cautions indicate conditions which may damage or malfunction of the device.
WARNINGS:	Warnings indicate a potential harmful condition that can possibly lead to injury or death.
<b>Note:</b>	Note:Alert the user to pertinent fact and conditions.
<b>Mfg .Lic.No</b>	Manufacturing license number
	Manufacturer symbol,
	Push button ON-OFF symbol

	Humidity limitation
	Temperature limit
	DEFIBRILLATION-PROOF TYPE CF APPLIED PART
	DEFIBRILLATION-PROOF TYPE CF APPLIED PART
	Serial number
	Battery
	Dispose of in accordance with the requirements of your state
	Refer Instruction manual for use
	Medical device that has not been subjected to a sterilization process.

## Marking plate

Product	Defibrillator		
Weight	Approx 2.2 Kgs		
	Nasan Medical Electronics Pvt. Ltd. C wing Shubham Heights, Off Mumbai - Bangalore Highway, Service Road, Warje, Pune- 411058. Maharashtra, India Mobile : 8237032389 Website:www.nasanmedical.com		
			
			
		Mfg.Lic.No.: MFG / MD / 2022 / 000119	

## **B. MAINTANCE**

### **Operational Check:**

- ✦ Check that the cables do not have any cracks or cuts.
- ✦ Although there are no user serviceable parts inside AED, the operator can perform the following preventive maintenance check that will help to ensure that the device stays in working condition.
  1. Check the case of the device for any apparent damage.
  2. Check the AED pads and cable to see if they are in good in condition.

## **Battery check:**

1. A new fully charged battery provides approximately 200 shocks of 200J.
2. As batteries age, their charge capacities diminish.
3. **It is recommended that AMRUT battery should be replaced every four years as preventive maintenance measure.**
4. The time from display of the "Low battery" indication until the instrument shuts down will vary depending upon the battery age and condition.

## **VISUAL CHECK:**

- ✦ Worn out or damaged wiring.
- ✦ Mechanical damage.
- ✦ Damaged AED cable or connector.

## **Cleaning Instruction:**

Dampen a soft cloth with soapy water or with one of the disinfectants or cleaning agents listed below

### **Approved Cleaning Solutions**


- a. Mild soap and water
- b. Isopropyl alcohol (consisting of 70% solution)

**CAUTIONS:** Do not use strong solvents or abrasive cleaning materials.

Do not use any of the following to clean the machine:

- a. Acetone
  - b. Iodine-based cleaners
  - c. Phenol-based cleaners
  - d. Ethylene oxide sterilization
  - e. Ammonia-based cleaners
- 
- When cleaning, do not immerse.
  - Be sure to avoid pouring fluids on the device, and do not allow fluids to penetrate the exterior surfaces of the device.
  - To prevent scratching the display, the use of a soft cloth is recommended.
  - Use of the non-recommended solution for cleaning of the devices may wipe off the symbols, device information from the enclosure surface.

### **C. Classification of Applied Parts:**

Applied part	Degree of protection against electric Shock
AED Pads	 <b>CF</b>

# **5. SPECIFICATION\***

## **GENERAL**

Dimensions : 7.5 x 20 x 24 cm (LXBXH)  
Weight : Approx 2.2 Kgs. Max  
Controls : ON/OFF button, shock button

## **POWER SUPPLY**

Battery : 15V/4.2 AH, lithium manganese dioxide,  
disposable long life primary

battery

Capacity : minimum 200 shocks of 200  
Joule

Back-up time : 4 hours

Standby life : FIVE years typical when  
battery is installed by the date

## **ENVIRONMENTAL**

Operating Temp	: -5°C to +50 °C
Humidity	: up to 95 % non-condensing

## **AED**

Waveform	: Biphasic truncated exponential
Energy	: Automatic programmed 200 J
Energy level 200J for Adult and 50J for paediatric	
Charging Time	: 10 sec
Controls	: Analyze
Defibrillation Electrode	: Self adhesive Adult pads
Voice prompts	: Voice prompts to guide user
Shock to Shock Cycle time	: Typically less than 20 seconds between shocks in a series.
Charge Command	: Automatic after identifying shockable rhythm
Shock Command	: Front panel shock button

**\*Due to our continuous product development program, the specification may change without prior notice.**

# **6. APPENDIX B**

## **A. SAFETY CONSIDERATION**

**WARNING:** During defibrillation, air pockets between the skin and defibrillator pads can cause patient skin burns. To help prevent air pockets, make sure defibrillator pads completely adhere to the skin.

**WARNING:** Do not let the defibrillator pads touch each other or other ECG electrodes, lead wires, dressings, transdermal patches, etc. Such contact can cause electrical arcing and patient skin burns during defibrillation and may divert defibrillating current away from the heart.

**WARNING:** Handling or transporting the patient during heart rhythm analysis can cause an incorrect or delayed diagnosis. If the unit gives a SHOCK ADVISED prompt, keep the patient as still as possible for at least 15 seconds so the unit can reconfirm the rhythm analysis before a shock is delivered.

**WARNING:** Defibrillation current can cause operator or bystander injury. Do not touch the patient during defibrillation. Do not allow the defibrillator pads to touch any metal surfaces. Disconnect the pads connector from the unit before using any other defibrillator.

**CAUTION:** Aggressive handling of the pads in storage or prior to use can damage the pads. Discard the defibrillator pads if they become damaged.

**CAUTION:** Do not place the pads directly over an implanted pacemaker or defibrillator.

## **B. Environmental protection**

### **❖ Disposal of the Equipment:**

*Prior to disposal, remove the batteries. Then dispose of the device and supplies in accordance with your state regulations.*



#### **NOTE:**

**Disposal of the product: The product described in this user manual must not be disposed of as unsorted municipal waste and must be collected separately.**

**Please contact an authorized representative of the manufacturer for information concerning the decommissioning of your equipment.**

## **C. Servicing Information**

Service life of machine is 7 years.

### **Warning:**

Authorized personnel should only open this device as there are no user serviceable parts inside.

For replacing or servicing of battery, please contact as below.

For servicing contact an authorized NASAN Medical Electronics Pvt. Ltd. Service Engineer.

Contact us:

All INDIA SERVICE (Mobile) : 09371039255

Email address : [service@nasanmedical.com](mailto:service@nasanmedical.com)

Website : [www.nasanmedical.com](http://www.nasanmedical.com)