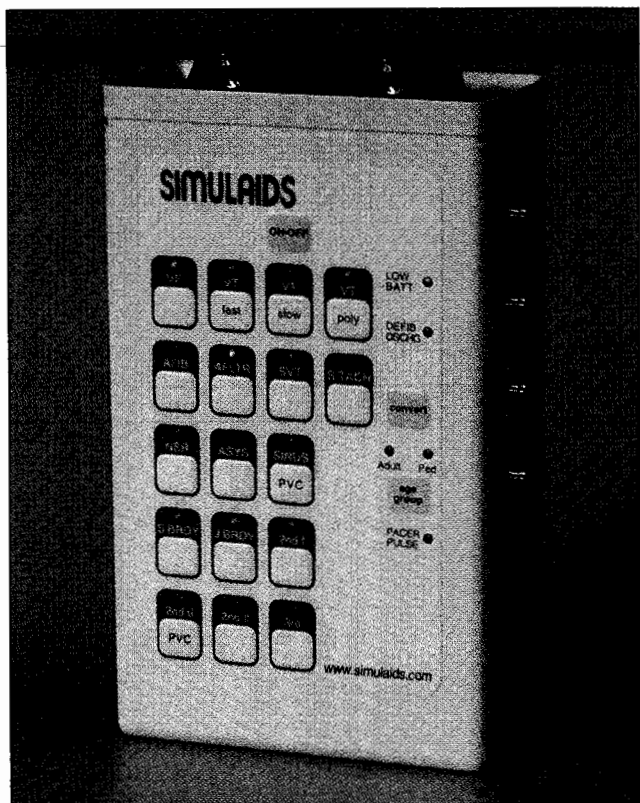


# SIMULAIDS

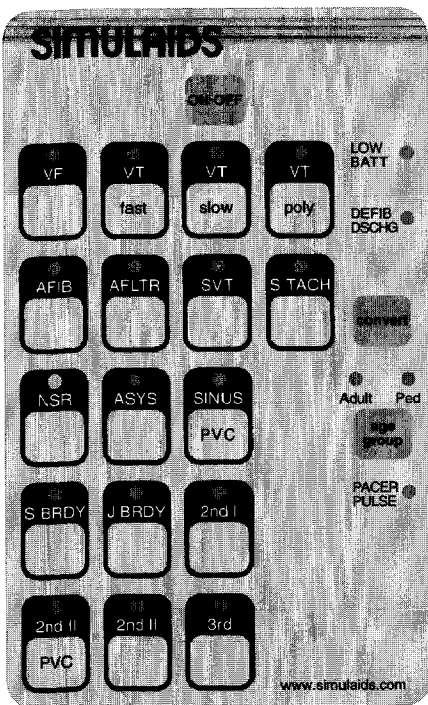
INTERACTIVE ECG SIMULATOR



## OPERATING INSTRUCTIONS

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The Simulaids Interactive ECG Simulator is an easy to use training tool that allows you to practice defibrillation and pacing procedures with or without a defib manikin. For arrhythmia recognition, you can select fibrillations, tachycardias, and bradycardias in either adult or pediatric format.

**ON-OFF**

Press to power-on and to power-off.

**LOW BATT**

Red indicator illuminates when battery needs replacement.

**DEFIB DISCHG**

Green indicator illuminates for two seconds when defib discharge is sensed. If defibrillating Simulaids manikin, set defib to 2J or more. If defibrillating directly into simulator, set defib to 50J or more.

**convert**

Simulate cardioversion by activating convert feature. Simulator responds to defib discharge.

**Adult Ped**

Yellow indicators tell which rhythm set is being simulated - adult or pediatric.

**age group**

Press to select adult rhythm set or pediatric rhythm set.

**PACER PULSE**

Green indicator flashes when external pacer pulse is sensed. (Captured beat is simulated, too.) Sensing occurs when external pacer current set to 60mA - 70mA or more.

**convert**

The convert feature allows you to convert automatically from one rhythm (running rhythm) to another rhythm (waiting rhythm) when a defib discharge is sensed. If defibrillating into Simulaids manikin, set defib energy to 2J or more. If defibrillating directly into simulator, set defib energy to 50J or more.

To perform convert operation:

1. Press **convert** key. Indicator of running rhythm pulses brighter.
2. Press key of rhythm to be simulated immediately after defib discharge. Indicator of this (waiting) rhythm blinks on and off.
3. Discharge defibrillator. The waiting rhythm becomes the running rhythm.

To cancel convert operation before it's completed, either press **convert** key again or press key of running rhythm. If convert operation is started, but a discharge is not sensed within two minutes, the convert operation cancels automatically.

**age group**

The age group feature allows you to simulate either adult or pediatric rhythms. In general, P wave amplitudes, PR intervals, QRS durations, QRS axes and ventricular rates are representative of the age group selected.

**Adult** and **Ped** indicators tell you which rhythm set is selected. To switch from one set of rhythms to the other, press **age group** key, then key of rhythm you wish to simulate. If **age group** key is pressed, but a rhythm key is not pressed, the age group changes within two seconds. At power-on, adult age group is selected automatically.

**for Defibrillator training**

**VF** *Ventricular Fibrillation.*

**VT fast** *Ventricular Tachycardia. Wide QRS. Rate: 185.*

**VT slow** *Ventricular Tachycardia. Wide QRS. Rate: 140.*

**VT poly** *Ventricular Tachycardia. Fluctuating QRS axis.*

**AFIB** *Atrial Fibrillation. Ventricular rate: 120 to 160.*

**AFLTR** *Atrial Flutter (2:1). Ventricular rate: 150.*

**SVT** *SVT alternates with NSR, then remains in SVT. SVT rate: 216.*

**S TACH** *Sinus Tachycardia. Rate: 120.*

**NSR** *Normal Sinus Rhythm. Rate: 72.*

**ASYS** *Asystole.*

**SINUS PVC** *Sinus Rhythm with PVCs. Sinus rate: 72.*

**for External Pacer training**

**S BRDY** *Sinus Bradycardia. Rate: 40.*

**J BRDY** *Junctional Bradycardia. Rate: 42.*

**2nd I** *2nd deg. type I AV Block (4:3). Atrial rate: 60.*

**2nd II PVC** *2nd deg. type II AV Block (4:3). PVCs. Wide QRS. Atrial rate: 60.*

**2nd II** *2nd deg. type II AV Block (4:3). Wide QRS. Atrial rate: 60.*

**3rd** *3rd deg. AV Block. Wide QRS. Ventricular rate: 37.*

**Defibrillation Exercise**

Connect simulator to defib or defib manikin. For help, see **Getting Started**, page 5.

**Exercise:** Convert VF to NSR using manual defibrillator.

*at simulator:*

1. Press **VF** key. VF indicator glows steadily. Confirm VF is displayed on monitor.
2. Press **convert** key. VF indicator pulses brighter.
3. Press **NSR** key. NSR indicator blinks on and off. VF indicator glows steadily again.

*at defibrillator:*

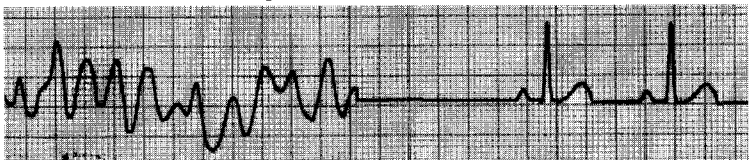
4. Select 360J using **Energy Select** switch (1).
5. Press **Charge** button (2). Listen for charge ready tone.
6. Press both **Discharge** buttons (3) simultaneously.

**for Defibrillator training****VF** *Ventricular Fibrillation.***VT fast** *Ventricular Tachycardia. Wide QRS. Visible P wave. Rate: 180.***VT slow** *Ventricular Tachycardia. Wide QRS. Rate: 148.***AFIB** *Atrial Fibrillation. Small R waves. Ventricular rate: 135 to 160.***AFLTR** *Atrial Flutter (2:1). Ventricular rate: 150.***SVT** *Supraventricular Tachycardia. Inverted P follows QRS. Rate: 240.***S TACH** *Sinus Tachycardia. Rate: 165.***NSR** *Normal Sinus Rhythm. Rate: 90.***ASYS** *Asystole.***SINUS PVC** *Sinus Rhythm with PVCs. Sinus rate: 90.***for External Pacer training****S BRDY** *Sinus Bradycardia. Rate: 50.***J BRDY** *Junctional Bradycardia. Rate: 60.***2nd I** *2nd deg. type I AV Block (5:4). Atrial rate: 60.***2nd II PVC** *2nd deg. type II AV Block (5:4) with PVCs. Atrial rate: 60.***2nd II** *2nd deg. type II AV Block (5:4). Atrial rate: 60.***3rd** *3rd deg. AV Block. Ventricular rate: 60.***Defibrillation Exercise (cont.)**

7. After discharge observe that:

On monitor, NSR is displayed.

At simulator, NSR indicator glows steadily, and VF indicator is off.

*Deliver defibrillation discharge to convert automatically.*

VF

NSR

Connect simulator to pacer or defib manikin. For help, see **Getting Started**, page 5.

To simulate paced beats, pacer **Rate** must be greater than rate of selected rhythm, and pacer **Output** must be greater than simulator capture level.

**Exercise:** Pace 3rd degree AV block at rate of 70 ppm.

*at simulator:*

1. Press **Adult** key, then press **3rd** key. Confirm 3rd degree AV block is displayed on monitor.

*at pacer:*

2. Select **Pacer On**. Verify sense markers are displayed with each R wave. (If not, press **ECG Size** button until R wave markers are observed.)
3. Select rate of 70 ppm using **Rate** control.
4. Press **Start/Stop** button to start pacing.
5. Increase pacer current, using **Output** control, until you observe paced beats on monitor. Pacer current setting should read 60mA - 70mA.

*Initiate pacing to simulate paced beats.*



*Adult 3rd degree AV Block.*

*Paced beats at 70 ppm.*

Note: If VF is selected rhythm, simulator won't generate paced beats.

## Battery Saver Feature

The simulator powers-off automatically about 30 minutes after a key was last pressed, or after defib or pacer energy was last detected. This is normal operation.

To allow simulator to remain powered-on after 30 minutes, follow these instructions:

1. Power-off simulator.
2. Press and hold down **convert** key, then press and release **ON-OFF** key. The simulator powers-on.
3. Observe NSR indicator. When indicator blinks on and off, release **convert** key. NSR indicator continues to blink for about one second.

The battery saver feature is now disabled. When you power-off the simulator, it will return to normal battery saver operation.

The simulator is powered by a 9 volt alkaline battery. To replace the battery, turn simulator over, then slide open battery compartment door.

## Service

The Simulaids Interactive ECG Simulator is warranted to be free of defects in material or workmanship for three years from date of purchase.

If the simulator needs service, or if you have questions about its operation, please contact Simulaids customer service, or your authorized dealer.

**Simulaids, Inc.**  
**12 Dixon Ave.**  
**Woodstock, NY**  
**U.S.A. 12498**  
**800-431-4310**

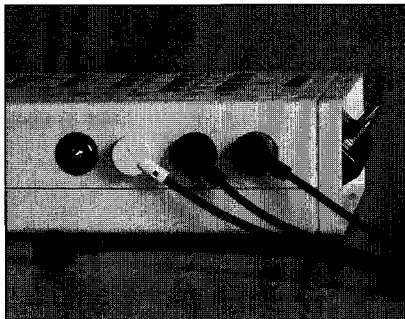
### Using Simulator with Defib Manikin

1. Connect manikin's ECG cable to simulator's color-coded ECG snaps.  
**See Figure 1.** This is the only cable needed for connecting simulator to manikin.
2. Connect defibrillation cable to manikin's defibrillation sites. (If you have a separate pacer cable, attach it to defibrillation sites for pacing.)
3. Connect monitor's ECG cable to manikin's ECG snaps. If monitor ECG cable has right leg lead, but manikin does not have right leg ECG snap, connect right leg lead to simulator's green-labeled ECG snap.
4. Press **ON-OFF** key to power-on simulator. Observe that **NSR** and **Adult** indicators are illuminated. Power-on monitor/defibrillator. Observe that NSR at 72 bpm is displayed.

### Using Simulator without Defib Manikin

1. Connect monitor's ECG cable to simulator's ECG snaps. **See Figure 1.**
2. Using your pad adapters or pad adapter cable, connect defibrillation cable to simulator's defib cable receptacles. **See Figure 2.**
3. Press **ON-OFF** key to power-on simulator. Observe that **NSR** and **Adult** indicators are illuminated. Power-on monitor/defibrillator. Observe that NSR at 72 bpm is displayed.

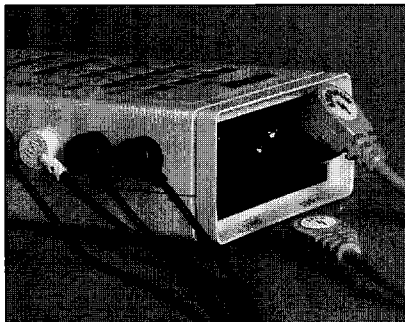
**Figure 1**



*Press ECG cable connectors onto simulator snaps (match colors).  
Left to right: green (RL), white (RA),  
black (LA), red (LL).*

*ECG signal is obtained with either  
3- or 4-lead ECG cable.*

**Figure 2**



*Insert pad adapters, or pad adapter  
cable, into adapter receptacles.  
Connect defibrillation cable -  
APEX to left, STERNUM to right.*

**WARNING: SHOCK HAZARD!**  
*Be sure defibrillation cable is  
securely attached to simulator.*