

## **AMPS - 1**

### **Patient Simulator**

**Don't let the size fool you.  
This compact Simulator  
packs alot of punch in a  
small package.**



At only 7" X 4" X 1.25 inches, AMPS-1 fits comfortably in your hands and all leads and cables are conveniently fed from the top and bottom ends. Operate from the single 9 volt alkaline battery or with the optional battery eliminator.

The unique modular design of AMPS-1 allows you to get just what you need as you need it. Upgrading and adding modules is easily accomplished by you at your facility. No need to send it to a repair facility just to add features.

The standard AMPS-1 is packed with...

- 12 lead ECG simulation with 9 independent outputs for each signal lead
- 16 total ST Segments: 8 elevated and 8 depressed.
- Axis Deviation: Normal (intermediate), horizontal, and vertical. (Modifies baseline ECG during arrhythmias)
- Neonatal Mode: ECG R wave width is reduced to 40ms.
- ECG Performance Testing
- 52 Arrhythmia selections
- Temperature and Respiration Simulations
- Pacer simulations
- Defibrillator training
- Remote Control RS-232

As your workload and budget dictate, easily add...

- 2 or 4 Electrically Isolated BP Channels, including Swan-Ganz simulation
- Cardiac output
- Mechanical Fetal Heart
- Fetal, Maternal and IUP simulations

Easy to use and easy on your budget. AMPS-1 is all the simulator you need.

# Specifications\*

## ECG General

- Full 12-Lead ECG with 9 independent outputs for each signal lead referenced to RL.
- Output Impedances: 500, 1000, 1500, & 2000 ohms to RL.
- High Level Output: 0.5 V/mV of low level selection.
- Amplitude Accuracy:  $\pm 2\%$  2 Hz Square Wave (Lead II).

## Normal Sinus Rhythm

- Rates: 30, 40, 60, 80, 100, 120, 140, 160, 180, 200, 220, 240, 260, 280, 300 BPM. Accuracy  $\pm 1\%$ .
- Amplitudes (Lead II): 5mV, 4mV, 3mV, 2mV, 1mV, .5mV, .25mV, .1mV.
- ST Segments: 16 total – 8 elevated & 8 depressed.
- ST Segment Levels (Lead II): -0.8 mV to +0.8 mV in 0.1 mV steps on Lead II, .
- Axis Deviation: Normal (intermediate), horizontal, and vertical. Modifies baseline ECG during arrhythmias.
- Neonatal Mode: ECG R wave width is reduced to 40ms.

## ECG Performance Testing

- Square Wave: 2 Hz
- Square Wave: 0.125 Hz
- Pulse: 4.0 secs
- Sine Waves: 0.05, 0.5, 1, 10, 25, 30, 40, 50, 60, and 100 Hz.
- Triangle Wave: 2 Hz
- R Wave Detector Test: 60 BPM haver-triangle wave with selectable ampl. and width.
- Width: 8.0 ms to 200 ms (12 selections)
- Amplitude (Lead II and V Leads): 5mV to 0.5mV.

## Pacemaker

- Asynchronous
- Demand with frequent sinus beat
- Demand with occasional sinus beat
- A-V sequential
- Non-capture non-function
- Rhythms: Async 75 BPM, Demand 1, Demand 2, AV Seq, Non capture, Non function. - Pulse: -700 mV to +700 mV. Accuracy : 10%
- Width: 0.1, 0.2, 0.5, 1.0, 2.0 ms. Accuracy is 5%.
- Pulse Polarity: Positive or negative.

## Synchronization

- Accepts input during defib training.

## RS-232 Interface

- RS-232 interface to PC.

## Defibrillator Training

- With two emergency scenarios and a cardioversion procedure, AMPS-1 can be used for basic defibrillator training.

## Cardiac Output

- Built in Cardiac Output feature, activation optional
- 4 adjustable injectate temperature selections that are factory set and user adjustable
- Baseline of 36, 37 and 38 degrees °C.
- Selections for 2 and 20 degrees °C.

## Cardiac Output Selections

- Faulty Injectate Curve
- Left to Right Shunt Curve
- C.O. of 3, 4, 4.5, 5, 5.5, 6, 6.5, 7 l/min
- Cal Pulse: 1o for 1 second
- Cal Pulse: 1o for 4 seconds
- CC .561 for 2 degrees injectate
- CC .608 for 20 degrees injectate

## Temperature

- 2 Temperature Channels
- Electronically Switched Temperature of 35, 37, 38, 40, 42°C.
- Probe Compatibility: 400 or 700 series YSI

## Respiration

- Baseline Impedance: 500, 1000, 1500, 2000 ohms, LEADS I, II, III
- Impedance Variations: 5, 4, 3, 2, 1, 0.5, 0.2, 0.1, 0.05, 0 Ω
- Rates: 15 to 120 and 0 rpm for APNEA
- Apnea Selections: 12, 22, 32 seconds, and continuous
- Respiratory Effort (Inspiration/Expiration Ratio:) 5/1, 4/1, 3/1 (normal), 2/1, 1/1.

## Optional Fetal / Maternal / IUP Simulations

- Fetal heart rates: 60, 90, 120, 140, 150, 210, & 240 BPM
- Trend
- Uniform, Early and Late deceleration
- Maternal heart rate fixed at 80 BPM
- Waveform: 12 lead ECG with complete p-qrs-t complex
- Dynamic intrauterine pressure (iup) waveform: positive bell shaped pressure curve
- Peak pressure: 90 mmhg, Contraction duration: 90 sec
- Pressure transducer sensitivity: 5 or 40 m v/v/mmhg
- Input/output impedance: 300 ohms
- Optional Mechanical Fetal Heart

## Arrhythmia Selections

- Premature Beats
- Premature Atrial Contraction (PAC)
- Nodal Premature Nodal Contraction (PNC)
- Premature Ventricular Contraction (PVC)1
- Left Ventricular Focus
- PVC1 Early, Left Ventricular (LV) Focus
- PVC1 R-on-T, Left Ventricular (LV) Focus
- PVC2 Right Ventricular Focus
- PVC2 Early, RV Focus
- PVC2 R-on-T RV Focus
- Multifocal PVCs
- AED test waveforms
- Atrial Fibrillation, Course Atrial fibrillation, Fine Ventricular Fibrillation, Course Ventricular Fibrillation, Fine Asystole, Flatline
- Supraventricular Tachycardia
- Ventricular Tachycardia @ 140, 160 & 190BPM
- Torsades de Pointes @ 200 BPM NSR @ 60 BPM
- Conduction Defects
- First Degree Heart Block
- Second Degree Heart Block
- Third Degree Heart Block
- Right Bundle Branch Block
- Left Bundle Branch Block
- Supraventricular Beats
- Atrial Fibrillation (Coarse)
- Atrial Fibrillation (Fine)
- Atrial Flutter
- Sinus Arrhythmia
- Missed Beat (1 time event)
- Paroxysmal Atrial Tachycardia
- Nodal Supraventricular Tachycardia
- Ventricular Rhythm PVCs 6/Minute
- PVCs 12/Minute
- PVCs 24/Minute
- Frequent Multifocal Asystole
- Pair PVCs (1 time event)
- Run 5 PVCs (1 time event)
- Run 11 PVCs (1 time event)
- Ventricular Tachycardia
- Ventricular Fibrillation (Coarse)
- Ventricular Fibrillation (Fine)
- Bigeminy
- Trigeminy

## 4 Blood Pressure Channels

- Electrically Isolated Channels
- Dynamic BP waveforms are synchronized with normal sinus rhythm rates and track arrhythmia selections.
- Respiration artifact can be selected on blood pressure channels
- Transducer Sensitivity: 5 or 40  $\mu$ V/V/mmHg
- Calibrated Rate: 80 BPM normal sinus rhythm
- Static Levels BP1/2/3/4: -10, -5, 0, 20, 40, 50, 60, 80, 100, 120, 150, 160, 180, 200, 240, 320, 400 mmHg
- Automatic Swan-Ganz (every 15 seconds)
- Manual Swan-Ganz, changes each time Enter is selected
- Asystole, Random Baseline >0.1 mV

\*Specifications subject to change without notice