

# ZOLL PD 2000

## ADVISORY DEFIBRILLATOR/PACEMAKER

### Designed For General Floor and Remote Areas

A new advisory algorithm allows use by BLS trained personnel in virtually any area of the hospital for early defibrillation. Full ACLS capability including external pacing can be used immediately when ACLS team arrives.

### ECG Analysis Provides Rhythm Recognition

A computerized algorithm analyzes the ECG and provides a "second opinion" to the operator when a defibrillation shock is required.

### Smart Alarms™ Capability

High and low heart rate alarms are combined with the new Smart Alarms™ feature adding detection of ventricular fibrillation as well as rate-limit violations.

### AC/Battery Operation with Rapid Battery Recharge

AC operation is provided regardless of battery condition. Battery capacity is maintained during AC use. Battery packs recharge in 4 hours or less. A new fully charged battery provides approximately 3 1/2 hours of continuous operation.

### Compact, Light, Ultra-rugged

The ZOLL PD 2000 has a space-saving design and weighs just 16 pounds when configured with Multi-Function Electrodes and the PowerCharger.



### Ease of Use

A large, bright display provides clear readable ECG and messages to the operator during advisory and manual use. The controls are simple and color coded for easy operation. Controls are standardized with other ZOLL products to reduce training requirements and provide hospital-wide uniformity of operation.

### Switches Easily Between Advisory and Manual Operation

Operates as both a BLS and ACLS device. No additional cables, pads, or adapters are required. Optional external paddles can stay installed on the device.

### ZOLL Pacing Technology

The ZOLL PD 2000 features ZOLL's patented pacing technology, recognized as the industry standard. Superiority demonstrated in independent clinical studies.\*

### Summary Printout of Advisory and ACLS Operation

Important clinical information, analysis, shocks, and pacing with related ECG is automatically stored and printed to provide a complete record of device operation. Documents defibrillation discharge assuring delivery of energy.

\*Clinical studies are available upon request.

**T**he ZOLL PD 2000 Advisory Defibrillator/Pacemaker is the first device designed as a completely integrated system for early defibrillation and advanced cardiac life support in the hospital. The built-in ventricular fibrillation detection system eliminates adapters and a "paddle free" electrode system is easily applied to speed shock delivery and external pacing.

Standardized controls make it ideal for the hospital planning implementation of early defibrillation to improve outcomes from cardiac arrest. This small and lightweight unit is the most versatile hospital defibrillation system available today.

The PD 2000 is equally suited for general floor use by noncritical care BLS trained staff and ACLS code teams for defibrillation, external pacing and transport. New state-of-the-art modular AC power and rapid battery recharging allow the PD 2000 to meet the needs of every hospital area. Its easily exchangeable low cost lead acid battery system provides unequaled crash-cart uptime and improved quality in device maintenance and readiness. No other unit provides a hospital with the inherent flexibility of the ZOLL PD 2000 Advisory Defibrillator/Pacemaker.

# ZOLL PD 2000

# SPECIFICATIONS

## Pacemaker

Type:	VVI demand; asynchronous (fixed rate) when used without ECG leads.
Pulse Type:	Rectilinear, constant current.
Pulse Duration:	40 milliseconds.
Pulse Amplitude:	Variable to 140 mA.
Pacing Rate:	Variable from 30 to 180 PPM.
Output Protection:	Fully defibrillator-protected and isolated.
Pacer On:	Message display on monitor.

## Pacing/Defibrillation

### Electrodes

Standard configuration allows the use of ZOLL *stat•pacz* or PD 2200 Multi-Function Electrodes packaged in pairs. Can be used in the anterior/posterior or anterior/anterior positions. Sterile and pediatric electrodes available.

### Defibrillator

Waveform:	Damped sinusoid.
Output Energy Delivered:	Selectable at 2, 3, 5, 7, 10, 20, 30, 50, 100, 150, 200, 300, 360 joules.
Energy Selection:	Control on sternum paddle and front panel.
Charge Time:	Less than 10 seconds.
Delivered Energy Display:	CRT monitor displays delivered energy.
Synchronized Mode:	Synchronizes defibrillator pulse to patient's R-wave. "SYNC" message displayed on monitor. Marker on monitor and on recorder paper identifies R-wave.
Charge Controls:	Control on apex paddle and on front panel.
Paddles: (Optional)	Optional paddles are anterior/anterior adult and pediatric. Adult paddles slide off to expose pediatric paddles.
Defibrillation Electrodes:	Pre-gelled ZOLL PD 2200 Multi-Function Electrodes, and Multi-Function <i>stat•pacz</i> packaged in pairs, can be used in the anterior/posterior or anterior/anterior position.
Integral Defibrillator Tester:	Integral circuitry allows complete test of defibrillator charge and discharge without removing paddles from storage wells. Identical circuitry allows complete test of unit configured with multi-function cable.
Defib On: Defibrillation Advisory:	Message display on monitor. Evaluates electrode connection and patient ECG to determine if defibrillation is required. Shockable Rhythms: Ventricular fibrillation with amplitude >150µV and wide QRS complex ventricular tachycardia with rates greater than 150 bpm.

## Monitor and Display

Patient Connection:	Via 3-lead ECG cable, paddles, and electrodes. Selectable by front panel switch.
Input Protection:	Fully defibrillator-protected. Special circuit prevents distortion of ECG by pacer pulse.
Implanted Pacemaker Spike Display:	Dedicated circuitry detects most implanted pacemaker spikes and provides standard display marker of spike on ECG trace.
Electrical Isolation and Shielding:	Input protected against high-voltage defibrillator pulses and typical radio frequency interference.
Bandwidth:	.5 – 35 Hz (–3dB) standard. .05 – 100 Hz optional.
Display Format:	Nonfade, moving trace.
Monitor On:	Message display on monitor.
Screen Type:	High-resolution CRT display.
Screen Size:	4.5 inches diagonally (56 mm x 86 mm, viewing area).
Sweep Speed:	25 mm/sec.
Viewing Time:	3.4 seconds.
Heart Rate:	Digital display on monitor 0 – 300 BPM.
Pacer Output Current:	Digital display on monitor 0 – 140 mA.
Lead Selection:	Display on monitor.
ECG Size:	.5, 1, 1.5, 2, 3 cm/mV display on monitor.
Alarm On/Off Status:	Display on monitor. User selectable High (60 – 280 BPM) Low (20 – 100 BPM).
ECG Lead Off:	Message display on monitor.
Pacer Electrode Off:	Message display on monitor.
Defibrillator Paddle Fault:	Message display on monitor.
Defibrillator Electrode Fault:	Message display on monitor.
Recorder Paper Out:	Message display on monitor.
Low Battery Voltage:	Message display on monitor.

## Recorder

Paper:	Standard 40 mm thermal (grid width), 50 mm (paper width).
Speed:	25 mm/sec.
Delay:	6 seconds.
Annotations:	Time, date, defib energy, heart rate, pacer output, QRS sync marker, ECG size, lead, alarm, defib test OK/Fail, analyze ECG, electrode pads off, analysis halted, noisy ECG, shock advised, no shock advised, ECG too large/adjust gain.
Writing Method:	High-resolution, thermal array print head.
Printout Modes:	Manual, automatic.
Control:	Front panel or paddle.
Automatic Function:	15 second recording initiated by alarm conditions and defibrillator discharge.

## Batteries

Type:	Rechargeable, sealed lead-acid.
Charger:	ZOLL Base PowerCharger <sup>444</sup> Battery Charger/Tester or ZOLL PowerCharger <sup>™</sup> .
Recharge Time:	4 hours or less for full recharge with ZOLL Base PowerCharger <sup>444</sup> Battery Charger/Tester or ZOLL PowerCharger <sup>™</sup> .
Service:	Battery is easily removed as a unit.
Low Battery Indicator:	Message display on monitor with audible tone. Approximately 20 minutes of monitoring remain when message is displayed.
Operating Time:	With a new fully charged battery – 35 defibrillator charges to maximum energy (360J), or 2.5 hours min. (3 hours typical) of continuous monitoring, or 2.5 hours of continuous monitoring/pacing at 60 mA, 80 beats/min.

## General

Size:	10.7 cm high x 33.5 cm wide x 37.4 cm deep (4.2 x 13.2 x 14.7 in).
Weight:	5.9 kg (13 lbs) with PD 4400 multi-function cable; 7.3 kg (16 lbs) with Power-Charger attached.
Design Standards:	Meets or exceeds all AAMI specifications for defibrillators. Meets or exceeds UL 544 and CSA standards for medical equipment and MIL-STD-810E, Method 507.3, MIL-STD 810D Method 514.3, Section I-3-2.3, Category 3, MIL-STD-810E, Method 501.3, MIL-STD-810D, Method 500.2, MIL-STD-202F, Method 213, Condition C, MIL-STD-810E, minimum integrity test for helicopters.
Patient Safety:	All patient connections are fully isolated.
Temperature:	Operating: 0°C to 55°C. Storage: –40°C to 75°C. Humidity: 5% to 95% relative.

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# ZOLL

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