

ZOLL 1600 DEFIBRILLATOR

Compact, Lightweight, Ultra-Rugged

The ZOLL 1600 Defibrillator has a space-saving design and weighs just 14 pounds. Water resistant and rugged, it's designed for demanding EMS use in the most challenging conditions.

Large Monitor

Despite its overall size, the ZOLL 1600 has a large, bright, high-contrast CRT display. Messages are large and easy-to-read, even in bright sunlight.

Multi-Function Electrodes with Preconnect™ Feature

stat•padz Multi-Function Electrodes allow hands-off defibrillation, pacing, and monitoring through a single set of pads.

Ease of Use

The controls are simple and color-coded for easy operation. All functions and controls are standardized with other ZOLL models. Training time is reduced, skill retention is improved, and potential therapy delays are minimized.

Voice and Visual Prompts

Concise voice prompts and clear CRT messages simplify training and allow the ZOLL 1600 to be used by all responders. Easily custom configured to meet individual system requirements.

PC Software Based Medical Control

ZOLL Data Control Software™ provides the ability to easily archive and review recorded event data. PCMCIA data card and a standard computer provide this information without the need for expensive separate medical control hardware.



The ZOLL 1600 offers EMS professionals resuscitation capabilities in a lightweight unit that's rugged enough for the real world. With both semi-automatic and manual modes, the ZOLL 1600 can be used by EMTs and paramedics alike. Thanks to its unsurpassed simplicity, the 1600 is ideal for all skill levels.

The ZOLL 1600 has several features, including its innovative digital data/voice recording system that eliminates unreliable cassette tapes. Its standard memory card and serial port allow easy downloading of data to a personal computer for analysis and archiving. A strip chart recorder with Summary function provides automatic event documentation on demand.

A wide range of upgrade options—including pacing—allows you to configure the 1600 to meet your needs, now and in the future. Its simplicity, flexibility, and advanced features make the ZOLL 1600 the ultimate, no-compromise solution for EMS resuscitation.

Superior Battery Technology

Sealed, lead-acid battery technology provides high capacity, long life, and low cost. Various options provide AC/DC operation, 4 hour recharge time with PowerCharger™ and multiple battery charging and testing with the Base PowerCharger™ 4x4 Battery Charger/Tester, make this the most versatile and advanced battery operated device.

Upgradeable

Optional feature upgrades assure that a ZOLL 1600 purchased today can be easily upgraded as your system requirements change.

Manual Mode

Switches between semi-automatic and manual mode with the turn of a key. Paramedics have full ACLS capabilities when needed.

Pacing Technology

The ZOLL 1600 features ZOLL's patented pacing technology, recognized as the industry standard and proven superior in independent clinical studies.*

Annotating Recorder with Event Summary

Automatic recorder provides accurate written documentation of therapies. Summary function automatically stores a record of ECG and therapies delivered for later recall and review.

Warranty and Support

Comprehensive warranty, on-site training, and around-the-clock emergency support are included with every ZOLL 1600.

*Clinical studies are available upon request.

ZOLL 1600

SPECIFICATIONS

Defibrillation/Pacing Electrodes

Standard configuration allows the use of ZOLL *stat•padz* 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 General

Waveform: Damped sinusoid.
Charge Time: Less than 10 seconds. Depleted battery packs will result in a longer defibrillator charge time.
Delivered Energy Display: CRT monitor displays delivered energy.

Semi-Automatic Defibrillator

Defibrillation Advisory: 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.

Output Energy Delivered: Automatic, preset shock 1, 2, 3 energy levels – user configurable. Selectable at 50, 100, 150, 200, 300, 360 joules.

Event Mark Keys: 1, 2, 3, 4.

Voice Prompts: "Stand Clear"
"Press Shock"
"No Shock Advised/Check Pulse"
"Analysis Halted"
"Check Patient/Press Analyze"
"Check Electrodes"
"Memory Card Full"
"Check Memory Card"

Visual Prompts: Analyze
Analyzing ECG
Shock Advised
Joules Selected
Charging
Press Shock
Number of Shocks Delivered
No Shock Advised
Noisy ECG
Check Patient

*Manual Defibrillator

Manual Defibrillator Access: Keyswitch – Removable or permanent, user configurable.

Output Energy Delivered: Selectable at 2, 3, 5, 7, 10, 20, 30, 50, 100, 150, 200, 300, 360 joules.

Energy Selection: Control on front panel.

Charge Control: Control on front panel.

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.

Smart Alarms: Beeper/voice prompts indicate ventricular fibrillation with amplitude >150µV and wide QRS complex ventricular tachycardia with rates greater than 150 bpm. On/Off – user configurable.

Voice Prompts: On/Off – user configurable.

Audio Recording: On/Off – user configurable.

*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.

Monitor and Display

Patient Connection: Via 3-lead ECG cable and electrodes.
Input Protection: Fully defibrillator-protected. Special circuit prevents distortion of ECG by pacer pulse.

Electrical Isolation and Shielding: Input protected against high-voltage defibrillator pulses and typical radio frequency interference.

Bandwidth: .5 – 35 Hz (–3dB) standard.

Display Format: Nonfade, moving trace.

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.

Display Language: English, Japanese, French, German – user configurable.

Heart Rate: Digital display on monitor 0 – 400 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 Fault: Message display on monitor.

* **Pacer Electrode 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.

*Strip Recorder

Paper: Standard 40 mm thermal (grid width), 50 mm (paper width).

Speed: 25 mm/sec.

Bandwidth: .5 – 35 Hz.

Delay: 6 seconds.

Annotations: Time, date, defib energy, heart rate, pacer output, sync, ECG size, lead, alarm, defib test, analysis, shock advised, no shock advised, OK/Fail, events 1, 2, 3, 4, check patient, shock count #, semi-automatic mode, monitor mode.

Writing Method: High-resolution, thermal array print head.

Printout Modes: Manual, automatic.

Control: Front panel.

Automatic Function: 14 second recording initiated by alarm conditions and defibrillator discharge.

Digital Memory Card

Event Recording: Digitally records continuous ECG data, device status.

* **Audio Recording:** Digitally from integral microphone.

Capacity: Up to 4 megabytes standard PCMCIA card.

Event Review: View all event data via IBM compatible personal computer equipped with ZOLL Data Control Software.

Batteries

Type: Rechargeable, sealed lead-acid.

Charger: ZOLL Base PowerCharger^{4x4} Battery Charger/Tester or ZOLL PowerCharger™.

Recharge Time: 4 hours or less for full recharge with ZOLL Base PowerCharger™ Battery Charger/Tester or ZOLL PowerCharger™.

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 new fully charged battery - 35 defibrillator charges to maximum energy (360J), or 2 hours of continuous monitoring.

General

Size: 10.7 cm high x 33.5 cm wide x 31 cm deep (4.2 x 13.2 x 12.2 in).

Weight: 6.3 kg (14 lbs) with Multi-Function Cable.

Power: Sealed lead acid battery - 2.5V/cell - wired in series.

Warranty: In North America: 1 year including use of a loaner. Outside North America: consult ZOLL authorized representative.

Design Standards: Environmental test compliance include the following: RF immunity per IEC 801-3 to 20V/M, EMI Emissions per CISPR 11 class A, Vibration per IEC 68-2-6 and IEC 68-2-34, Shock per IEC 68-2-27, and moisture per IEC 529 standard IPX4.

Patient Safety: All patient connections are fully isolated.

Temperature: Operating: 0°C to 55°C.

Storage: -20°C to 70°C.

Humidity: 5% to 95% relative humidity, non-condensing.

Operating Modes: Semi-automatic (default mode), Manual, Self Test, Diagnostic, Configuration.

*Upgrades

- Strip Chart Recorder
- Manual Mode Operation
- ZOLL Noninvasive Pacing
- Digital Audio Recording

ZOLL, PD, *stat•padz*, PowerCharger, ConnectAlarm, Smart Alarms, ZOLL Data Control Software, *Speed Pack* and *Preconnect* are trademarks of ZOLL Medical Corporation. Specifications subject to change without notice.

ZOLL

ZOLL Medical Corporation

32 Second Avenue
Burlington, Massachusetts 01803-4420 U.S.A.
800-348-9011 • 617-229-0020 • Telefax 617-272-5578

ZOLL International Operations
Dorresteinsweg 74
3817 GC AMERSFOORT
Netherlands
+31 33 4614 589
+31 33 4651 082 Telefax

ZOLL Far East Region Office
81 Excelsior Street
Lisarow, NSW 2250
Australia
+61 43 292226

ZOLL Medical U.K. Ltd.
Unit 13
Empress Business Centre
380 Chester Road
Old Trafford
Manchester M169EB
England
+44 161 877 2883
+44 161 877 2884 Telefax