

E SERIES™

Superior Performance and Functionality in One Tough Defibrillator

The only full-featured defibrillator specifically designed to withstand the crash, tumble and bounce environment of EMS



E SERIES

ZOLL E Series

Superior design and functionality for professional providers

- EasyRead Tri-Mode Display™ for maximum readability whether in pitch dark or direct sunlight
- Unique GPS clock provides complete time accuracy every time the defibrillator is used
- Innovative roll-cage design meets and exceeds all defibrillator shock and vibration standards
- Rapid Cable Deployment System™ helps manage your wires and eliminates the “spaghetti”
- Protocol Assist Code Markers™ configured for your system
- Battery flexibility from low-cost sealed lead acid to rechargeable lithium ion allows you to choose the best option for your application

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Rugged Design, Advanced Performance

The ZOLL E Series™ was designed by professionals for professionals. No other full-featured defibrillator was designed specifically for the rigors of your EMS environment. No other defibrillator offers the configurable options of the E Series. Documentation is made easy when combined with data transfer options that take the “paper” away. No other defibrillator is as rugged and ready.



Innovative Roll Cage

The innovative design and shape of the E Series roll cage offers unrivaled protection. Made of Terblend® N (the same material used in high-performance motorcycles), this material offers a combination of outstanding impact resistance and flexural strength components, enabling it to withstand the everyday rough and tumble of your environment.



The E Series storage pouch helps eliminate the “spaghetti” associated with using multiple cables.

E Series Specifications

ECG Monitoring

Patient Connection: 3-lead, 5-lead or 12-lead ECG cable; paddles or MFE pads, selectable by front panel switch.

Input Protection: Fully defibrillator protected. Special circuit prevents distortion of ECG by pacer pulse. (Pacer version only)

Implanted Pacemaker Spike Display: Dedicated circuitry detects most implanted pacemaker spikes and provides standard display marker of spike on ECG trace.

Bandwidth: 0.5-27 Hz (-3 dB) standard/0.05-150 Hz diagnostic.

Lead Selection: Displayed on monitor.

ECG Size: 0.5, 1, 1.5, 2, 3 cm/mV — displayed on monitor.

Heart Rate: Digital display 0-300 bpm $\pm 5\%$.

Heart Rate Alarm: On/Off displayed on monitor. User-selectable, tachycardia 60-280 bpm, bradycardia 20-100 bpm.

1 Volt ECG Out: 1.0 volt/cm of deflection on strip chart recorder. <25 ms delay from patient ECG input.

Display Format: Non-fade moving bar display.

SmartAlarms™: Beeper/voice prompts indicate shockable rhythm.

Display

Screen Type: High-resolution color display.

Screen Size: 5.63 inches (14.3 cm) diagonally.

Sweep Speed: 25 mm/sec.

Viewing Time: 4 seconds.

Channels: 2.

Information: Heart rate, lead/pads, alarm on/off, SpO₂, EtCO₂, AED functions and prompts, defibrillator test function, error corrections and faults, pacer functions (optional), code markers, alarm selection and limits, delivered energy.

Defibrillator

General:

Waveform: ZOLL Rectilinear Biphasic™.

Charge Time: Less than 6 seconds with a new fully charged battery (first 15 charges to max energy). Depleted batteries will result in a longer defibrillator charge time.

Energy Display: Monitor display indicates both selected and delivered energy.

Multi-Function Electrode (MFE) Pads: Specially designed pre-gelled ZOLL *stat+pad*® Multi-Function Electrodes packaged in pairs.

Built-In Defibrillator Tester: Tests defibrillator energy output and continuity of Universal Cable and paddles; documented on PCMCIA card and strip chart.

Multi-Function Electrode Impedance Measurement Range: 0-250 ohms.

Manual:

Energy Selection: Selectable at 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 30, 50, 70, 85, 100, 120, 150, 200 Joules. (Delivered into 50 ohm load.) Selected using controls on sternum paddle or device front panel.

Synchronized Mode: Synchronizes defibrillator pulse to patient's

R-wave. “SYNC” message displayed on monitor. Marker on display and recorder paper identifies R-wave discharge point.

Paddles: External anterior/anterior adult and pediatric. Adult paddles slide off to expose pediatric paddles.

Charge Controls: Control on apex paddle and on device front panel.

Semi-Automatic:

AED Function: Auto analyze and charge x3 with programmable auto energy level selection, screen prompts and voice prompts.

Advisory Function: Single analysis or programmable auto re-analyze x3 with programmable auto energy level selection and screen prompts.

Shockable Rhythms: Ventricular fibrillation with amplitude $>100 \mu\text{V}$ and wide complex ventricular tachycardia with rates greater than 150 bpm.

Charge Controls: Control on device front panel.

Energy Selection: Automatic, pre-set shock 1, 2, 3 energy levels — user-configurable. 120, 150, 200 Joules biphasic default. Selected using controls on device front panel.

Pacemaker (Pacer Version Only)

Type: VVI demand; asynchronous (fixed rate) when used without ECG leads or in ASYNC pacing mode.

Pulse: Rectilinear, constant current; 40 milliseconds $\pm 2\%$; amplitude variable 0 to 140 mA $\pm 5\%$ or 5 mA, whichever is greater, digitally displayed on the monitor (increments or decrements by a value of 2 mA); rate variable from 30 to 180 ppm $\pm 1.5\%$ (increments or decrements by a value of 2 ppm).

Output Protection: Fully defibrillator protected and isolated.

Multi-Function Electrode (MFE) Pads: Specially designed pre-gelled ZOLL *stat+pad*® Multi-Function Electrodes packaged in pairs.

Recorder

Paper: 80 mm thermal (grid width), 90 mm (paper width).

Speed: 25 mm/sec., 6-second delay.

Annotations: Time, date, defib energy, heart rate, pacer output (pacer version only), QRS sync marker, ECG size, lead, alarm, defib test OK/Fail, analyze ECG, pads off, analysis halted, noisy ECG, shock advised, no shock advised, ECG too large and diagnostic bandwidth.

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

Printout Modes: Manual or automatic — user-configurable.

On/Off Control: Front panel and paddle.

Automatic Function: 15-second recording initiated by alarm activation or defibrillator discharge.

Voice Prompts

“Attach pads,” “Check pads,” “Check patient,” “Stand clear,” “Press shock,” “No shock advised,” “Check pulse,” “Press analyze,” “If no pulse, perform CPR.”

Visual Prompts

“Press analyze,” “Shock adv,” “No shock adv,” “Joules selected,” “Charging,” “Press shock,” “Check patient,” “If no pulse do CPR.”



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The EasyRead Tri-Mode Display provides three screen options: high resolution color, black on white, or white on black.

PCMCIA Card Slots

Accepts two standard series Type II Flash Cards, 2, 4, 16, and 32 MB; Fax modem card capability in slot 1, data cards in slot 2.

PCMCIA Card

Records continuous ECG and device data; optionally records digitally compressed audio data (AED versions only); play on PC with specified card reader and RescueNet™ Code Review.

Battery Packs

Type: Sealed lead acid.

Recharge Time: 4 hours (fully depleted).

Operating Time: For a new, fully-charged battery pack at 20° C, 40 discharges at maximum energy or 2.75 hours of continuous ECG monitoring, or 2.25 hours of continuous ECG monitoring/pacing at 60mA, 80 beats/min. Additional parameters will effect operating time: consult your Operator's Guide.

General

Size: 5.75 in. (14.6 cm) high x 13.1 in. (33.3 cm) wide x 10.5 in. (26.7 cm) deep.

Weight: 13.2 lb. (6.0 kg) without roll cage or battery; 15.4 lb. (7.0 kg) with sealed lead acid battery; 14.6 lb. (6.6 kg) with lithium ion battery.

Design Standards: Meets or exceeds UL 2601, AAMI DF80, IEC 601-2-4, IEC 601-2-25, and IEC 601-2-27.

Patient Safety: All patient connections are electrically isolated.

Environmental: Operating Humidity: 5 to 95% relative humidity, non-condensing; Vibration: Mil Std 810F Minimum Integrity Test; Shock: IEC 68-2-27, 50 g 6 ms half sine; Operating Pressure: 594 to 1060 mBar; Material Ingress: IEC 529, IP34; Electromagnetic Compatibility (EMC): CISPR 11 Class B Radiated and Conducted Emissions Electronic Immunity: IEC 61000-4-3 to 20 V/m; Electrostatic Discharge: IEC 61000-4-2; Conducted Susceptibility: IEC 61000-4-4, 61000-4-5, 61000-4-6.

AC Power: Meets all IEC, UL and AAMI safety requirements.

Options: Roll cage with cable management side pouches.

Communications

Serial Communication: RS232 port, data transfer cable to PC.

Integrated Bluetooth®: Sends 12-lead and vitals from the E Series to Fax or Email via Bluetooth-enabled handheld or laptop running ZOLL Interlink ZOLL RescueNet Code Review server directs 12-lead and vitals to specified destinations.

Fax Modem Card: For transmission of 12-lead ECG to Group 3 fax machines.

Bluetooth Pbd Adapter Kit: For sending 12-lead ECG via Bluetooth-enabled cell phone to Fax or MUSE systems.

