

ZOLL

MSeries

Defibrillator Monitor Pacemaker with Non-Invasive Blood Pressure (NIBP)

Semi-automatic and manual defibrillators with
proven NIBP technology.

NIBP



ZOLL
It's about time.

ZOLL M Series NIBP

- Comprehensive, accurate vital sign measurements combined with full resuscitation capabilities.
- Single, stat or fully automated functions provide critical blood pressure measurements for rapid patient assessment, continuous readings and drug titration.
- Rapid 30 second (typical) measurement cycle with sophisticated noise and motion filtering capabilities to enhance accuracy.
- All measurements are stored and easily recalled to provide an immediate on-screen measurement log as well as printed vital sign and code marker summary information.

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Complete Diagnostic and Monitoring Capabilities

M Series defibrillators with integrated non-invasive blood pressure provide accurate readings in semi-automatic and manual modes. Combined with optional SpO₂, 12 Lead ECG and EtCO₂ monitoring, the M Series with NIBP is the easiest to use total resuscitation device.

M Series Specifications

ECG Monitoring

Patient Connection: 3-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: 0.5-40 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 ±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 display.

Screen Size: 5 inches (12.7 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, 12 Lead ECG, Code Markers, Alarm Selection and Limits, Delivered Energy.

Defibrillator

General:

Waveform: Damped sinusoid or ZOLL Rectilinear Biphasic.

Charge Time: Less than 7 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: Specifically designed pre-gelled ZOLL stat•padz™ 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: Damped Sine: Selectable at 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 30, 50, 75, 100, 150, 200, 300, 360 joules. (Delivered into 50 Ω load.) Selected using controls on sternum paddle or device front panel. Rectilinear Biphasic energy selection up to 200 joules maximum.

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 and pediatric. Adult paddles slide off to expose pediatric paddles.

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



On screen measurement log and strip-chart, recording, document reading and trends.



Easy access to all features without deep menus.

Semi-Automatic:

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

Analyze 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 μV 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. Selectable at 200, 300, 360 joules monophasic; 120, 150, 200 joules biphasic default.

Selected using controls on device front panel.

NIBP

Characteristics and Specifications

Patient Population: Adult, Pediatric

Method: Oscillometric

Control: Automatic and manual measurements

Auto Intervals: 2.5, 5, 10, 15, 20, 30, 45, 60, 90, 120 min.

STAT Mode: Maximum number of measurements in 5 minutes, not to exceed 10

Displayed Pressures: Systolic, Diastolic, Mean

Displayed Units: mmHg, kPa

Systolic Range: 40 to 260 mmHg

Diastolic Range: 25 to 200 mmHg

Mean Range: 30 to 220 mmHg

Pressure Transducer Accuracy: ±3 mmHg

Redundant Circuit Overpressure Limit: 300 mmHg

Pulse Rate Range: 40 to 200 bpm

Typical Measurement Time: 30 seconds

Standards:

NIBP Safety: Per IEC 601-2-30, AAMI SP-10

NIBP Performance: Per EN 1060-1 and EN 1060-3

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 ±2%; amplitude variable 0 to 140 mA ±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 ±1.5% (increments or decrements by a value of 2 ppm).

Output Protection: Fully defibrillator protected and isolated.

Multi-Function Electrode (MFE) Pads: Specifically designed pre-gelled ZOLL stat•padz™ 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, ECG too small 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

"Analyze," "Shock adv," "No shock adv," "Joules selected," "Charging," "Press shock," "Check patient," "If no pulse do CPR."

PCMCIA Card Slots

Accepts two standard series Type II Flash Cards, 1-16 MB; Fax modem card capability 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 ZOLL Data Control™.

Battery Packs

Type: Rechargeable, sealed lead acid.

Recharge Time: 4 hours or less with integral charger.

Operating Time: For a new, fully charged battery pack at 20°C: 35 defibrillator discharges at maximum energy, or 2.75 hours minimum of continuous ECG monitoring, or 2.25 hours of continuous ECG monitoring/pacing at 60 mA, 80 beats/min.

Additional parameters will affect operating time. Consult your operator's guide.

General

Size: 10.2 in. (25.9 cm) length x 8.1 in. (20.6 cm) width x 8.2 in. (20.8 cm) height.

Weight: 14.6 lb. (6.62 kg) with Universal Cable and battery; 13.5 lb. (6.14 kg) with paddles.

Design Standards: Meets or exceeds UL 2601, AAMI DF-39, AAMI DF-2 and IEC 601-2-4.

Patient Safety: All patient connections are electrically isolated.

Environmental: Operating Temperature: 0° to 55°C; Storage and Shipping Temperature: -40° to 65°C; Humidity: 5 to 95% relative humidity, non-condensing; Vibration: Mil Std 810E, Minimum Integrity Test; Shock: IEC 68-2-27, 50 g 6 ms half sine; Operating Pressure: 594 to 1060 mBar; Material Ingress: IEC 529, IP23; Electromagnetic Compatibility (EMC): CISPR, 11 Class B Radiated and Conducted Emissions; Electromagnetic Immunity: AAMI DF-2; IEC 801-3 to 20 V/m; Electrostatic Discharge: AAMI DF-2; IEC 1000-4-2; Conducted Susceptibility: IEC 1000-4-4, 1000-4-5, 1000-4-6.

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

Options: Xtreme Pack™ I Carry Case, Xtreme Pack™ II Durable Rubber Case for added protection.

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*Specifications subject to change without notice.

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