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

Complete Diagnostic and Monitoring Capabilities

Semi-automatic and manual defibrillators
with proven NIBP technology.

ZOLL
Advancing Resuscitation. Today.™

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

ZOLL® M Series® defibrillators with integrated non-invasive blood pressure provide accurate readings in semi-automatic and manual modes. Combined with optional SpO_2, 12-lead ECG and $EtCO_2$ monitoring, the M Series with NIBP is the easiest to use total resuscitation device.

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

Easy access to all features without deep menus.

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: 0.5-40Hz (-3dB) standard/0.05-150Hz diagnostic.

Lead Selection: Displayed on monitor.

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

Heart Rate: Digital display 0-300bpm ±5%.

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

1 Volt ECG Out: 1.0 volt/cm of deflection on strip chart recorder. <25ms 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 (12.7cm) diagonally.

Sweep Speed: 25mm/sec.

Viewing Time: 4 seconds.

Channels: 2.

Information: Heart Rate, Lead/Pads, Alarm On/Off, SpO_2, $EtCO_2$, 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 ohm 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 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 >100µV and wide complex ventricular tachycardia with rates greater than 150bpm.

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, 120min.

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 260mmHg

Diastolic Range: 25 to 200mmHg

Mean Range: 30 to 220mmHg

Pressure Transducer Accuracy: ±3mmHg

Redundant Circuit Overpressure Limit: 300mmHg

Pulse Rate Range: 40 to 200bpm

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: VI 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 140mA ±5% or 5mA, whichever is greater; digitally displayed on the monitor (increments or decrements by a value of 2mA); rate variable from 30 to 180ppm ±1.5% (increments or decrements by a value of 2ppm).

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

Speed: 25mm/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 60mA, 80 beats/min.

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

General

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

Weight: 14.6lb. (6.62kg) with Universal Cable and battery; 13.5lb. (6.14kg) 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, 50g 6mS half sine; Operating Pressure: 594 to 1060mBar; 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.

CE

Specifications subject to change without notice.

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