

X Series®

Technical Specifications:



Because Medics Carry More These Days

- At less than 12 pounds/6 kilograms, the X Series is up to half the size and weight of other full-featured devices.
- Its large, bright screen allows for simultaneous viewing of four traces, all 12 ECG leads, or static and dynamic 12-lead views on a "split screen."
- The latest, most advanced and most complete monitoring capabilities, including gold standard Masimo® full rainbow® SET and Welch Allyn's Rapid NIBP technologies can be added.
- Trauma-specific parameters deliver insight on occult hemorrhage (SpHb™), fluid responsiveness (PVI™), and oxygenation status (SpOC™).

Because CPR Is a Focus for Cardiac Arrest

- CPR Dashboard™ provides real-time numeric depth and rate values and has a CPR timer that switches to an idle timer when compressions are stopped. The release indicator and the perfusion performance indicator (PPI) also help maximize CPR performance.
- See-Thru CPR® (unique to ZOLL®) helps minimize the duration of interruptions by filtering out artifact, allowing you to see organized underlying rhythms during CPR.

Simplify Charting with Advanced Communication

- The X Series is the first monitor/defibrillator with integrated WiFi. Bluetooth® and USB cellular modem capabilities are standard as well.
- With the push of a button, medics can now directly send X Series files to your system. With RescueNet CaseReview, access to case files is as fast as opening your web browser.
- The X Series acquires, stores, and transmits 12-leads to ZOLL's easy-to-use and economical RescueNet 12-Lead and RescueNet MedGate 12-Lead management systems.

General

Weight: 11.7 lbs. (5.3 kg) with battery and paper
Dimensions: 8.9 in (22.6 cm) x 10.4 in (26.4 cm) x 7.9 in (20.1 cm)
Enclosure Protection: Solid Foreign Object: IEC 60529, IP5X
Water: IEC 60529, IPX5
Operating Temperature: 0 to 50°C
Humidity: 15 to 95% RH (non-condensing)
Vibration: MIL-STD 810G, Method 514.6, 4.4.2 Procedure II
EN ISO 9919 (per IEC 60068-2.64)
EN 1789 for ambulance. RTCA/DO-160G (multiple helicopter frequencies)
Shock: IEC 60068-2-27, 100g, 6 ms half sine
Drop: EN 1789, 30-inch functional drop, IEC 60601-1, tested at 2 meters
Altitude: -170 m to 4572 m (-557 feet to 15,000 feet)

Monitor/Display

Size: 6.5 in (16.56 cm) diagonal
Input: 3-lead, 5-lead, or 12-lead patient cable, paddles, or multifunction electrodes
Type: Color LCD, 640 x 480 pixels, 800 MCD
Sweep Speed: 25 mm/sec or 50 mm/sec (user selectable)
Lead Selections: Paddles (Pads), I, II, III, AVR, AVL, AVF, V1-6
Frequency Response: (user selectable)
0.67 – 20 Hz Limited mode
0.67 – 40 Hz Monitor mode
0.25 – 40 Hz Filtered diagnostic mode
0.05 – 150 Hz Diagnostic mode

Defibrillator

Waveform: Rectilinear Biphasic™
Energy Selections: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 30, 50, 70, 85, 100, 120, 150, 200 joules
Energy Display: Display indicates selected and delivered energy
Charge Time: Less than 7 seconds with a new, fully charged battery
Charge Controls: Front panel and on apex paddle
Pads/Paddles: Hands-free pads and external adult and pediatric paddles. Adult paddles slide off to expose pediatric paddles.
Synchronized Mode: Synchronizes defibrillator pulse to patient's R wave.
"SYNC" message displayed on monitor and markers shown on both monitor and recorded ECG. Meets Clause 104 of AAMI DF80.

ADVANCING RESUSCITATION. TODAY.®

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Patient Modes

User Selectable: Adult, Pediatric, Neonate.
Automatically sets configurable defaults for alarm limits, defibrillation energy, and NIBP settings.

Trends (on-screen)

Tabular numeric format
All parameters trended/viewable
Trend Intervals: 1, 5, 10, 15, 30, 60 minutes
Duration: 24 hours at 1-minute intervals
Snapshots: Minimum of 32 (12 seconds of pre- and post-button press)
Quick-access trend display via quick-access button

Memory Capacity

A combination of 24 hours of trends at 1-minute intervals, 1000 time-stamped events, and 32 snapshots, including monitor, defibrillator, pacer, and treatment snapshots

Pacer

Type: External transcutaneous pacing
Pulse Types: Rectilinear, constant current
Pulse Width: 40 ms ± 2 ms
Pacer Rate: 30 – 180 bpm ± 1.5%
Output Current: 0 – 140 mA ± 5% or 5 mA, whichever is greater
Modes: Demand and Fixed

CPR

CPR Feedback Technology
See-Thru CPR®: Artifact filtering
Real CPR Help®: Real-time depth and rate feedback
CPR Dashboard™: Numeric readout of depth and rate, release indicator, perfusion performance indicator (PPI)

ECG

Cable Detection: Automatic 3-, 5-, 12-lead ECG
Input: 3-lead cable, 5-lead cable, 12-lead cable, paddles, therapy cable
Leads: I, II, III, AVR, AVL, AVF, V1 – V6
Heart Rate Range: 30 – 300 bpm
Heart Rate Accuracy: ± 3 bpm or 3%
Pacer Detection and Display
ECG Sizes: 0.125, 0.25, 0.5, 1, 2, 4 cm/mV, and auto-ranging
Sweep Speed: 25 mm/sec, 50 mm/sec

Masimo® SET SpO2

Saturation Range: 1 – 100%
Saturation Accuracy:
Oxygen saturation during no-motion conditions:
Adults, Pediatrics: 70 – 100%, ± 2 digits
0 – 69%, unspecified
Neonates: 70 – 100%, ± 3 digits
0 – 69%, unspecified
Oxygen saturation during motion conditions
Adults, Pediatrics: 70 – 100%, ± 3 digits
0 – 69%, unspecified
Neonates: 70 – 100%, ± 3 digits
0 – 69%, unspecified
Oxygen saturation during low-perfusion conditions:
Adults, Pediatrics: 70 – 100%, ± 2 digits
0 – 69%, unspecified
Neonates: 70 – 100%, ± 3 digits
0 – 69%, unspecified

Pulse Rate Range: 25 – 240 bpm
Pulse rate during no-motion conditions:
Adults, Pediatrics,
Neonates: 25 – 240 ± 3 digits
Pulse rate during motion conditions
Adults, Pediatrics,
Neonates: 25 – 240 ± 5 digits

Specifications subject to change without notice.

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SpO2 Average time setting:

4, 8 (default), 16 seconds

Masimo rainbow® SET SpCO®

Range: 0 – 99%
Accuracy: 1 – 40% ± 3 digits

Masimo rainbow® SET SpMet®

Range: 0 – 99%
Accuracy: 1 – 15% ± 1 digits

Masimo rainbow® SET SpHb®

Measurement Range: 0 – 25 g/dL
Accuracy (Adults/Infants/Pediatrics): 8 – 17 g/dL +/- 1 g/dL
Resolution (SpHb g/dL): 0.1 g/dL

Masimo rainbow® SET SpOC™

Measurement Range: 0 – 35 mL of O2/dL of blood
Resolution: 0.1 mL/dL

Masimo Perfusion Index (PI)

Measurement Range: 0.02 – 20%
Resolution: 0.1%

Masimo Pleth Variability Index (PVI®)

Measurement Range: 0 – 100%
Resolution: 1%

Non-Invasive Blood Pressure (NIBP)

Smartcut® and Sure BP® NIBP technology
Measurement Intervals: Automatic 1-, 2-, 3-, 5-, 10-, 15-, 30-, 60-minute, and manual quick-action NIBP Start/Stop button
TurboCuf: 5 min of repeated NIBP readings
Display: Systolic, diastolic, mean. Viewable on-screen with large numerics.

Cuff Overpressure Protection

Typical Measurement Time:
30 – 45 sec (on deflation)
15 – 30 sec – Sure BP (on inflation)

Standard Cuff Sizes: Neonate #1 – #5, Infant, Small Child, Small Adult, Adult Long, Large Adult, Thigh

Default Cuff Inflation Pressure:

Adults: 160 mmHg
Pediatrics: 120 mmHg
Neonates: 90 mmHg
Pressure Measurement Range:
Systolic: 20 – 260 mmHg
Diastolic: 10 – 220 mmHg
Mean: 13 – 230 mmHg
Maximum Cuff Inflation Pressure:
Adults: 270 mmHg
Pediatrics: 170 mmHg
Neonates: 130 mmHg

Microstream® etCO2

Range:
0 – 150 mmHg
Accuracy:
0 – 38: ± 2 mmHg
39 – 150: ± 5% + .08% mmHg >38
Respiration Range: 0 – 149 breaths per minute
Respiration Rate Accuracy:
0 – 70 bpm ± 1 bpm
71 – 120 bpm ± 2 bpm
121 – 149 bpm ± 3 bpm
Flow rate: 50 ml/min -7.5 + 15 ml/min
Typical response time: 2.9 seconds
Maximum response time: 3.9 seconds

Impedance Pneumography

Displayed Data: Numeric breath rate, Impedance waveform
Breath Rate Range: Adult, Pediatric:
2 to 150 breaths/minute. Neonates: 3 to 150 breaths/minute.

Breath Rate Accuracy: 2% or ± 2, whichever is greater

Displayed Breath Rate: Average of last 10 breath-to-breath rates

Leads: Lead I (RA – LA), Lead II (RA – LL)

Sweep Speed: 3.13, 6.25, 12.5 mm/sec

Alarm Settings: High, low, and no breath rate alarm

Invasive Pressure

Three Channels

Pressure Range: -30 – 300 mmHg

Pulse Rate Measurement Range:

25 – 250 bpm

Formats: S/D, S/D (M), (M) user selectable

User-Selectable Labels: P1, P2, P3, ABP, AO, ART, CVP, BAP, FAP, LAP, PAP, RAP, UAP, UVP, ICP

Transducer Requirements:

5M µV/V/mmHg

Zero Adjustment: ± 200 mmHg

Numeric Pressure Accuracy: ± 2 mmHg or 2% reading, whichever is greater of reading, plus transducer error

Transducer Connector: Standard 6-pin MS connector

Temperature

Two YSI 400/700 series-compatible channels
Range: 0 – 50°C (32 – 122°F)

Units: °C or °F

Display: T1, T2, and Delta temp

Accuracy: ± 0.1°C (± 0.06°F) from 10 – 50°C (50 – 122°F) ± 0.2°C (± 0.11°F) from 0 – 10°C (32 – 50°F)

Printer

Type: High-resolution thermal array

Annotation: Time, date, ECG lead, ECG gain, heart rate, defibrillation, and pacing parameters and treatment summary events

Paper Width: 80 mm

Paper Speed: 25 mm/sec, 50 mm/sec

Delay: 6 seconds

Frequency Response: Automatically set to monitor's frequency response

Record Modes: Manual and automatic (user configurable)

Print Option Single waveform or a combination up to 3, on alarm, snapshots, treatment summary report, and trend summary

Battery

Type: Rechargeable lithium-ion, 11.1 Vdc, 6.6 Ah, 73 Wh

Capacity: With a new, fully charged battery operating at room temperature: At least 6 hours of continuous monitoring of ECG, SpO2, CO2, 3 invasive pressure channels, and 2 channels of temperature, with NIBP measurements every 15 minutes and 10 200-joule shocks. 300 shocks at 200 joules with fully charged new battery at room temperature. At least 3.5 hours pacing, with ECG, SpO2, CO2, three invasive pressures, temperature, NIBP every 15 minutes and pacing at 180 ppm, and 140 mA.

AC Power Adapter: 100 – 240 VAC 50, 60 Hz, 2A 100 – 115 VAC 400Hz, 2A

ZOLL®