



**CAL FIRE**  
**San Luis Obispo**  
**County Fire Department**

635 N. Santa Rosa • San Luis Obispo, CA 93405  
Phone: 805.543.4244 • Fax: 805.543.4248  
www.calfireslo.org



Scott M. Jalbert, Unit Chief

July 6, 2017

**TO:** LOCSO Board of Directors

**FROM:** Greg Alex, Battalion Chief

**SUBJECT:** **Agenda Item 11F – 07/06/2017 Board Meeting**  
Approve Purchase of Zoll Heart Monitor

**DESCRIPTION:**

This Staff Note requests permission to purchase new equipment for Station 15 – South Bay Paramedics including one Zoll X Series Manual Monitor/Display and supporting equipment.

**STAFF RECOMMENDATION:**

Staff recommends that the Board adopt the following motion/resolution:

***Motion: I Move to Direct Staff to Purchase One Zoll X Series Manual Monitor/Display with Supporting Equipment from the FY 2017/2018 Fund 301 Budget.***

**DISCUSSION:**

Station 15 – South Bay is required to have a total of three heart monitor/defibrillators for use by its paramedics (2 front-line and one backup). Staff has made purchases over the years to meet this requirement. The purchase of a Zoll “E Series” monitor/defibrillator was completed in 2007. Since then, Staff has purchased an additional two Zoll Monitors, one in 2011 (E-Series) and one in 2014 (X-Series). Zoll Monitors are the industry standard in San Luis Obispo County, and therefore the only vendor used by paramedic providers in SLO County.

The LOCSO-owned 2007 Zoll Monitor is past its warranty and lacking technology that has become the standard of care in San Luis Obispo County, such as side-stream capnography, 12-lead telemetry, compatibility with electronic patient care reporting and more. Staff has received a bid from Zoll for the purchase of a Zoll X-Series ECG Monitor/Defibrillator to replace the obsolete E-Series. The bid received by CAL FIRE Staff for the new monitor utilized the bulk discount pricing granted to **CAL FIRE**. Our savings is approximately \$7,200; total price is \$37,771. An additional \$1,500 discount will be afforded for returning the obsolete 2007 E Series Zoll Monitor so the final quoted price for the new unit, including tax is \$36,271.46.

Station 15 – South Bay Staff has worked with the LOCSD General Manager to determine that there are funds available in FY 2017/2018 Fund 301 Budget to allow for these purchases without using Fund 301 Reserves. At the May 4, 2017, June 1, 2017 LOCSD Board meetings and June 15, 2017 LOCSD Special Board Meeting, the Board of Directors reviewed this proposed expenditure within the draft FY 2017/2018 Fund 301 Budget.

**FINANCIAL IMPACT:**

The LOCSD General Manager has advised Station 15 – South Bay Staff that these purchases could be made from unallocated revenues currently in the FY 2017/2018 Fund 301 Budget. Staff has designated the necessary funds for this purchase in Line Item 7238-Paramedic & EMT Small Tools, not to exceed \$36,300.

Respectfully Submitted,

Scott Jalbert, Unit Chief  
*CAL FIRE* / San Luis Obispo County Fire Department



By Greg Alex, North Coast Battalion Chief  
*CAL FIRE* / San Luis Obispo County Fire Department

Encl: Zoll Medical Corporation Price Quote (3 pages)  
Zoll Quotation General Terms & Conditions (1 page)  
Zoll X Series Technical Specifications (2 pages)



**ZOLL Medical Corporation**

Worldwide HeadQuarters  
 269 Mill Rd  
 Chelmsford, Massachusetts 01824-4105  
 (978) 421-9655 Main  
 (800) 348-9011  
 (978) 421-0015 Customer Support  
 FEDERAL ID#: 04-2711626

**TO: CALFIRE Station 15 - South Bay**

2315 Bayview Heights Drive  
 Los Osos, CA 93402

Attn: **Rob Jenkins, Fire Captain-Paramedic- EMS Coordinator**  
**Mark Walsh, Harmony Brown**

email: [rob.jenkins@fire.ca.gov](mailto:rob.jenkins@fire.ca.gov); [mark.walsh@fire.ca.gov](mailto:mark.walsh@fire.ca.gov); [harmony.brown@fire.ca.gov](mailto:harmony.brown@fire.ca.gov)  
 Tel: 805-528-1053

**QUOTATION 247235 V:2**

DATE: June 19, 2017

TERMS: Net 30 Days

FOB: Shipping Point

FREIGHT: Free Freight

ITEM	MODEL NUMBER	DESCRIPTION	QTY.	UNIT PRICE	DISC PRICE	TOTAL PRICE
1	601-2231011-01	<p><b>X Series Manual Monitor/Defibrillator \$14,995</b>            with 4 trace tri-mode display monitor/ defibrillator/ printer,            comes with Real CPR Help®, advisory algorithm, advanced communications package (Wi-Fi, Bluetooth, USB cellular modem capable) USB data transfer capable and large 6.5"( 16.5cm) diagonal screen, full 12 ECG lead view with both dynamic and static 12-lead mode display.</p> <p><b>Accessories Included:</b></p> <ul style="list-style-type: none"> <li>• Six (6) foot 3- Lead ECG cable</li> <li>• MFC cable</li> <li>• MFC CPR connector</li> <li>• A/C power adapter/ battery charger</li> <li>• A/C power cord</li> <li>• One (1) roll printer paper</li> <li>• 6.6 Ah Li-ion battery</li> <li>• Carry case</li> <li>• Declaration of Conformity</li> <li>• Operator's Manual</li> <li>• Quick Reference Guide</li> </ul> <p>• <b>One (1)-year EMS warranty</b></p> <p><b>Advanced Options:</b>  <b>Real CPR Help Expansion Pack \$995</b>            CPR Dashboard quantitative depth and rate in real time, release indicator, interruption timer, perfusion performance indicator (PPI)            • See - Thru CPR artifact filtering</p> <p><b>ZOLL Noninvasive Pacing Technology: \$2,550</b></p> <p><b>Masimo Pulse Oximetry</b></p>	1	\$40,020.00	\$32,816.40	\$32,816.40 *

This quote is made subject to ZOLL's standard commercial terms and conditions (ZOLL T's + C's) which accompany this quote. Any purchase order (P.O.) issued in response to this quotation will be deemed to incorporate ZOLL T's + C's. Any modification of the ZOLL T's + C's must be set forth or referenced in the customer's P.O. No commercial terms or conditions shall apply to the sale of goods or services governed by this quote and the customer's P.O unless set forth in or referenced by either document.

**Page 1 Subtotal \$32,816.40**

1. DELIVERY WILL BE MADE 60-90 DAYS AFTER RECEIPT OF ACCEPTED PURCHASE ORDER.
2. PRICES QUOTED ARE VALID UNTIL JULY 15, 2017.
3. APPLICABLE TAX, SHIPPING & HANDLING WILL BE ADDED AT THE TIME OF INVOICING.
4. ALL PURCHASE ORDERS ARE SUBJECT TO CREDIT APPROVAL BEFORE ACCEPTABLE BY ZOLL.
5. FAX PURCHASE ORDER AND QUOTATION TO ZOLL CUSTOMER SUPPORT AT 978-421-0015 OR EMAIL TO [ESALES@ZOLL.COM](mailto:ESALES@ZOLL.COM).
6. ALL DISCOUNTS OFF LIST PRICE ARE CONTINGENT UPON PAYMENT WITHIN AGREED UPON TERMS.
7. PLACE YOUR ACCESSORY ORDERS ONLINE BY VISITING [www.zollwebstore.com](http://www.zollwebstore.com).

Bryan Pank  
 Sr. EMS Account Executive  
 800-242-9150, x9218



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 Tel: 805-528-1053

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ITEM	MODEL NUMBER	DESCRIPTION	QTY.	UNIT PRICE	DISC PRICE	TOTAL PRICE
		<b>SP02 &amp; SpCO \$4,540</b> • Signal Extraction Technology (SET) • Rainbow SET ( for SpCO & SpMet)  <b>NIBP Welch Allyn includes: \$3495</b> • Smartcuff 10 foot Dual Lumen hose • SureBP Reusable Adult Medium Cuff  <b>End Tidal Carbon Dioxide monitoring (ETCO2) \$4,995</b> <b>Oridion Microstream Technology:</b> Order required Microstream tubing sets separately  <b>Interpretative 12- Lead ECG: \$8,450</b> • 12-Lead one step ECG cable- includes 4- Lead limb lead cable and removable precordial 6- Lead set				
2	8000-0341	SpO2/SpCO/SpMet Rainbow Resuable Patient Cable: Connects to Single Use Sensors (4 ft)	1	\$245.00	\$196.00	\$196.00 *
3	8000-000371	SpO2/SpCO/SpMet Rainbow DCI Adult Reusable Sensor with connector (3 ft)	1	\$845.00	\$676.00	\$676.00 *
4	8000-0580-01	Six hour rechargeable Smart battery	2	\$495.00	\$420.75	\$841.50 *

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**Page 2 Subtotal**

**\$34,529.90**

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ITEM	MODEL NUMBER	DESCRIPTION	QTY.	UNIT PRICE	DISC PRICE	TOTAL PRICE
5	8000-000384-01	Multi- Tech Cell Modem Kit, External Antenna, CDMA	1	\$595.00	\$595.00	\$595.00
6	5001-9928	ZOLL E Series w/Pacing, 12 lead + 3 parameters or more Trade-In	1		(\$1,500.00)	(\$1,500.00) **
7		Estimated Sales Tax at 7.25%				\$2,546.56
8		Estimated Ground Shipping				\$100.00

\*Reflects Discount Pricing.  
 \*\*Trade value guaranteed only through July 15, 2017.  
 \*\*Trade-In Value valid if all units purchased are in good operational and cosmetic condition, and include all standard accessories such as paddles, cables, etc. Customer assumes responsibility for shipping trade-in equipment to ZOLL Chelmsford within 60 days of receipt of new equipment. Customer agrees to pay cash value for trade-in equipment not shipped to ZOLL on a timely basis.

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**TOTAL \$36,271.46**

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## ZOLL QUOTATION GENERAL TERMS & CONDITIONS

**1. ACCEPTANCE.** This Quotation constitutes an offer by ZOLL Medical Corporation to sell to the Customer the equipment (including a license to use certain software) listed in this Quotation and described in the specifications either attached to or referred to in this Quotation (hereinafter referred to as Equipment). Any acceptance of such offer is expressly limited to the terms of this Quotation, including these General Terms and Conditions. Acceptance shall be so limited to this Quotation notwithstanding (i) any conflicting written or oral representations made by ZOLL Medical Corporation or any agent or employee of ZOLL Medical Corporation or (ii) receipt or acknowledgement by ZOLL Medical Corporation of any purchase order, specification, or other document issued by the Customer. Any such document shall be wholly inapplicable to any sale made pursuant to this Quotation, and shall not be binding in any way on ZOLL Medical Corporation.

Acceptance of this Quotation by the Customer shall create an agreement between ZOLL Medical Corporation and the Customer (hereinafter referred to as the "Contract") the terms and conditions of which are expressly limited to the provisions of this Quotation including these Terms and Conditions. No waiver change or modification of any of the provisions of this Quotation or the Contract shall be binding on ZOLL Medical Corporation unless such waiver, change or modification (i) is made in writing (ii) expressly states that it is a waiver, change or modification of this Quotation or the Contract and (iii) is signed by an authorized representative of ZOLL Medical Corporation.

**2. DELIVERY AND RISK OF LOSS.** Unless otherwise stated, all deliveries shall be F.O.B. ZOLL Medical Corporation's facility. Risk of loss or damage to the Equipment shall pass to the Customer upon delivery of the Equipment to the carrier.

**3. TERMS OF PAYMENT.** Unless otherwise stated in its Quotation payment by Customer is due thirty (30) days after the ship date appearing on ZOLL Medical Corporation invoice. Any amounts payable hereunder which remain unpaid after the date shall be subject to a late charge equal to 1.5% per month from the due date until such amount is paid.

**4. CREDIT APPROVAL.** All shipments and deliveries shall at all times be subject to the approval of credit by ZOLL Medical Corporation. ZOLL Medical Corporation may at any time decline to make any shipment or delivery except upon receipt of payment or security or upon terms regarding credit or security satisfactory to ZOLL Medical Corporation.

**5. TAXES & FEES.** The pricing quoted in its Quotation do not include sales use, excise, or other similar taxes or any duties or customs charges, or any order processing fees. The Customer shall pay in addition for the prices quoted the amount of any present or future sales, excise or other similar tax or customs duty or charge applicable to the sale or use of the Equipment sold hereunder (except any tax based on the net income of ZOLL Medical Corporation), and any order processing fees that ZOLL may apply from time to time. In lieu thereof the Customer may provide ZOLL Medical Corporation with a tax exemption certificate acceptable to the taxing authorities.

**6. WARRANTY.** (a) ZOLL Medical Corporation warrants to the Customer that from the earlier of the date of installation or thirty (30) days after the date of shipment from ZOLL Medical Corporation's facility, the Equipment (other than accessories and electrodes) will be free from defects in material and workmanship under normal use and service for the period noted on the reverse side. Accessories and electrodes shall be warranted for ninety (90) days from the date of shipment. During such period ZOLL Medical Corporation will at no charge to the Customer either repair or replace (at ZOLL Medical Corporation's sole option) any part of the Equipment found by ZOLL Medical Corporation to be defective in material or workmanship. If ZOLL Medical Corporation's inspection detects no defects in material or workmanship, ZOLL Medical Corporation's regular service charges shall apply. (b) ZOLL Medical Corporation shall not be responsible for any Equipment defect failure of the Equipment to perform any specified function, or any other nonconformance of the Equipment caused by or attributable to (i) any modification of the Equipment by the Customer, unless such modification is made with the prior written approval of ZOLL Medical Corporation; (ii) the use of the Equipment with any associated or complementary equipment accessory or software not specified by ZOLL Medical Corporation, or (iii) any misuse or abuse of the Equipment; (iv) exposure of the Equipment to conditions beyond the environmental, power or operating constraints specified by ZOLL Medical Corporation, or (v) installation or wiring of the Equipment other than in accordance with ZOLL Medical Corporation's instructions. (c) Warranty does not cover items subject to normal wear and burnout during use, including but not limited to lamps, fuses, batteries, cables and accessories. (d) The foregoing warranty does not apply to software included as part of the Equipment (including software embodied in read-only memory known as "firmware"). (e) The foregoing warranty constitutes the exclusive remedy of the Customer and the exclusive liability of ZOLL Medical Corporation for any breach of any warranty related to the Equipment supplied hereunder. THE WARRANTY SET FORTH HEREIN IS EXCLUSIVE AND ZOLL MEDICAL CORPORATION EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES WHETHER WRITTEN, ORAL, IMPLIED, OR STATUTORY, INCLUDING BUT NOT LIMITED TO ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

**7. SOFTWARE LICENSE.** (a) All software (the "Software" which term shall include firmware) included as part of the Equipment is licensed to Customer pursuant to a nonexclusive limited license on the terms hereinafter set forth, (b) Customer may not copy, distribute, modify, translate or adapt the Software, and may not disassemble or reverse compile the Software, or seek in any manner to discover, disclose or use any proprietary algorithms, techniques or other confidential information contained therein, (c) All rights in the Software remain the product of ZOLL Medical Corporation, and Customer shall have no right or interest therein except as expressly provided herein. (d) Customer's right to use the Software may be terminated by ZOLL Medical Corporation in the event of any failure to comply with terms of this quotation. (e) Customer may transfer the license conferred hereby only in connection with a transfer of the Equipment and may not retain any copies of the Software following such transfer. (f) ZOLL Medical Corporation warrants that the read-only memory or other media on which the Software is recorded will be free from defects in materials and workmanship for the period and on terms set forth in section 6. (g) Customer understands that the Software is a complex and sophisticated software product and no assurance can be given that operation of the Software will be uninterrupted or error-free, or that the Software will meet Customer's requirements. Except as set forth in section 7(f), ZOLL MEDICAL CORPORATION MAKES NO REPRESENTATIONS OR WARRANTIES WITH RESPECT TO THE SOFTWARE AND IN PARTICULAR DISCLAIMS ANY IMPLIED WARRANTIES OR MERCHANTABILITY OR FITNESS OF A PARTICULAR PURPOSE WITH RESPECT THERETO. Customer's exclusive remedy for any breach of warranty or defect relating to the Software shall be the repair or replacement of any defective read-only memory or other media so that it correctly reproduces the Software. This License applies only to ZOLL Medical Corporation Software.

**8. DELAYS IN DELIVERY.** ZOLL Medical Corporation shall not be liable for any delay in the delivery of any part of the Equipment if such delay is due to any cause beyond the control of the ZOLL Medical Corporation including, but not limited to acts of God, fires, epidemics, floods, riots, wars, sabotage, labor disputes, governmental actions, inability to obtain materials, components, manufacturing facilities or transportation or any other cause beyond the control of ZOLL Medical Corporation. In addition ZOLL Medical Corporation shall not be liable for any delay in delivery caused by failure of the Customer to provide any necessary information in a timely manner. In the event of any such delay, the date of shipment or performance hereunder shall be extended to the period equal to the time lost by reason of such delay. In the event of such delay ZOLL Medical Corporation may allocate available Equipment among its Customers on any reasonable and equitable basis. The delivery dates set forth in this Quotation are approximate only and ZOLL Medical Corporation shall not be liable for or shall the Contract be breached by, any delivery by ZOLL Medical Corporation within a reasonable time after such dates.

**9. LIMITATIONS OF LIABILITY.** IN NO EVENT SHALL ZOLL MEDICAL CORPORATION BE LIABLE FOR INDIRECT SPECIAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ZOLL MEDICAL CORPORATION'S PERFORMANCE OR FAILURE TO PERFORM PURSUANT TO THIS QUOTATION OR THE CONTRACT OR THE FURNISHING, PERFORMANCE, OR USE OF ANY EQUIPMENT OR SOFTWARE SOLD HERETO, WHETHER DUE TO A BREACH OF CONTRACT, BREACH OF WARRANTY, THE NEGLIGENCE OF ZOLL MEDICAL CORPORATION OR OTHERWISE.

**10. PATENT INDEMNITY.** ZOLL Medical Corporation shall at its own expense defend any suit that may be instituted against the Customer for alleged infringement of any United States patents or copyrights related to the parts of the Equipment or the Software manufactured by ZOLL Medical Corporation, provided that (i) such alleged infringement consists only in the use of such Equipment or the Software by itself and not as a part of or in combination with any other devices or parts, (ii) the Customer gives ZOLL Medical Corporation immediate notice in writing of any such suit and permits ZOLL Medical Corporation through counsel of its choice, to answer the charge of infringement and defend such suit, and (iii) the Customer gives ZOLL Medical Corporation all requested information, assistance and authority at ZOLL Medical Corporation's expense, to enable ZOLL Medical Corporation to defend such suit.

In the case of a final award of damages for infringement in any such suit, ZOLL Medical Corporation will pay such award, but it shall not be responsible for any settlement made without its written consent.

Section 10 states ZOLL Medical Corporation's total responsibility and liability's, and the Customer's sole remedy for any actual or alleged infringement of any patent by the Equipment or the Software or any part thereof provided hereunder. In no event shall ZOLL Medical Corporation be liable for any indirect, special, or consequential damages resulting from any such infringement.

**11. CLAIMS FOR SHORTAGE.** Each shipment of Equipment shall be promptly examined by the Customer upon receipt thereof. The Customer shall inform ZOLL Medical Corporation of any shortage in any shipment within ten (10) days of receipt of Equipment. If no such shortage is reported within ten (10) day period, the shipment shall be conclusively deemed to have been complete.

**12. RETURNS AND CANCELLATION.** (a) The Customer shall obtain authorization from ZOLL Medical Corporation prior to returning any of the Equipment. (b) The Customer receives authorization from ZOLL Medical Corporation to return a product for credit, the Customer shall be subject to a restocking charge of twenty percent (20%) of the original list purchase price, but not less than \$50.00 per product. (c) Any such change in delivery caused by the Customer that causes a delivery date greater than six (6) months from the Customer's original order date shall constitute a new order for the affected Equipment in determining the appropriate list price.

**13. APPLICABLE LAW.** This Quotation and the Contract shall be governed by the substantive laws of the Commonwealth of Massachusetts without regard to any choice of law provisions thereof.

**14. COMPLIANCE WITH LAWS.** (a) ZOLL Medical Corporation represents that all goods and services delivered pursuant to the Contract will be produced and supplied in compliance with all applicable state and federal laws and regulations, including the requirements of the Fair Labor Standards Act of 1938, as amended. (b) The Customer shall be responsible for compliance with any federal, state and local laws and regulations applicable to the installation or use of the Equipment furnished hereunder, and will obtain any permits required for such installation and use.

**15. NON-WAIVER OF DEFAULT.** In the event of any default by the Customer, ZOLL Medical Corporation may decline to make further shipments or render any further warranty or other services without in any way affecting its right under such order. If despite any default by Customer, ZOLL Medical Corporation elects to continue to make shipments its action shall not constitute a waiver of any default by the Customer or in any way affect ZOLL Medical Corporation's legal remedies regarding any such default. No claim or right arising out of a breach of the Agreement by the Customer can be discharged in whole or in part by waiver or renunciation of the claim or right unless the waiver or renunciation is supported by consideration and is in writing signed by ZOLL Medical Corporation.

**16. ASSIGNMENT.** This Quotation, and the Contract, may not be assigned by the Customer without the prior written consent of ZOLL Medical Corporation, and any assignment without such consent shall be null and void.

**17. TITLE TO PRODUCTS.** Title to right of possession of the products sold hereunder shall remain with ZOLL Medical Corporation until ZOLL Medical Corporation delivers the Equipment to the carrier and agrees to do all acts necessary to perfect and maintain such right and title in ZOLL Medical Corporation. Failure of the Customer to pay the purchase price for any product when due shall give ZOLL Medical Corporation the right, without liability to repossess the Equipment, with or without notice, and to avail itself of any remedy provided by law.

**18. EQUAL EMPLOYMENT OPPORTUNITY / AFFIRMATIVE ACTION.**  
VETERAN'S EMPLOYMENT - If this order is subject to Executive Order 11710 and the rules, regulations, or orders of the Secretary of Labor issued thereunder the contract clause as set forth at 41 CFR 60-250.4 is hereby included as part of this order.

EMPLOYMENT OF HANDICAPPED - If this order is subject to Section 503 of the Rehabilitation Act of 1973, as amended and the rules, regulations or orders of the Secretary of Labor as issued thereunder, the contract clause at 41 CFR 60-741.7 is hereby included as part of this order.

EQUAL OPPORTUNITY EMPLOYMENT - If this order is subject to the provisions of Executive Order 11246, as amended, and the rules, regulations or orders of the Secretary of Labor issued thereunder, the contract clause set forth at 41 CFR 60-1.4 (a) and 60-1.4 (b) are hereby included as a part of this order and Seller agrees to comply with the reporting requirements set forth at 41 CFR 60-1.7 and the affirmative action compliance program requirements set forth as 41 CFR 60-1.40.

**19. VALIDITY OF QUOTATION.** This Quotation shall be valid and subject to acceptance by the Customer, in accordance with the terms of Section 1 hereof for the period set forth on the face hereof. After such period, the acceptance of this Quotation shall not be binding upon ZOLL Medical Corporation and shall not create a contract, unless such acceptance is acknowledged and accepted by ZOLL Medical Corporation by a writing signed by an authorized representative of ZOLL Medical Corporation.

**20. GENERAL.** Any Contract resulting from this Quotation shall be governed by and interpreted in accordance with the laws of the Commonwealth of Massachusetts. This constitutes the entire agreement between Buyer and Supplier with respect to the purchase and sale of the Products described in the face hereof, and only representations or statements contained herein shall be binding upon Supplier as a warranty or otherwise. Acceptance or acquiescence in the course of performance rendered pursuant hereto shall not be relevant to determine the meaning of this writing even though the accepting or acquiescing party has knowledge of the nature of the performance and opportunity for objection. No addition to or modification of any of the terms and conditions specified herein shall be binding upon Supplier unless made in writing and signed by a duly authorized representative of Supplier. The terms and conditions specified shall prevail notwithstanding any variance from the terms and conditions of any order or other form submitted by Buyer for the Products set forth on the face of this Agreement. To the extent that this writing may be treated as an acceptance of Buyer's prior offer, such acceptance is expressly made conditional on assent by Buyer to the terms hereof, and, without limitation, acceptance of the goods by Buyer to the terms hereof, and, without limitation, acceptance of the goods by Buyer shall constitute such assent. All cancellations and reschedules require a minimum of thirty (30) days notice.

# X Series™



## Technical Specifications:

### Xtremely Small, Light, and Powerful

- At less than 12 pounds/6 kilograms, the X Series is about 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 device also incorporates the latest, most advanced and most complete monitoring capabilities, including "gold standard" Masimo® rainbow® SET Pulse CO-Oximetry and Welch Allyn's Rapid NIBP technology to improve accuracy and reliability.

### CPR with Confidence

- 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.

### Unsurpassed 12-lead Data Collection and Communications Capabilities

- The X Series is the first monitor/defibrillator with integrated WiFi. Bluetooth® and USB cellular modem capabilities are standard as well.
- The X Series is designed to work in conjunction with the new RescueNet® Link EMS communications system.\* With RescueNet Link, patient data can be automatically uploaded and streamed to remote displays in ambulances, hospitals, and communication centers while the rescuer cares for the patient on scene and in transit.
- 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.

**ZOLL®**

## 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.

## 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 SpO<sub>2</sub>

**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

## SpO<sub>2</sub> 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

## Non-Invasive Blood Pressure (NIBP)

Smartcuf® 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

## EtCO<sub>2</sub>

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/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 AAMI

## 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 (± 0.1°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, SpO<sub>2</sub>, CO<sub>2</sub>, 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, SPO<sub>2</sub>, CO<sub>2</sub>, 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

## ADVANCING RESUSCITATION. TODAY.®

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\*This functionality will be available in future updates.

Specifications subject to change without notice.

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