Propaq® M

Technical Specifications

Best-in-Class Monitoring

Rugged and lightweight, the Propaq® M vital signs monitor is specifically designed for the rigours of military and aeromedical operations.

Advanced Communication Features

- WiFi, Ethernet, Bluetooth, and Cellular modem
- Stores patient data for manual or automatic upload to ZOLL
  or third-party digital patient data systems
- Telemedicine capabilities enable continuous transmission of patient
  vital signs and waveforms to remote locations
- STEMI management to transmit diagnostic 12-lead ECGs to remote locations

Military Trusted and Proven

With more than 25 years of experience manufacturing resuscitation technologies for the military, ZOLL® continues to provide a trusted and proven vital signs monitor that features:

- Best-in-class monitoring and diagnostic technologies for BLS, ALS, and trauma patients
- Multiple display modes for operations in bright sunlight or at night
- Battery system and PC power charger for worldwide sea, land, and air operating capabilities
- Robust communication options for flexible data sharing and streaming
- An optional integrated printer
- Multiple mounting options for ground and flight usage available through third parties

Military Airworthiness Equipment

The Propaq M monitor/defibrillator is approved for use during all phases of flight aboard U.S. Air Force and Army aircraft. ZOLL has a longstanding history of military collaboration – both inside and outside the U.S. – and integrates the special needs of military airworthiness equipment with the reliable, advanced technologies in many of our lifesaving resuscitation products. And all are designed to help improve clinical outcomes while meeting the rigours of airworthiness.

ZOLL®

Propaq M
A robust and versatile transport monitor you can trust to work reliably in any environment

Telemedicine capabilities enable continuous transmission of patient vital signs and waveforms to remote locations

- Robust communications options: integrated Wi-Fi, Bluetooth® with USB cellular modem, and Ethernet capabilities
- Large display, capable of showing four or twelve waveforms and all clinical parameters on one screen
- Four pounds lighter than similar vital signs transport monitors
- Backward-compatible with most existing accessories for all older Propaq monitors
- Available with full Masimo rainbow® SET SpO₂, SpCO, SpMet, SpHb, SpOC, PI, and PVI
- Available with optional integrated printer

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Propaq M Specifications

Display
Type: Bright, Colour, LCD TFT
Brightness: User adjustable
Resolution: 640 x 480 pixels
Waveform Traces: 4, 6, or 12 waveforms
Display Modes: Standard, high-contrast, NVG-friendly (night vision goggle)
Waveform Durations: 4.8, 9.5 seconds

ECG
Cable Detection: Automatic 3-, 5-, 12-lead
Input: 3-lead cable, 5-lead cable, 12-lead cable
Cable Compatibility: Propaq Encore, Propaq CS
Leads: I, II, III, AVR, AVL, AVF, V1 – V6
Bandwidth (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
Heart Rate Range: 30 – 300 BPM
Heart Rate Accuracy: ± 3 BPM or 3%
Pacer Detection and Display
Electrosurgery Interference Suppression
ESU and Defibrillation Protected
ECG Sizes: 0.125, 0.25, 0.5, 1, 2, 4 cm/mv, and auto-ranging
Sweep Speed: 25, 50 mm/sec
Common Mode Rejection: Complies with AAMI EC13-2002 section 4.2.9.10

Patient Modes
User-selectable: Adult, Paediatric, 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 display data captures (12 seconds of pre- and post- button press); quick access trend display via display button

Printer
Waveforms Printed: 1, 2, or 3
Print Speeds: 25 mm/sec or 50 mm/sec
Print Modes: Manual or automatic (user-configurable)
On/Off Control: Front panel or paddle
Paper Delay: 6 seconds
Frequency Response:
Same as the monitor's settings
Paper Width: 80 mm

Masimo® SET SpO₂
Saturation Range: 1 – 100%
Saturation Accuracy:
Oxygen saturation during no-motion conditions:
 Adults, Paediatrics: 70 – 100%, ± 2 digits
 0 – 69%, unspecified
 Neonates: 70 – 100%, ± 3 digits
 0 – 69%, unspecified
Oxygen saturation during motion conditions
 Adults, Paediatrics: 70 – 100%, ± 3 digits
 0 – 69%, unspecified
 Neonates: 70 – 100%, ± 3 digits
 0 – 69%, unspecified
Oxygen saturation during low-perfusion conditions:
 Adults, Paediatrics 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, Paediatrics, Neonates:
25 – 240 ± 3 digits
Pulse rate during motion conditions:
Adults, Paediatrics,
Neonates: 25 – 240 ± 5 digits
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/Paediatrics):
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 Pleth Variability Index (PVI®)
Measurement Range: 0 –100%
Resolution: 1%

Masimo Perfusion Index (PI)
Measurement Range: 0.02 – 20%
Resolution: 0.1%

Noninvasive Blood Pressure (NIBP)
Smartcuf® and SureBP® 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
Typical Measurement Time:
 30 – 45 sec (on deflation)
 15 – 30 sec — Sure BP (on inflation)
Standard Cuff Sizes: Neonate #1 – #5, Infant, Child, Sm Adult, Adult Long, Lg Adult, Thigh
Default Cuff Inflation Pressure:
 Adult: 160 mmHg
 Paediatric: 120 mmHg
 Neonate: 90 mmHg
Pressure Measurement Range:
 Systolic: 20 – 260 mmHg
 Diastolic: 10 – 220 mmHg
 Mean: 13 – 230 mmHg
Maximum Cuff Inflation Pressure:
 Adult: 270 mmHg
 Paediatric: 170 mmHg
 Neonate: 130 mmHg

Microstream® etCO₂ Measurement Technology
Range:
 0 – 150 mmHg
Accuracy (mmHg):
 0 – 38: ± 2 mmHg
 39 – 150: ± 5 % + .08% mmHg >38
Respiration Range:
0 – 150 breaths per minute
Respiration Rate Accuracy:
 0 – 70 bpm: ±1 bpm
 71 – 120 bpm: ±2 bpm
 121 – 150 bpm: ±3 bpm
Flow Rate: 50 ml/min -7.5 + 15 ml/min

ECG Impedance Respiration
User-Selectable Leads: RA-LA, RA-LL
Breath Rate Range:
 Adult/Paediatric modes:
 2 – 150 breaths per minute

Neonate mode: 3 – 150 breaths per minute
Respiration Rate Accuracy:
± 2 breaths/min or ± 2%
Sweep Speed: 3.13, 6.25, 12.5 mm/sec
Displayed Data: Numeric breath rate, impedance waveform
Alarm Setting:
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)S/D, (M) user-selectable
User-Selectable Labels: P1, P2, P3, ABP, AO, ART, CVP, BAP, FAP, LAP, PAP, RAP, UAP, UVP, ICP
Transducer Requirements: 5 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

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)

Power
Rechargeable, user-replaceable, lithium ion
Operating Time: 7.5 hours (display brightness at 30%, ECG, Sp02, EtCO2, IPx3, temp x2 and NIBP every 15 min)
Battery:
 Size: 178 mm x 93 mm x 30 mm
 Weight: 1.4 lbs
 Battery Indicators: 5 battery capacity LED indicators, fault indicator, recalibration indicatorRecharge Rate: 4 hours to 100%
AC Power Adapter:
100 – 240 VAC 50, 60, 400 Hz (@110V)

General
Weight:
 8.5 lbs. (3.9 kg) with battery
 9.9 lbs.(4.5 kg) with battery and printer
Dimensions:
 8.9" x 10.4" x 7.0"
 (22.6 cm x 26.4 cm x 17.8 cm)
 with printer 8.9" x 10.4" x 7.9"
 (22.6 cm x 26.4 cm x 20 cm)
 without handle 8.9" x 8.7" x 6.5"
 (22.6 cm x 22 cm x 16.5 cm)

Environmental
Operating Temperature: 0° – 50°C, -26° to 60°C for 6 hours, per MIL STD 810G Method 501.5, Procedure III, and Method 502.5 Procedure II
Operating Relative Humidity:
15% – 95%, NC
Operating Altitude: Up to 15,000 ft
Transport/Storage Temperature:
-30° – 70°C
Shock: 75G per MIL STD 810G
Drop:
 1 meter per MIL STD 810G, 26 drops,
 2 meter per IEC 60601-1
Vibration: MIL STD 810G
Enclosure Protection: (IEC 60529)
 Solid Foreign Object: IP5X
 Water Ingress: IPX5

ZOLL®