

VS 9 VITAL SIGN MONITOR

Technical Specifications

Physical Specifications

Dimension:	10.8" (H) x 7.3" (W) x 5.3 (D)" 27.5 cm (H) x 18.5 cm (W) x 13.5 cm (D)
Weight:	7.5 lbs (3.4 kg) (with Masimo SpO ₂ , NIBP, recorder, and a battery; without accessories.)
Screen:	10.1-inch, 1280 x 800 pixels standard capacitive touchscreen support multi-touch operation

TrueBP™ NIBP

Meet standards of ISO 80601-2-30.

Technique:	Oscillometry, support inflation and deflation
Operation Mode:	Manual, Auto, STAT, Sequence, and BP averaging
Parameters:	Systolic, Diastolic, Mean
Typical Measurement Time:	

≤ 15 s (Inflation algorithm, with CM1303/ CM1503 cuff, PR within 60 to 200 bpm and systolic pressure within 80 to 120 mmHg)

Max Measurement Time: Adult/Pediatric: 180 s, Neonate: 90 s

Systolic Range:	Adult:	25 to 290 mmHg
	Pediatric:	25 to 240 mmHg
	Neonate:	25 to 140 mmHg

Diastolic Range:	Adult:	10 to 250 mmHg
	Pediatric:	10 to 200 mmHg
	Neonate:	10 to 115 mmHg

Mean Range:	Adult:	15 to 260 mmHg
	Pediatric:	15 to 215 mmHg
	Neonate:	15 to 125 mmHg

Accuracy:	Max mean error:	± 5 mmHg
	Max standard deviation:	8 mmHg

NIBP Resolution: 1 mmHg

Assisting Venous Puncture: Yes

SpO₂

Meet standards of ISO 80601-2-61.

Module: Masimo, Nellcor

Range

Nellcor:	0 to 100%
Masimo:	1 to 100%
Resolution:	1%

Accuracy

Nellcor:	±2 % (70 to 100%, Adult/Pediatric:)
	±3 % (70 to 100%, Neonate)
	Unspecified (0 to 69%)
	Masimo:
Masimo:	±2 % (70 to 100%, Adult/Pediatric, non-motion)
	±3 % (70 to 100%, Neonate, non-motion)
	±3 % (70 to 100%, motion)
	Unspecified (1 to 69%)

Perfusion Indicator (PI) Yes, for Masimo SpO₂

Pitch Tone: Yes

Refresh Rate: ≤ 1 s

PR

PR Range:	20 to 300 bpm (from Nellcor SpO ₂)
	25 to 240 bpm (from Masimo SpO ₂)
	30 to 300 bpm (from NIBP)

Accuracy:	±3 bpm (20 to 250 bpm, from Nellcor SpO ₂)
	±3 bpm (non-motion, from Masimo SpO ₂)
	±5 bpm (motion, from Masimo SpO ₂)
	±3 bpm or ±3 %, whichever is greater (from NIBP)

Refreshing Rate: ≤ 1 s



SmarTemp™ Temperature

Meet standard of ISO 80601-2-56.

Technique:	Thermal resistance
Operating Mode:	Predictive mode, Monitor mode

Temp Range

Predictive Mode:	34 to 43 °C (93.2 to 109.4 °F)
Monitor Mode:	25 to 44 °C (77 to 111.2 °F)

Temp Accuracy (Monitor Mode)

25 to 32 °C (not including 32 °C): ± 0.2 °C
32 to 44 °C (including 32 °C): ± 0.1 °C
or
77 to 89.6 °F (not including 89.6 °F): ± 0.4 °F
89.6 to 111.2 °F (including 89.6 °F): ± 0.2 °F

Temp Resolution: 0.1 °C

Exergen TemporalScanner™ Thermometer

Temp Range: 15.5°C to 42.0 °C (60.0°F to 107.6°F)

Temp Accuracy: ±0.2 °C or ± 0.4 °F

Temp Resolution: 0.1 °C or 0.1 °F

CO₂

Meet standard of ISO 80601-2-55.

Technique Infrared absorption

Sample flow Rate: 50 ml/min (With Oridion Sampling line)

Sample Flow Rate Tolerance:

±15 ml/min or ±15 %, whichever is greater.

Response Time: ≤ 5.0 s With an Oridion standard sampling line

Sweep Speed: 3 mm/s, 6.25 mm/s, 12.5 mm/s, 25 mm/s, 50 mm/s

CO₂ Range: 0-150 mmHg

CO₂ Accuracy

Full Accuracy Mode: 0 - 40 mmHg: ± 2 mmHg
41 - 76 mmHg: ± 5% of reading
77 - 99 mmHg: ± 10% of reading
100 to 150 mmHg: ± (3mmHg + 8% of reading)

ISO Accuracy Mode: Add ±2 mmHg to the full accuracy mode

CO₂ Resolution: 1 mmHg

awRR Range: 0 to 150 rpm

awRR Accuracy: ±1 rpm (0 to 59 rpm)
±2 rpm (60 to 150 rpm)

Apnea Time: 10 s, 15 s, 20 s, 25 s, 30 s, 35 s, 40 s

Manual Input

Support up to 30 manual input parameters (customizable)

Technical Specifications

Data Review

Trends Data

Spot Check Mode:	Up to 5000 groups
Continuous Mode:	Up to 240 hours @ 30 seconds
Events:	Up to 200 events

Alarms

Audible Indicator:	3 different alarm tones, and prompt tone
Visible Indicator :	Red/yellow/cyan LED, and alarm message display
	Provide AlarmSight infographic alarm indicator.

Clinical Assistive Application (CAA):

MEWS, GCS, Pain score, Targeted Goal View, Orthostatic BP Measurement.

Blue Tooth

Protocol:	Bluetooth 5
Modulation Mode:	GFSK
Operating Frequency:	2402 MHz to 2480 MHz
Wireless Data Rate:	2 Mbps, 1 Mbps, 125 kbps
Output Power:	≤ 8 dBm ± 4 dB
Data Security:	AES128

Wi-Fi Communications

Protocol:	IEEE 802.11a/b/g/n/ac
Modulation Mode:	BPSK, QPSK, 16QAM, 64QAM, 256QAM
Operating Frequency:	2412 MHz to 2472 MHz 5180 MHz to 5320 MHz 5500 MHz to 5700 MHz 5745 MHz to 5825 MHz
Wireless Baud Rate:	IEEE 802.11a: 6 to 54 Mbps IEEE 802.11b: 1 to 11 Mbps IEEE 802.11g: 6 to 54 Mbps IEEE 802.11n: MCS0 to MCS7 IEEE 802.11ac: MCS0 to MCS8
Output Power:	< 20 dBm (CE requirement: detection mode- RMS) < 30 dBm (FCC requirement: detection mode- peak power)
Operating Mode:	Infrastructure
Data Security	
Standard:	WPA/WPA2-PSK, WPA/WPA2-Enterprise, WPA/WPA2 CCKM
EAP Method:	LEAP, EAP-TTLS, EAP-TLS, EAP-FAST, PEAPMsChapV2, PEAP-GTC, PEAP-TLS
Encryption:	TKIP and AES

Interfacing

Main Unit:	AC power connector (1) Network connector (1), RJ45 USB 2.0 connector (2) Multi-Functions connect (1) Equipotential grounding terminal (1) External battery connector (1)
Barcode Scanner:	Support 1D and 2D barcode
Thermal Recorder:	3 traces (paper 50 mm width, 20 m length)
Data Output:	HL7, eGateway, VitalsLink (Cerner™)
Auth. Management:	MLDAP, Imprivata™

Power

Line Voltage:	100 to 240 VAC (±10 %)
Current:	0.9 to 0.5A
Frequency:	50/60 Hz (±3 Hz)
Battery:	5600mAh rechargeable smart Li-ion battery
Run Time:	At least 8 hours when powered by a new, fully-charged battery at 25 °C ±5 °C on standard configuration (SpO ₂ and NIBP), with SpO ₂ sensor connected, auto NIBP measurements at an interval of 15 minutes, and screen brightness set to factory default.
Recharge Time (power off):	4 hours to 100%

Environmental requirements

Temperature

Operating:	0 to 40 °C (without CO ₂) 5 to 40 °C (with CO ₂)
Storage:	-20 to 60 °C

Humidity

Operating:	15 to 95 % (non condensing)
Storage:	10 to 95 % (non condensing)

Barometric

Operating:	120 to 805.5 mmHg (57 to 107.4 kPa) (without CO ₂) 430 to 790 mmHg (57.3 to 105.3 kPa) (with CO ₂)
Storage:	120 to 805.5 mmHg (16 to 107.4 kPa) (without CO ₂) 430 to 790 mmHg (57.3 to 105.3 kPa) (with CO ₂)