

Passport 2[®]

GENERAL DESCRIPTION

The Passport 2 is a portable bedside multi-parameter monitor that can be configured to meet the demands of many hospital departments.

The Passport 2, with rechargeable batteries, allows continuous vital signs monitoring during patient transport.

SUMMARY OF FEATURES AND BENEFITS

- 10.4 inch color TFT display with auto-adjustable large numerics optimizes visibility
- Navigator™ control knob and dedicated function keys provide instant access to critical monitoring functions
- Standard features include 6 waveforms, 3 or 5 lead ECG, lead selectable respiration, NIBP, Masimo SET® motion tolerant SpO₂ and temperature
- Many options available including ventricular arrhythmia analysis, Microstream® CO₂, Nellcor® SpO₂, two invasive pressures, 3-lead or 12-lead ST analysis, dual trace recorder, and 12-lead ECG interpretation
- Optional View 12™ ECG Analysis Module includes continuous 12-lead ST analysis, arrhythmia analysis and interpretation with the ability to print diagnostic quality 12-lead ECG to a laser printer
- List and graph trends store up to 120 patient time measurements and are expandable to 500 entries with an optional memory card, including OXY-CRG memory expansion up to 12 hours for neonatal and pediatric applications
- Software enhancements, memory expansion, and data transfers are quick and easy with the use of dual PCMCIA ports
- Complete 5-agent auto ID, CO₂, O₂ and N₂O analysis available with optional Gas Module SE™



Agency Compliances

This monitor complies with the following industry standards:

Safety:	EN 60601-1:1990 + A1:1992 + A2:1995 + A13:1995 / IEC 601-1:1998 + A1:1991 + A2:1995, UL 2601-1:1997, CSA:C22.2 No. 601.1M90, EN 60601-1-1:1993 + A1:1995 / IEC 601-1-1:1992 + A1:1995, EN 60601-1-4:1996 / IEC 601-1-4:1996, EN 60601-2-27:1994 / IEC 601-2-27:1994, EN 60601-2-30:1995 / IEC 601-2-30:1995, EN 60601-2-34:1995 / IEC 601-2-34:1994, EN 60601-2-25:1993 / IEC 601-2-25:1993, ISO 10993-1:1997
Hazard:	EN 1441:1997 IEC 60601-1-4:1996
Performance:	EN 864:1996, EN 865:1997, EN 1060-1:1995, EN 1060-3:1997, AAMI EC13:1992, ISO 3744:1994, AAMI EC11:1991, EN 60601-2-30
Environmental:	IEC 68-2-6:1982 + A1:1983 + A2:1985, IEC 68-2-27:1987, IEC 68-2-37:1973 + A1:1983, IEC 529:1989, IEC 60601-1-2:2001, EN 55011, EN 61000-4-6:1996, EN 61000-4-2:1995, EN 61000-4-4:1995, EN 61000-4-5:1995, ISTA:1994 procedure 1A, ECR PB - 296892:1979 (For Drop and Impact Requirements Only), EN 61000-3-3:1995 + A1:2001, EN 61000-4-3:2001, EN 61000-3-2:2000

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PATIENT MONITORING

Passport 2[®] TECHNICAL SPECIFICATIONS

Display

Size:	10.4 inch (26.4 cm) Color TFT
Resolution:	VGA 640-480
Waveforms:	3 to 6

ECG (3-lead and 5-lead)

Leads:	I, II, III, aVR, aVL, aVF, V
Cable Detection:	Autodetecting Datascope 3 or 5 wire
Display Sensitivity:	0.25, 0.5, 1.0, 2.0, 3.0, 4.0, cm/mV +/- 10%
Frequency Response To Screen	
Extended Mode:	0.05-100 Hz, -3db max @ 1mVpp input
Monitor Mode:	0.5 - 40 Hz, -3db max @ 1mVpp input (ESU filter disabled)
ST Mode:	0.05 - 40 Hz, -3db max @ 1mVpp input
CMRR:	90 db min, Maximum output of 1mVp-p (RTI) over 60 seconds at 50/60 Hz, with parallel combination 51K Ω and 0.047 uF imbalance and +/- 300 mV DC offset per AAMI EC13-1992 3.2.9.10

ECG Sync Pulse for Cardioversion:

Delay:	≤35 ms max between QRS Peak and rising edge of Sync Pulse
Amplitude:	2Vp minimum into a 5k ohm load
Width:	2-7 msec

Analog Output: (ECG)

Delay:	25ms max
Sensitivity:	1 V/mV of input, +/- 10%

Defibrillator Overload Protection:

Withstand 360 Joule discharge as per IEC 60601-2-27, 51.101.1

Recovery Time: Time for recovery to within 1mV in < 8 seconds automatically.
3 seconds from 1Vpp at 60Hz

ECG (12-lead)

Leads:	I, II, III, aVR, aVL, aVF, V1, V2, V3, V4, V5, V6
Connection Type:	Type II PCMCIA card to be installed in PCM 1 slot
Cable Detection:	Automatically enabled when 12-lead Card is inserted into PCM 1 slot
Frequency Response	
Extended Mode:	0.05-100 Hz, -3db max @ 1mVpp input
Monitor Mode:	0.5 - 40 Hz, -3db max @ 1mVpp input (ESU filter disabled)
ST Mode:	0.05 - 40 Hz, -3db max @ 1mVpp input
CMRR:	90 db min, Maximum output of 1mVp-p (RTI) over 60 second period at 50/60 Hz, with a parallel combination 51K Ω and 0.047 uF imbalance and +/- 300 mV DC offset per ANSI/AAMI EC11-1991, 3.2.11

Analog Output (ECG): Disabled when 12-lead ECG analysis is enabled

Defibrillator Overload Protection:

Withstand 360 joule discharge as per IEC 60601-2-27, 51.101.1

Heart Rate Meter

Range: 30 - 300 BPM Adult/Pediatric, 30 - 350 BPM Neonate 3-lead and 5-lead/
30 - 300 BPM 12-lead

Accuracy: +/- 3BPM or +/- 3% at 30 - 250BPM whichever is greater,
+/- 5% at 251 - 350 BPM

Pacer Rejection: Rejects all pulses of amplitude +/- 2.0 mV to 700 mV and duration 0.1 to 2 ms with no tail. AAMI EC-13-1992 3.1.4.1
(3-Lead and 5-Lead) Rejects all pulses of amplitude +/- 2.0 mV to 700 mV and duration 0.1 to 2 ms with 100 ms time constant tail of less than 2.0 mV, or 4 ms time constant tail of < 2.0 mV per AAMI EC-13-1992 3.1.4.2

Tall T-Wave Rejection: Rejects all T-Waves less than 120% of 1 mV QRS and Q-T interval of 350 ms per AAMI EC-13-1992 3.1.2.1 (c)

ST Analysis

3-lead or 5-lead Range: -9.9 mm to +9.9 mm

12-lead Absolute Range: -10 mm to +10 mm

12-lead Delta Range: -20 mm to +20 mm

Resolution: 0.1 mm

Default ST Measuring Point:

80 ms after J point for HR ≤ 120 bpm, 60 ms after J point for HR >120 bpm

Arrhythmia Analysis

3-lead or 5-lead cables:

Adult / Pediatric Only: Asystole, Irregular Heart Rate, Couplets, Bigeminy, Trigeminy, Ventricular Tachycardia, Ventricular Fibrillation, PVC's per minute, Runs, Ventricular Rhythm and Bradycardia

12-lead:

Adult / Pediatric Only: Asystole, Couplets, Runs, Bigeminy, Trigeminy, Ventricular Tachycardia, Ventricular Fibrillation, PVC's per minute, Ventricular Rhythm, and Pause

Respiration (ECG)

Range: 4 to 199 BPM

Accuracy: +/- 2% or 2 breaths per minute whichever is greater from 4 to 150 BPM,

+/- 4% from 151 to 199 BPM

Lead: I or II

Non-Invasive BP

Technique:	Oscillometric
Systolic Range:	Adult - 55-235 mmHg Pediatric - 55-160 mmHg Neonate - 45-120 mmHg
Diastolic Range:	Adult - 30-200 mmHg Pediatric - 30-150 mmHg Neonate - 20-100 mmHg
Systolic Accuracy:	Mean Error less than +/- 5 mmHg, Standard Deviation less than +/- 8 mmHg
Diastolic Accuracy:	Mean Error less than +/- 5 mmHg, Standard Deviation less than +/- 8 mmHg
Pulse Rate Range:	Adult/Pediatric: 35 to 245 BPM Neonate: 70 to 245 BPM
Pulse Rate Accuracy:	+/- 3 BPM or 3% whichever is greater
Connector Type:	Rectus
Cuff Inflation:	Volume of 500cc to 300 mmHg in ≤35 sec

Temperature

Scale:	Selectable C° or F°
Range:	15° to 45° C / 59° to 113° F
Accuracy:	+/- 0.1° C (15° C to 45° C) exclusive of probe errors. +/- 0.2° F (59° F to 113° F) exclusive of probe errors.

Pulse Oximetry

Classification per ISO 9919:	Functional Saturation Oximeter
Masimo SET® SpO ₂ Accuracy Saturation with no motion conditions	
Adult/Pediatric:	70% to 100% +/- 2 digits SpO ₂ , 0-69% unspecified
Neonate:	70% to 100% +/- 3 digits SpO ₂ , 0-69% unspecified
Ear Sensor (Adult/Pediatric):	70% to 100% +/- 4 digits SpO ₂ , 0-69% unspecified
Masimo SET® SpO ₂ Accuracy Saturation during motion conditions	
Adult/Pediatric/Neonate:	70% to 100% +/- 3 digits SpO ₂
Response Time:	18 seconds to 95% of final step of % SpO ₂ value from 60-95% at 75 BPM. Averaging set at 8 seconds.

Pulse Rate Range Masimo with no motion conditions

Adult/Pediatric/Neonate: 30-235 ±3 BPM, Ear Sensor (Adult/Pediatric) 30-235 ±3BPM

Pulse Rate Range Masimo during motion conditions

Adult/Pediatric/Neonate: 30-235 ±5 BPM

Low Perfusion Performance

Masimo: > 0.02% Pulse Amplitude and % Transmission > 5% / Saturation (% SpO₂) ± 2 digits; Pulse ± 3 digits

Nellcor® Oxismart® SpO₂ Saturation Accuracy

Adult/Pediatric/Neonate: 70% to 100% +/- 2 digits

Note: Adult sensor D-25, Neonate sensor N-25

Pulse Rate Range Nellcor: 20-249 ±3 BPM

IBP

Range:	Sys/Dia/Mean -30 - +300 mmHg
Accuracy:	+/- 2 mmHg or 2% whichever is greater
Scale:	-10 to 10, 0-20, 0-40, 0-160, 0-225, 0-320, 60-140 mmHg
Zero Range:	+/- 120 mmHg
Excitation:	5V DC +/- 2%
Frequency Response:	DC to 16 Hz +/- 1Hz, -3db

Recorder

Speed: 3.125, 6.25, 12.5, 25mm, and 50mm/sec Note: 3.125 speed is for CO₂/Resp only.

CO₂ (Microstream®)

Range:	0 - 99 mmHg
Accuracy:	0 - 38 mmHg +/- 2 mmHg 39 - 99 mmHg +/- 5% + .08% for every 1mmHg above 40mmHg
Respiration Rate:	0-150 breaths per minute
Respiration Accuracy:	+/- 1 breath per minute from 0 - 40 BPM +/- 2 BPM from 41 - 70 BPM +/- 3% from 71 - 100 BPM +/- 5% from 101 - 150 BPM

CO₂ Waveform

Recognition: 5 mmHg +/- 2 mmHg bandwidth

Start-up Time: 30 seconds typical

Sampling Rate: 50 ml/min +/- 7.5 ml/min

Auto Zero: < 15 seconds at 5, 10, 15 and 60 minute then every 60 minutes thereafter.

Electrical Ratings

AC Voltage:	100 - 240 VAC +/- 10%, 50/60 Hz +/- 3 Hz
Battery Type:	Sealed Lead Acid
Number of Batteries:	2
Battery Voltage:	12 Vdc @ 2.3A load
Battery Capacity:	2.3 AH each
Battery Run Time:	1hr and 50 min. from two fully charged batteries at 25° C with ECG, SpO ₂ and 1 NIBP every 15 minutes, no recording, no CO ₂ .
Recharge Time:	16 hrs max

Environmental Conditions

Storage Temperature:	-20°C - + 60°C/-4°F - +140°F
Storage Humidity:	10 - 95% non-condensing
Operating Altitude:	-1250 to 9,889 feet ASL, 1060hPa to 700hPa, 795 mmHg to 525 mmHg
Operating Temperature:	5°C to 40°C/41°F - 104°F
Operating Humidity:	15% to 95%, non-condensing

PHYSICAL DIMENSIONS

Monitor Size:	24.1cm H X 30.2cm W X 18.8cm D 9.5" H x 11.9" W x 7.4" D
Weight:	6.8 kg (15 lbs.) including (2) batteries 5.2 kg (11.4 lbs.) excluding batteries