

Datascope Spectrum®

Summary of Features and Benefits

- Spectrum's 12.1 inch bright color display, with auto adjustable large numerics, makes viewing critical data simple
- Standard features include 8 auto-configurable waveforms, 3 or 5-lead ECG with ESU noise rejection, lead-selectable respiration, NIBP, Masimo SET® motion tolerant SpO₂, temperature, list, graph and OXY-CRG trends, and drug calculations
- Many options available including Nellcor® OxiMax® SpO₂, Microstream® ETCO₂, up to 4 invasive pressures, arrhythmia and ST analysis, cardiac output with hemodynamic calculations, and dual-trace recorder
- Using the External Parameter Module, add the extra parameters you need, including cardiac output, additional invasive blood pressures and temperature, without sacrificing portability
- Optional continuous Cardiac Output/SvO₂ with interface to Edwards Vigilance® Monitor
- Using the View 12™ Analysis Module, print diagnostic quality 12-lead ECG data to a laser printer
- List and graphic trends store up to 120 patient time measurements, and are expandable to 500 entries with optional memory card
- Our exclusive Base Station, with its one-touch lever, allows you to connect/disconnect from various peripheral devices instantly
- Network to Panorama® Central Station for continuous data storage



Now with up to 4½ hours run time on lithium-ion batteries

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Display

Size:	12.1-inch (30.7cm) Color Active Matrix TFT LCD
Resolution:	800 x 600 pixels
Waveforms:	3 to 8

ECG (3-lead and 5-lead)

Leads:	I, II, III, aVR, aVL, aVF, V
Cable Detection:	Autodetecting 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
Monitor Mode:	0.5–40 Hz, -3db
ST Mode:	0.05–40 Hz, -3db
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 ms
Analog Output (ECG):	Supports slaving of an IABP with ECG
Delay:	25 ms 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 60 Hz

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 slot
Cable Detection:	Automatically enabled when 12-lead Card is inserted
Frequency Response	
Extended Mode:	0.05–100 Hz, -3db @ 1mVpp input
Monitor Mode:	0.5–40 Hz, -3db @ 1mVpp input (ESU filter disabled)
ST Mode:	0.05–40 Hz, -3db @ 1mVpp input
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:	±3 BPM or ±3% at 30–250 BPM 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 4.1.4 (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 of amplitude less than 120% of 1 mV, 100 ms QRS, T wave duration of 180 ms and Q-T interval of 350 ms per AAMI EC-13-1992 4.1.2.1 (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, PVCs per minute, Runs, Ventricular Rhythm
12-lead:	
Adult / Pediatric Only:	Asystole, Couplets, Runs, Bigeminy, Trigeminy, Ventricular Tachycardia, Ventricular Fibrillation, PVCs per minute, Ventricular Rhythm, 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 500 cc to 300 mmHg in ≤35 sec

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Temperature

Scale:	Selectable °C or °F
Range:	15° to 45°C / 59° to 113°F (T1 and T2) 0°C to 5.5°C / 0°F to 9.9°F (Delta T)
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

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 ±3 BPM
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 (%SpO ₂) ±2 digits; Pulse ±3 digits
Nellcor® Oximax® SpO ₂ Saturation Accuracy	
Adult/Pediatric/Neonate:	70% to 100% ±3 digits
Pulse Rate Range Nellcor:	20–249 ±3 BPM

IBP

Range:	Sys/Dia/Mean -30 to +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
Analog Output (IBP):	Supports slaving of an IABP with IBP
Delay:	25 ms max
Sensitivity:	1 V/100 mmHg ±10%

Recorder

Speed:	3.125, 6.25, 12.5, 25 mm, and 50 mm/sec Note: 3.125 speed is for CO ₂ /Resp only.
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CO₂ (Microstream® MiniMedi)

Range:	0–99 mmHg
Accuracy:	0–38 mmHg: ±2 mmHg 39–99 mmHg: ±5% of reading +0.8% for every 1 mmHg above 38 mmHg
Respiration Rate:	0–150 breaths per minute
Respiration Accuracy:	0–70 BPM: ±1 BPM 71–120 BPM: ±2 BPM 121–150 BPM: ±3 BPM
Sampling Rate:	50 ml/min ±7.5 ml/min

Electrical Ratings

AC Voltage:	100–240 VAC ±10%, 50/60 Hz ±3 Hz
Battery Type:	Lithium-ion
Number of Batteries:	2
Battery Voltage:	11.1 Vdc
Battery Capacity:	4.4 Ah each
Battery Run Time:	4 hrs 30 mins 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:	5 hrs max

Environmental Conditions

Storage Temperature:	-20°C to +60°C/-4°F - +140°F
Storage Humidity:	10–95% non-condensing
Operating Altitude:	-1250 to 9889 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:	26.7cm H x 30.2cm W x 18.8cm D 10.5" H x 11.9" W x 7.4" D without module 27.2cm H x 30.2cm W x 18.8cm D 10.7" H x 11.9" W x 7.5" D with module
Weight:	5.43 kg (11.95 lbs) without optional accessories 6.1 kg (13.52 lbs) with (2) lithium-ion batteries, without optional accessories 0.8 kg (1.75 lbs) module, without optional accessories

Cardiac Output

Range:	0.2 to 20.0 liters/min
C.O. Repeatability:	±2% or 0.02 l/min from the mean value
Blood Temp Range:	17.5°C to 43°C (63.5°F to 109.4°F)
Blood Temp Accuracy:	±0.2°C (±0.4°F) exclusive of probe errors
Injectate Temp Range:	-1.0°C to 30.0°C (30.2°F to 86°F)
Injectate Temp Accuracy:	±0.2°C (±0.4°F) exclusive of probe errors
Vigilance® Interface:	Supports the Vigilance IFM out communication protocol in accordance with Edwards Lifesciences specification ELS 1291 Revf