

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)

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|------------------------------------|---|
| Leads: | I, II, III, 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

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|-----------------------------|--|
| 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

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|--------------------------|---|
| 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)

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|-----------|---|
| 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

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|--|--|
| 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® OxilMax® SpO ₂ Saturation Accuracy | |
| Adult/Pediatric/Neonate: | 70% to 100% ±3 digits |
| Pulse Rate Range Nellcor: | 20–249 ±3 BPM |

IBP

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|----------------------|---|
| 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

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|--------|--|
| Speed: | 3.125, 6.25, 12.5, 25 mm, and 50 mm/sec Note: 3.125 speed is for CO ₂ /Resp only. |
|--------|--|

CO₂ (Microstream® MiniMedi)

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| 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

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|----------------------|---|
| 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

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|------------------------|---|
| 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

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|--------------------------|---|
| 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 |

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