Datascope Spectrum OR™ With Gas Module 3 Monitor

Features:
- Built-in, vivid 12.1-inch display with auto-adjustable large numerics and waveforms for optimal visibility.
- Includes the standard functions you need for perianesthesia monitoring including 3 or 5-lead ECG, non-invasive blood pressure, Masimo SET® motion tolerant SpO2, temperature, and drug calculations.
- Offers various options to best meet your department’s needs including microstream®, CO2, BISx™ Module, Nellcor® OxiMax® SpO2, cardiac output, continuous cardiac output/SvO2*, invasive blood pressures, ST and arrhythmia analysis and more.
- Optional Gas Module 3

Specifications

The Gas Module 3 incorporates improved Artema technology that enables respiratory gas analysis, displayed on the Spectrum OR™ line of monitors. The Gas Module 3 delivers state-of-the-art gas analysis capabilities: identification and measurement of inspired and expired O2, CO2, N2O, and any one of the following five anesthetic agents - Isoflurane, Sevoflurane, Desflurane, Halothane, and Enflurane. Providing impressive capabilities and highly reliable performance, this leading-edge breath-by-breath multi-gas analyzer was designed to meet the comprehensive anesthesia monitoring requirements of virtually every hospital - whatever its size, specialty, or patient base.

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 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
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)
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

HEART RATE METER
Range: 30 – 300 BPM Adult/Pediatric, 30 – 350 BPM
Neonate
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
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

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 BLOOD PRESSURE
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

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® SpO2 Accuracy Saturation with no motion conditions
Adult/Pediatric: 70% to 100% ± 2 digits SpO2, 0 to 69% unspecified
Neonate: 70% to 100% ± 3 digits SpO2, 0 to 69% unspecified
Ear Sensor (Adult/Pediatric): 70% to 100% ± 4 digits SpO2, 0 to 69% unspecified
Masimo SET® SpO2 Accuracy Saturation during motion conditions
Adult/Pediatric/Neonate: 70% to 100% ± 3 digits SpO2
Response Time: 18 seconds to 95% of final step of % SpO2 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 (%SpO2) ± 2 digits; Pulse ± 3 digits
Nellcor® OxiMax® SpO2 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

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

CO2 (MICROSTREAM®)
Range: 0 – 99 mmHg
Accuracy: 0 – 38 mmHg ± 4 mmHg 39 – 99 mmHg ± 12% (0 – 20 min)
0 – 38 mmHg ± 2 mmHg 39 – 99 mmHg ± 5% + .08% for every 1 mmHg above
40 mmHg (> 20 min)
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 minutes, 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 V
Battery Capacity: 2.3 Ah
Battery Run Time: 1 hour, 20 min from two fully charged, new batteries at 25°C with ECG, SpO2 and NIBP running at 15 minute intervals
Recharge Time: 16 hrs max

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: 5.49 kg (11.95 lbs) without optional accessories
7.04 kg (15.52 lbs) with 2 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

BIS (BISPECTRAL INDEX)
Bispectral Index (BIS) Range: 0 - 99
Signal Quality Index (SQI) Range: 0 - 100%
EMG Range: 30 - 80dB
Suppression Ratio (SR): 0 - 100%
Burst Count: 0 - 30
Input Impedance: >50 Mohm
Noise (RTI): <0.3uV RMS 0.25 - 50 Hz
Input Range: +/- 1mV

SOMA TECHNOLOGY, INC.
EEG Bandwidth: 0.25 - 100Hz (-3dB)
FILTERS (ON)
High Pass: 2.0 Hz (-3dB)
Low Pass: 70 Hz (-3dB)
Notch: 50 Hz and 60 Hz
FILTERS (OFF)
High Pass: 0.25 Hz (-3dB)
Low Pass: None
Notch: None

MAC (MINIMUM ALVEOLAR CONCENTRATION)
The Spectrum OR shall compute the uncorrected MAC value for all agents supported by the Gas Module SE using the following formula: Where AA is the anesthetic agent in use, ET AA is the end-tidal agent concentration, x(AA) is a clinically derived coefficient based on anesthetic agent (known as 1MAC values), ET N2O is the end-tidal N2O concentration and x(N2O) is a clinically-derived coefficient for N2O (also known as the 1MAC value).

X(Isoflurane) = 1.15%
X(Halothane) = 0.77%
X(Sevoflurane) = 2.1%
X(Desflurane) = 7.3%
X(Enflurane) = 1.7%
X(N2O) = 105%

The uncorrected MAC value is not corrected for ambient pressure (altitude & barometric effects), patient age, patient core temperature or any other individual factors influencing the effect of volatile anesthetic agents. Reference Source: EN ISO 21647:2004 Medical electrical equipment-Particular requirements for the basic safety and essential performance of respiratory gas monitors. Vigilance® Interface: Supports the Vigilance IFM out communication protocol in accordance with Edwards Lifesciences specification ELS 1291 RevF

Soma Technology, Inc. acknowledges all registered trademarks of manufacturers’ listed.
The technical data given in this publication are for general information and are subject to change without notice.