
# Vista 300
# Patient Monitoring Solution

The Dräger Vista 300 is an essential patient monitor for adults, paediatrics, and neonates. It is part of a scalable patient monitoring system that fits securely into your hospital's network to give you all-time data access and optimise your workflows. Vista 300 facilitates enhanced workplace integration in your acute care areas with a comprehensive set of parameters and modules, helping you to improve patient care and outcomes as well as lower costs.

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# Benefits

## Essential monitoring capabilities

The Vista 300 displays up to 13 waveforms in an easy-to-configure layout and offers a core set of essential parameters including 3/5/12 lead ECG, non-invasive blood pressure, respiration and dual temperature. Advanced parameters including three invasive blood pressures, flexible mainstream and sidestream et$CO_2$ and cardiac output are also available. Users can also add external parameter modules including SCIO, $CO_2$, BIS, and Masimo, Nellcor or Dräger $SpO_2$. In addition, NMT parameter can also be added on selected model. A variety of compatible accessories is available as well. The Vista 300 provides seamless connectivity to Dräger Scio anaesthetic gas measurement modules, delivering precise inspiratory and expiratory values.

## Fully integrated workstation

The Vista 300 features workplace functionality with a complementary Dräger device, such as a ventilator or anaesthesia machine. In combination with the Vista system components, you'll have access to critical patient information in your complete network as patient data, vital signs and data from therapy devices are automatically uploaded to your HIS. This will help you to reduce technological complexities in your acute care areas and relieve your staff from time-consuming documentation work or manual data entries.

## Enhanced workflow efficiencies

The Vista 300 supports the exchange of patient data, for you this means obtaining a rapid assessment, and being able to take better informed decisions. Vista 300 includes integrated decision support tools such as pulse pressure variation for fluid responsiveness, Oxy-CRG for neonatal monitoring, and Bispectral Index Technology for enhanced anaesthesia practices. Additionally, you can configure your screen and with fast access keys and simplified menus you get the data you need right at your fingertips. The integrated bed-to-bed-view also improves data access and visibility for any networked Vista monitor from your current patient's bedside to save you time and optimise your workflows.

## System connectivity

Having the ability to securely exchange patient data supports clinical decision-making, reduces manual entry, and helps ensure a complete patient record. For this reason, our Vista 300 can be complemented with different hardware and software solutions so you can access your patients' data from anywhere remotely and inter-departmentally on one network - seamlessly and conveniently. To give you a comprehensive solution, our complementary components are Vista Gateway, Vista CMS, and Vista Spot Check as well as accessories and services. This scalable system allows the exchange of patient information via an HL7 interface, with automatic and wireless documentation of up to 256 patients. The Vista system supports cybersecurity measures to help you develop secure solutions that keep your devices and patient data safe. This includes functionalities such as secure data transfer and encryption, automatic screen timeouts, and user authentication.

## Comprehensive Services

Dräger Services go beyond repairing equipment. We support you in increasing the uptime of your equipment while minimising potential costs. Our services and comprehensive consulting ensure maximum performance of your devices and a 100% planning reliability. Your team also receives continuous training with our regular and constantly updated courses to help reduce errors and improve your clinical outcomes.

# System Components

D-45196-2021

## Vista Central Monitoring System

The Vista Central Monitoring System (CMS) monitors up to 128 patient's vital signs when connected to our Vista monitor series. Conveniently, you can access your patients' data from anywhere at any time remotely and inter-departmentally on one network to exchange and assess patient data quickly for advanced decision support. This helps streamline your workflows while keeping a close eye on your patients.


D-4285-2023

## Vista Gateway

Exchange patient information, such as alarms, vital signs, and ADT data with our Vista Gateway monitoring software solution. Vista Gateway transmits all relevant data between the Vista network and your existing hospital network. It offers you automatic and wireless documentation of up to 256 patients - thus reducing manual entries and improving all-time data access, clinical decision-making and patient safety.


D-863-2021

## Vista 120 SC

With increasing demands on clinicians, it's essential to have an easy-to-use vital signs monitor that can enhance your clinical processes and help you make informed decisions that can positively impact patient care. Providing both spot check and continuous bedside monitoring capabilities, it's the ideal monitor for your various clinical needs.

# Related Products

D-2308-2022

## Dräger Atlan® A350/A350 XL

The new platform offers flexibility for most spatial conditions. The high precision piston ventilator supports lung protective ventilation measures and a comprehensive set of parameters assist decision-making support. The Atlan A350/XL can be networked to communicate securely with other networked devices to share data and information that can help to increase efficiency and reduce errors in anaesthesia.

## Dräger Perseus® A500

The ceiling-mounted version of the Dräger Perseus® A500 combines the award-winning, ergonomic design of the Perseus® A500 with the mobility of a ceiling supply unit (CSU). In combination with Dräger Movita® , this floor-independent anaesthesia device offers a completely flexible and efficient workplace.

D-46411-2012

## Dräger Savina® 300

The Dräger Savina® 300 combines the independence and power of a turbine-driven ventilation system with state-of-the-art ventilation modes. The large color touch screen and intuitive operating system that concentrates on essential features make configuration and operation very simple.

D-5762-2018

## Dräger Evita® V800

Experience the next level of ventilator operation. The Evita® V800 combines high performance ventilation with an aesthetic design enabling quick and efficient operation. From the first onset of a lung protective ventilation until the integration of a patient care-centred intensive care workplace.

# Technical Data

## Classification

| | |
|---|---|
| Protection class | Class I equipment and internal powered equipment |
| Degree of protection against electric shock | DEFIBRILLATION-PROOF TYPE CF: ECG (RESP), TEMP, IBP, C.O., $SpO_2$, NIBP, $CO_2$ |
| | DEFIBRILLATION-PROOF TYPE BF: AG, BIS TYPE BF: NMT |
| Defibrillation protection | Yes |
| Liquid ingress protection | IP22 |
| Mode of operation | Continuous |
| Compliant with standards | IEC 60601-1; IEC 60601-1-2; |
| | EN 60601-1; EN 60601-1-2; |
| | IEC 80601-2-49 |

## Device specifications

| | |
|---|---|
| Size (WxHxD) | (381±3) mm × (285±3) mm × (171±3) mm |
| Weight (standard configuration without battery, accessories and recorder) | <5.5 kg |

## Display specifications

| | |
|---|---|
| Display screen | 15.6-inch color TFT |
| Resolution | 1920 x 1080 |
| Maximum number of waveforms | 13 |
| Indicator LEDs | 1 power LED, 1 AC power LED, 1 alarm LED, 1 battery LED |

## Recorder

| | |
|---|---|
| Recorder widht | 48 mm |
| Record paper widht | 50 mm |
| Paper speed | 12.5 mm/s, 25 mm/s, 50 mm/s |
| Trace | Up to 3 |

# Technical Data

## Function configuration

| Product | Model | Standard Configuration |
|---|---|---|
| Vista 300 | A | • ECG, RESP, TEMP, $SpO_2$(Dräger), $SpO_2$(Nellcor), $SpO_2$(Masimo), NIBP, AG<br>• Wired network, Wi-Fi |
| | C | • ECG, RESP, TEMP, $SpO_2$(Dräger), $SpO_2$(Nellcor), $SpO_2$(Masimo) NIBP, IBP, C.O., $CO_2$(Dräger G2), $CO_2$(Respironics C5, LoFlo), $CO_2$(Dräger MCable, MicroStream), BISx, AG, NMT<br>• Wired network, Wi-Fi, recorder |

## Temperature

| | |
|---|---|
| Operating | +0 °C to +40 °C (+32 °F to +104 °F) |
| Transport and storage | -20 °C to +55 °C (-4° F to +131°F) |

## Relative humidity

| | |
|---|---|
| Operating | 15% RH to 95% RH (non-condensing) |
| Transport and storage | 15% RH to 95% RH (non-condensing) |

## Ambient pressure

| | |
|---|---|
| Operating | 70 kPa to 106 kPa |
| Transport and sorage | 50 kPa to 106 kPa |

## Power supply

| | |
|---|---|
| Power supply | 100 V to 240 V ~ 50 Hz/60 Hz |
| | Current ≤ 2.0 A |

## Battery (optional)

| | |
|---|---|
| Quantity | 2 |
| Capacity | 5000 mAh |
| Battery life | ≥ 12 h depending on configuration |
| Battery charge time | ≤ 10 h 100% charge, depending on configuration |
| Environment temperature | 20 to 30 °C |
| Charge/Discharge cycle | 300 times |

# Technical Data

### Data review

| | |
|---|---|
| Trend data | 240 hours at 1 minute<br>48 hours at 1 second |
| Alarm events | 1000 sets |
| NIBP measurement data | 1200 sets |
| Full Disclosure | 48 hours at 1 second |

### Wi-Fi Technical Specifications

| | |
|---|---|
| IEEE | 802.11a/b/g/n |
| Frequency Band | 2.4 GHz ISM band & 5 G ISM band |
| Modulation | OFDM with BPSK, QPSK, 16-QAM, and 64-QAM |
| | 802.11b with CCK and DSSS |

### ECG 3-, 5-, 12-lead monitoring

| | |
|---|---|
| Complies with IEC 60601-2-25, IEC 60601-2-27 | |
| Lead Mode | 3 Electrodes: I, II, III<br>5 Electrodes: I, II, III, aVR, aVL, aVF, V<br>10 Electrodes: I, II, III, aVR, aVL, aVF, V1, V2, V3, V4, V5, V6 |
| Lead Naming Style | AHA, IEC |
| Display Sensitivity (Gain Selection) | 1.25 mm/mV (×0.125), 2.5 mm/mV (×0.25), 5 mm/mV (×0.5), 10 mm/mV (×1), 20 mm/mV (×2), 40 mm/mV (×4), AUTO gain |
| Sweep | 6.25 mm/s, 12.5 mm/s, 25 mm/s, 50 mm/s |
| Bandwidth (-3dB) | Diagnosis: 0.05 Hz to 150 Hz<br>ST: 0.05 Hz to 40 Hz<br>Monitor: 0.5 Hz to 40 Hz<br>Surgery: 1 Hz to 20 Hz<br>Enhanced: 2 Hz ~18 Hz<br>Customized: High-pass Filter and Low-pass Filter (Refer to Changing the ECG Filter Settings) |
| Notch | In diagnosis, diagnosis 1, monitor, surgery, enhanced and customized modes: 50 Hz/60 Hz (Notch filter can be turned on or off manually) |
| Differential Input Impedance | >5 MΩ |
| Input Signal Range | ±10 mV PP |
| Recovery Time After Defibrillation | <5 s (measured without electrodes as IEC60601-2-27:2011, Sect. 201.8.5.5.1 requires.) |
| Leakage Current of Patient | <10 μA |
| Scale Signal | 1 mV PP, accuracy is ±5% |

# Technical Data

| | | | |
|---|---|---|---|
| Arrhythmia analysis | Asystole | V-Fib/V-Tach | Couplet |
| | Vent Rhythm | PVC Bigeminy | PVC Trigeminy |
| | Tachy | R om T | PVC |
| | Irr Rhythm | Brady | Missed beat |
| | Pacer not Pacing | Vent Brady | Pacer not Capture |
| | VEB | Run PVCs | Acc. Vent Rhythm |
| | IPVC | Non-Sustain VT | Multiform PVCs |
| | Pauses/min High | Pause | Afib |
| | PAC Bigeminy | PVCs High | Low Voltage (Limb) |
| | Extreme Brady | PAC Trigeminy | Wide QRS Tachy |
| | Sustain VT | Extreme Tachy | V-Tach |

**Heart Rate**

| | |
|---|---|
| HR Calculation: | |
| Range | Adult: 15 bpm to 300 bpm<br>Pediatric/neonatal: 15 bpm to 350 bpm |
| Accuracy | ±1% or 1 bpm, whichever is greater |
| Resolution | 1 bpm |
| Sensitivity | ≥300 μVPP |
| QRS Detection Range | The detection range has exceeded the requirement described in the standard: |
| | Width: 70 ms~120 ms for adult |
| | Width: 40 ms~120 ms for pediatric/neonatal |
| | Amplitude: 0.5 mv~5 mv |
| | Complied with IEC 60601-2-27: 2011, Sect. 201.12.1.101.15. |

**PVC**

| | |
|---|---|
| Range | Adult: (0 to300) PVCs/ min<br>Pediatric/neonatal: (0 to 350) PVCs/min |
| Resolution | 1 PVCs/min |

**Pause/min**

| | |
|---|---|
| Range | Adult/Pediatric/Neonatal: (0 to 30) pauses/min |
| Resolution | 1 pause/min |

**ST value**

| | |
|---|---|
| Range | -2.0 mV to +2.0 mV |
| Resolution | 0.01 mV |
| Accuracy | -0.8 mV to +0.8 mV: ±0.02 mV or 10%, whichever is greater.<br>Beyond this range: not specified. |

**QT measurement**

| | |
|---|---|
| Range | 200 ms ~ 800 ms |
| Resolution | 4 ms |

# Technical Data

| | |
|---|---|
| Accuracy | ± 30 ms |

**QTc measurement**

| | |
|---|---|
| Range | 200 ms ~ 800 ms |
| Resolution | 1 ms |

**ΔQTc measurement**

| | |
|---|---|
| Range | -600 ms ~ 600 ms |
| Resolution | 1 ms |

**RESP**

| | |
|---|---|
| Method | Impedance between RA-LL, RA-LA |
| Measurement lead | Options are lead I and II. The default is lead II. |
| Calculation Type | Manual, Automatic |
| Baseline Impedance Range | 200 Ω to 2500 Ω (with ECG cables of 1 KΩ resistance) |
| Measuring Sensitivity | Within the baseline impedance range: 0.3 Ω |
| Waveform Bandwidth | 0.2 Hz to 2.5 Hz (-3 dB) |
| Respiration Excitation Waveform | Sinusoid, 45.6 kHz(±10%), <350 μA |
| RR Measuring Range | 0 rpm to 200 rpm |
| Resolution | 1 rpm |
| Accuracy | 0 rpm to 120 rpm: ±1 rpm |
| | 121 rpm to 200 rpm: ±2 rpm |
| Gain Selection | x0.25, x0.5, x1, x2, x3, x4, x5 |
| Sweep | 6.25 mm/s, 12.5 mm/s, 25 mm/s, 50 mm/s |
| No Breath Detected Alarm Time Setup | 10 s, 15 s, 20 s, 25 s, 30 s, 35 s, 40 s; default value is 20 s |

**NIBP**

| | |
|---|---|
| Complies with IEC 80601-2-30. | |
| Method | Oscillometric |
| Mode | Manual, auto, continuous, sequence |
| Measuring interval in auto mode (unit: minutes) | 1/2/2.5/3/4/5/10/15/30/60/90/120/180/240/360/480 |
| Continuois | 5 min, interval is 5 s |
| Measuring parameter | SYS, DIA, MAP, PR |
| Alarm parameter | SYS, DIA, MAP, PR |
| Pressure unit | kPa, mmHg, cmH2O |
| Adult mode | SYS: 25 mmHg to 290 mmHg |
| | DIA: 10 mmHg to 250 mmHg |
| | MAP: 15 mmHg to 260 mmHg |

# Technical Data

| | |
|---|---|
| Pediatric mode | Sys: 25 mmHg to 240 mmHg |
| | DIA: 10 mmHg to 200 mmHg |
| | MAP: 15 mmHg to 215 mmHg |
| Neonatal mode | SYS: 25 mmHg to 140 mmHg |
| | DIA: 10 mmHg to 115 mmHg |
| | MAP: 15 mmHg to 125 mmHg |
| Cuff pressure measuring range | 0 to 300 mmHg |
| Pressure resolution | 1 mmHg |
| Maximum mean error | ±5 mmHg |
| Maximum standard deviation | 8 mmHg |
| Adult/pediatric | 120 s |
| Neonatal | 90 s |
| Typical measuring period | 20 to 35 s (depend on HR/motion disturbance) |

**$SpO_2$ (Dräger Module)**

| | |
|---|---|
| Dräger Module complies with ISO 80601-2-61. | |
| Measuring range | 0% to 100% |
| Resolution | 1% |
| Data update period | 1 s |
| Adult/pediatric | ±2% (70% to 100% $SpO_2$) |
| | Undefined (0% to 69% $SpO_2$) |
| Neonatal | ±3% (70% to 100% $SpO_2$) |
| | Undefined (0% to 69% $SpO_2$) |
| Red light | (660±3) nm |
| Infrared light | (905±10) nm |
| Emitted light energy | <15 mW |
| PI (Perfusion Index): | |
| Measuring range | 0.05 to 20%, invalid PI value is -?- |
| Resolution | 0.1% (10.0% to 20.0%) |
| | 0.01% (0.05% to 9.99%) |

**$SpO_2$ (Masimo Module)**

| | |
|---|---|
| Measuring Range | 1% to 100% |
| Resolution | 1% |
| Accuracy: | |

# Technical Data

| | | |
|---|---|---|
| Adult /Pediatric | During no motion condition | ±2% (70% to 100% $SpO_2$)<br>Unspecified (0% to 69% $SpO_2$) |
| | During motion condition | ±3% (70% to 100% $SpO_2$)<br>Unspecified (0% to 69% $SpO_2$) |
| Neonate | During no motion condition | ±3% (70% to 100% $SpO_2$)<br>Unspecified (0% to 69% $SpO_2$) |
| | During motion condition | ±3% (70% to 100% $SpO_2$)<br>Unspecified (0% to 69% $SpO_2$) |
| Low Perfusion Performance: | | |
| | > 0.02% pulse amplitude and %transmission > 5% | Saturation (% $SpO_2$): ±2 Pulse Rate: ±3 |
| Averaging Time (s) | 2-4, 4-6, 8, 10, 12, 14, 16 | |
| Sensitivity | Normal, APOD, Max | |
| PI: | | |
| Measurement Range | 0 to 20% | |
| Resolution | 1% (10%≤PI≤20%)<br>0.1% (1%≤PI<10%)<br>0.01% (PI<1%) | |

### $SpO_2$ (Nellcor Module)

| | |
|---|---|
| Nellcor Module | |
| Measuring range | 1% to 100% |
| Resolution | 1% |
| SI | 0 to 25.5 |
| Data update period | 1 s |

### TEMP

| | |
|---|---|
| Complies with ISO 80601-2-56 | |
| Technique | Thermal resistance |
| Position | Skin, oral cavity, rectum |
| Channel | 2 |
| Sensor type | YSI-10K, YSI-2.252K |
| Unit | °C, °F |
| Measuring range | 0 °C to +50 °C (+32 °F to +122 °F) |
| Resolution | +0.1 °C (+0.1 °F) |
| Accuracy | +25 °C to +45 °C: ±0.2 °C (±0.36 °F) |
| | Other range: ±0.3 °C (±0.54 °F) |
| Sensor accuracy | +25 °C to +45 °C: ±0.1 °C (±0.18 °F) |
| | Other range: ±0.2 °C (±0.36 °F) |

# Technical Data

| | |
|---|---|
| Accuracy without sensor | ±0.1 °C (± 0.18 °F) |
| Measuring mode | Direct mode |
| Transit response time1 | ≤ 30 s |
| Note 1: The claimed response time is valid without probe covers. | |

**PR**

| | | Measuring range | Accuracy | Resolution |
|---|---|---|---|---|
| PR (SpO2) | Dräger | 25 bpm to 300 bpm | ±2 bpm | 1 bpm |
| | Nellcor | 20 bpm to 300 bpm | ±3 bpm (20 bpm to 250 bpm) | 1 bpm |
| | Masimo | 25 bpm to 240 bpm | ±3 bpm (During no motion condition) | 1 bpm |
| | | | ±5 bpm (During motion condition) | |
| PR (NIBP) | Dräger | 40 bpm to 240 bpm | ±3 bpm or 3.5% whichever is greater | 1 bpm |
| PR (IBP) | Dräger | 20 bpm to 300 bpm | 30 bpm to 300 bpm: ±2 bpm or ±2% whichever is greater | 1 bpm |
| | | | 20 bpm to 29 bpm: undefined | |

**IBP**

| | | |
|---|---|---|
| Complies with IEC 60601-2-34. | | |
| Technique | | Direct invasive measurement |
| Channel | | 3 channels |
| IBP Measure | Measuring Range | (-50 to +360) mmHg |
| | Resolution | 1 mmHg |
| | Accuracy (not including sensor) | ± 2% or ±1 mmHg, whichever is greater |
| PPV | Measuring Range | 0% to 50% |
| Pressure Unit | | kPa, mmHg, cmH2O |
| Pressure sensor: | | |
| Sensitivity | | 5 µV/V/mmHg |
| Impedance Range | | 300 Ω to 3000 Ω |
| Filter | | DC~ 12.5 Hz; DC~ 40 Hz |
| Zero | | Range: ±200 mmHg |

# Technical Data

| | | |
|---|---|---|
| Pressure Calibration Range | IBP (excluding ICP) | 80 mmHg to 300 mmHg |
| | ICP | 10 mmHg to 40 mmHg |
| Volume Displacement | | 7.4 x $10^4$ $mm^3$ / 100mmHg |

## $CO_2$ (G2 Module)

| | | |
|---|---|---|
| G2 Module complies with ISO 80601-2-55 | | |
| Intended patient | Adult, pediatric, neonatal | |
| Measure parameters | $etCO_2$, $FiCO_2$, AwRR | |
| Unit | mmHg, %, kPa | |
| Measuring range | $etCO_2$ | 0 mmHg to 150 mmHg |
| | $FiCO_2$ | 0 mmHg to 50 mmHg |
| | AwRR | 0 rpm to 150 rpm |
| Resolution | $etCO_2$ | 1 mmHg |
| | $FiCO_2$ | 1 mmHg |
| | AwRR | 1 rpm |

| | | | |
|---|---|---|---|
| Accuracy | $etCO_2$ | ±2 mmHg,<br>0 mmHg to 40 mmHg | Typical conditions:<br>Ambient temperature: (25±3) °C (77±37.4) °F<br>Barometric pressure: (760±10) mmHg<br>Balance gas: N2Sample gas flowrate: 100 ml/min |
| | | ±5% of reading,<br>41 mmHg to 70 mmHg | |
| | | ±8% of reading,<br>71 mmHg to 100 mmHg | |
| | | ±10% of reading,<br>71 mmHg to 100 mmHg | |
| | | ±12% of reading or ±4 mmHg whichever is greater | All conditions |
| | AwRR | ± 1 rpm | |
| Drift of measure accuracy | Meets the requirements of the measure accuracy | | |

| | |
|---|---|
| Sample gas flowrate | 50 ml/min, 70 ml/min or 100 ml/min (default)<br>accuracy: ±15 ml/min |
| Warm-up time | Display reading within 20 s;<br>reach to the designed accuracy within 2 minutes |
| Rise time | <400 ms<br>(with 2 m gas sampling tube, sample gas flowrate: 100 ml/min) |
| | <500 ms<br>(with 2 m gas sampling tube, sample gas flowrate: 70 ml/min) |
| | <1000 ms<br>(with 2 m gas sampling tube, sample gas flowrate: 50 ml/min) |

# Technical Data

| | |
|---|---|
| Response time | <4 s (with 2 m gas sampling tube, sample gas flowrate: 100 ml/min & 70 ml/min) |
| | <5.5 s (with 2 m gas sampling tube, sample gas flowrate: 50 ml/min) |
| Work mode | Standby, measure |
| $O_2$ compensation | Range: 0% to 100 % |
| | Resolution: 1% |
| | Default: 16% |
| $N_2O$ compensation | Range: 0% to 100% |
| | Resolution: 1% |
| | Default 0% |
| AG compensation | Range: 0% to 20% |
| | Resolution: 0.1% |
| | Default 0% |
| Zero | Support |
| Calibration | Support (It is recommend to be operated by trained personal) |
| Alarm | $etCO_2$, $FiCO_2$, AwRR |
| No breath detected (Alarm delay) | 10 s, 15 s, 20 s, 25 s, 30 s, 35 s, 40 s, 60 s; default value is 20 s |
| Data sample rate | 100 Hz |

**$CO_2$ Dräger MCable Mainstream $CO_2$ Module**

| | | |
|---|---|---|
| Measure Parameters | $etCO_2$, $FiCO_2$, AwRR | |
| Unit | mmHg, %, Kpa | |
| Measuring Range: | | |
| $etCO_2$ | 0 to 13.4 Vol% | |
| | 0 to 13.6 kPa (at 1013 hPa) | |
| | 0 to 102 mmHg (at 1013 hPa) | |
| $FiCO_2$ | 0 to 13.4 Vol% | |
| | 0 to 13.6 kPa (at 1013 hPa) | |
| | 0 to 102 mmHg (at 1013 hPa) | |
| AwRR | 0 rpm to 150 rpm (PGM algorithm) | |
| Resolution | $etCO_2$ | 1 mmHg |
| | $FiCO_2$ | 1 mmHg |
| | AwRR | 1 rpm |

# Technical Data

| | | |
|---|---|---|
| $etCO_2$ Accuracy | Reusable cuvette: | –20 to 40 °C (–4 to 104 °F)<br>< ±(0.43 Vol% + 8 % relative)<br>(< ±[0.44 kPa + 8 % relative, at 1013 hPa])<br>(< ±[3.3 mmHg + 8 % relative, at 1013 hPa]) |
| | | 40 to 50 °C (104 to 122 °F)<br>< ±(0.60 Vol% + 5 % relative)<br>(< ±[0.61 kPa + 5 % relative, at 1013 hPa])<br>(< ±[4.6 mmHg + 5 % relative, at 1013 hPa]) |
| | Disposable cuvette: <0 °C (+32 °F) and >40 °C (104 °F). | –20 to –10 °C (–4 to 14 °F)<br>< ±(0.70 Vol% + 22 % relative)<br>(< ±[0.71 kPa +22 % relative, at 1013 hPa])<br>(< ±[5.3 mmHg + 22 % relative, at 1013 hPa]) |
| | | –10 to 0 °C (14 to 32 °F)<br>< ±(0.43 Vol% + 13 % relative)<br>(< ±[0.44 kPa + 13 % relative, at 1013 hPa])<br>(< ±[3.3 mmHg + 13 % relative, at 1013 hPa]) |
| | | 0 to 40 °C (32 to 104 °F)<br>< ±(0.43 Vol% + 8 % relative)<br>(< ±[0.44 kPa + 8 % relative, at 1013 hPa])<br>(< ±[3.3 mmHg + 8 % relative, at 1013 hPa]) |
| | | 40 to 50 °C (104 to 122 °F)<br>< ±(0.70 Vol% + 22 % relative)<br>(< ±[0.71 kPa + 22 % relative, at 1013 hPa])<br>(< ±[5.3 mmHg + 22 % relative, at 1013 hPa]) |
| Operation Mode | Measure, standby | |
| $O_2$ Compensation: | | |
| Range | 0% to 100% | |
| Resolution | 1% | |
| Default | 16% | |
| $N_2O$ Compensation: | | |
| Range | 0% to 100% | |
| Resolution | 1% | |
| Default | 0% | |
| He Compensation: | | |
| Range | 0% to 100% | |
| Resolution | 1% | |
| Default | 0% | |

# Technical Data

| | |
|---|---|
| Xe Compensation: | |
| Range | 0% to 100% |
| Resolution | 1% |
| Default | 0% |
| Zero Calibration | Support |
| Alarm Type | $etCO_2$, $FiCO_2$, AwRR |
| Apnea Alarm Delay | 10 s, 15 s, 20 s, 25 s, 30 s, 35 s, 40 s; default value is 20 s. |
| Ramp-up time (t10...90) | <50 ms |
| Time until availability | <15 s |
| Time until specified accuracy is attained (warm-up phase) | <180 s (at 23 °C and valid zeroing) |
| Data Reporting Rate | 10 ms or 20 ms |
| Response Time | <200 ms |
| Cross-sensitivities | No cross-sensitivities to: Ethanol, isopropanol, acetone, methane, NO, CO, nitrous oxide, halothane, enflurane, isoflurane, sevoflurane, desflurane, xenon, helium, argon |
| | Cross-sensitivities to: Water vapor: <0.1 Vol% at 37 °C saturation |

### $CO_2$ Microstream $CO_2$ Module

| | |
|---|---|
| Intended Patient | Adult, pediatric, neonatal |
| Measure Parameters | $etCO_2$, $FiCO_2$, AwRR |
| Unit | mmHg, %, kPa |
| Measuring Range: | |
| $etCO_2$ | 0 mmHg to 99 mmHg |
| $FiCO_2$ | 0 mmHg to 99 mmHg |
| AwRR | 0 rpm to 150 rpm |
| Resolution: | |
| $etCO_2$ | 1 mmHg |
| $FiCO_2$ | 1 mmHg |
| AwRR | 1 rpm |
| $CO_2$ Partial Pressure Accuracy | 0 to 38 mmHg: ± 2 mmHg[1,2,3]<br>39 to 99 mmHg: ± [5% of expected reading + 0.08 × (expected reading in mmHg - 39 mmHg)][1,2,3] |

# Technical Data

| | |
|---|---|
| Accuracy in presence of interfering gases as required by ISO 80601-2-55 | The accuracy in presence of interfering gases is within 4% of the accuracy values above; therefore:<br>0 to 38 mmHg: ± (2 mmHg + 4% of expected reading in mmHg)<br>39-99 mmHg: ± [9% of expected reading in mmHg + 0.08 × (expected reading in mmHg - 39 mmHg)] 0 to 38 mmHg<br>± (2 mmHg + 4% of expected reading in mmHg) in the presence of up to 80% helium with up to 15% oxygen<br>39-99 mmHg: ± [9% of expected reading in mmHg + 0.08 × (expected reading in mmHg - 39 mmHg) in the presence of up to 80% helium with up to 15% oxygen |
| AwRR Accuracy | 0 to 70 rpm: ± 1 rpm<br>71 to 120 rpm: ± 2 rpm<br>121 to 150 rpm: ± 3 rpm |
| Waveform Sampling | 20 samples/second |
| Flow Rate | 50 mL per minute (tolerance ±5), flow measured by volume |
| Leakage Rate | Less than 40 mbar per minute when a 30% vacuum is invoked on the flow system |
| System Response: | |
| Rise Time | <190 ms |
| Delay Time: | <2.7 s |
| Warm-Up Period | Includes power-up time (10 seconds maximum) and initialization time (180 seconds) |
| Compression | BTPS is the standard correction used by Microstream capnography during all measurement procedures for body, temperature, pressure, and saturation |

**C.O.**

| | |
|---|---|
| Technique | Thermodilution Technique |
| Measure Parameters | C.O., TB, TI |
| Measuring Range: | |
| C.O. | 0.1 L/min to 20 L/min |
| TB | +23 °C to +43 °C(+73.4 °F to +109.4 °F) |
| TI | -1 °C to +27 °C(+30.2 °F to +80.6 °F) |
| Resolution: | |
| C.O. | 0.01 L/min |
| TB, TI | +0.1 °C (+0.1 °F) |
| Accuracy: | |
| C.O. | ±5% or ± 0.2 L/min, whichever is greater |
| TB | ±0.1 °C (±32.18 °F) (not including sensor) |
| TI | ±0.1 °C (±32.18 °F) (not including sensor) |

# Technical Data

## BIS

| | | | |
|---|---|---|---|
| Complies with IEC 60601-2-26 | | | |
| Technique | Bispectral index, power spectrum analysis | | |
| Measure Parameters | Primary Parameter | BIS | 0 to 100 |
| | Secondary Parameters | SQI | 0% to 100% |
| | | SR | 0% to 100% |
| | | EMG | 30 dB to 80 dB |
| | | SEF | 0.5 Hz to 30.0 Hz |
| | | TP | 40 dB to 100 dB |
| | | BC (Applicable to BIS™ Extend Sensor and Bilateral Sensor) | 0 to 30 |
| | | ASYM (Available only with BISx4 and Bilateral Sensor) | 0% to 100% |
| Sweep Speed | 6.25 mm/s, 12.5 mm/s, 25 mm/s, 50 mm/s | | |
| BIS Trend | 6 min, 12 min, 30 min, 60 min | | |
| Smoothing Rate | 10 s, 15 s, 30 s | | |
| Noise (EEG Waveform) | < 0.3 µV (0.25 Hz to 50 Hz) | | |
| EEG Bandwidth | 0.25 Hz to 100Hz (-3 dB) ±10% | | |
| BIS Alarm Range | 0 to 100 | | |

## NMT

| | |
|---|---|
| Complies with IEC 60601-2-10 | |
| Stimulations | TOF (Train Of Four), T1/T4 and Tref/T4 calculations<br>AUTO TOF (programmed from 15 s to 15 min)<br>PTC (Post Tetanic Count) |
| Stimulation Current | 20 to 60 mA Resolution: 1 mA |
| TOFcnt (TOF Count) | 0 to 4 |
| TOFrat (TOF Ratio) | 0 to 100% |
| PTCcnt (PTC Count) | 0 to 10 |

## Interfaces (Analog Output)

| | |
|---|---|
| Bandwidth<br>(-3dB; reference frequency: 10Hz) | Monitor: 0.5 Hz to 40 Hz<br>Diagnosis: 0.5 Hz to 40 Hz<br>Diagnosis 1: 0.05 Hz to 40 Hz<br>Surgery: 1 Hz to 20 Hz<br>Enhanced: 2 Hz ~18 Hz<br>Customized: When Low-pass Filter < 40 Hz, Bandwidth is High-pass Filter ~ Low-pass Filter; When Low-pass Filter > 40 Hz, Bandwidth is High-pass ~40 Hz. |
| Maximum Transmission Delay<br>(Diagnosis Mode) | 500 ms |

# Technical Data

| | |
|---|---|
| Sensitivity | 1 V/1 mV ±10% |
| PACE Rejection/ Enhancement | Support PACE rejection or enhancement |
| Waveform Display | Consistent with the calculation leads. |
| Compliant with Standard and Directive | Complies with the requirements in terms of short circuit protection and leakage current in EN60601-1. |
| Output Impedance | <500 Ω |
| Interface Type | PS2 connector |

### Defibrillator synchronisation

| | |
|---|---|
| Output Impedance | <500 Ω |
| Maximum Time Delay | 35 mS (R-wave peak to leading edge of pulse) |
| Waveform | Rectangular wave |
| Amplitude | High level: 3.5 V to 5.5 V, providing a maximum of 1mA output current;<br>Low level: <0.5 V, receiving a maximum of 5mA input current |
| Minimum Required R-wave Amplitude | 0.3 mV |
| Pulse Width | 100 mS±10% |
| Limited Current | 15 mA rating |
| Rising and Falling Time | <1 μs |
| Interface Type | PS2 connector |

### Nurse Call

| | |
|---|---|
| Drive Mode | Voltage output |
| Power Supply | ≤ 12 VDC, 200 mA Max. |
| Interface Signal | 12 V power supply and PWM waveform |
| Interface Type | PS2 connector |

### Video Output Interface

| | |
|---|---|
| Interface type | HDMI A-type port |

### Network Interface

| | |
|---|---|
| Specification | 100-Base TX (IEEE802.3) |
| Interface Type | Standard RJ-45 network interface |
| HL7 | XML format |
| | The data transmission will be finished within 8 s. The actual time will depend on the XML file size. |

# Ordering Information

| | |
|---|---|
| Vista 300 Non-Invasive Model A | 2601966 |
| Vista 300 Invasive Model C | 2601967 |
| Vista 300 Non-Invasive Model A Brasil | 2601066 |
| Vista 300 Invasive Model C Brasil | 2601067 |

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