

# BeneVision N19/N22 PATIENT MONITORS

## Performance Specifications

### Display

Type:	Medical-grade color TFT LCD, capacitive touchscreen, support multi-touch operation Rotatable screen (landscape and portrait)
Resolution:	1680 x 1050 pixels
Screen:	
N22:	22-inch, 178° viewing angle
N19:	19-inch, 170° viewing angle
Waveforms:	Up to 16 waveforms (portrait) Up to 13 waveforms (landscape)

### ECG (3, 5, 6, 12-lead)

Leads:	I, II, III, aVR, aVL, aVF, V1-V6
Sweep Speed:	6.25 mm/s, 12.5 mm/s, 25 mm/s, 50 mm/s
Gain Selection:	x 0.125, x 0.25, x 0.5, x 1, x 2, x 4, auto
Input Signal Range:	±8 mV (p-p)
Electrode Offset	
Potential Tolerance:	±500 mV
<b>Bandwidth</b>	
Diagnostic Mode:	0.05 to 150 Hz
Monitor Mode:	0.5 to 40 Hz
Surgical Mode:	1 to 20 Hz
ST Mode:	0.05 to 40 Hz
High Freq Cut-off (for 12-lead ECG analysis):	350 Hz, 150 Hz, 35 Hz, 20 Hz selectable
Defibrillator Protection:	Withstand 5000 VAC/50 Hz voltage in isolation against electro-surgical interference and defibrillation

Recovery Time: ≤5 s

### CMRR

Diagnostic:	>90 dB
Monitor, Surgical, ST Mode:	>105 dB (with notch filter on)
ESU Recovery Time:	≤10 s

### Heart Rate Meter

Measurement Range	
Adult:	15 to 300 bpm
Pediatric/Neonate:	15 to 350 bpm
Accuracy:	±1 bpm or ±1 %, whichever is greater.
Resolution:	1 bpm
Tall T-wave Rejection:	When the test is performed based on Clause 201.12.1.101.17 of ANSI/AAMI/IEC 60601-2-27: 2011, the heart rate calculation is not affected for QRS of 1 mV amplitude and 100 ms duration, T-wave duration of 180 ms and amplitude lower than 1.2 mV, and QT interval of 350 ms.

### Pace Pulse

Pulse Indicator:	Pace pulses meeting the following conditions are labelled with a PACE marker:
Amplitude:	±2 to ±700 mV
Width:	0.1 to 2 ms
Rise Time:	10 to 100 μs (without overshoot)
Pace Pulse Rejection:	When tested in accordance with the ANSI/AAMI/IEC 60601-2-27: 2011: 201.12.1.101.13, the heart rate meter rejects all pulses meeting the following conditions.
Amplitude:	±2 to ±700 mV
Width:	0.1 to 2 ms
Rise Time:	10 to 100 μs (without overshoot)



### Arrhythmia Analysis

Patient:	Adult/Pediatric
Monitored Arrhythmias:	Asystole, V-Fib/V-Tach, V-Tach, Vent Brady, Extreme Tachy, Extreme Brady, Vent Rhythm, PVCs/min, Pauses/min, Couplet, Bigeminy, Trigeminy, R on T, Run PVCs, PVC, Tachy, Brady, Missed Beats, Pacer Not Pacing, Pacer Not Capture, Multiform PVC, Nonsus V-Tach, Pause, Irr Rhythm, A-Fib, SVT, SVCs/min

### ST Segment Analysis

Patient:	Adult/Pediatric
Range:	- 2.0 to + 2.0 mV (RTI)
Accuracy:	-0.8 to +0.8 mV: ±0.02 mV or ±10%, whichever is greater Beyond this range: not specified
Resolution:	0.01 mV
ST Adjust Scale:	40 ms after J points, 60 ms after J point (default), 80 ms after J point and 60/80 ms after J point (80 ms when HR 120 bpm or less; 60 ms when HR above 120 bpm)
ISO Adjust Scale:	4-200 ms before R-Wave (default: 80 ms), Step: 4 ms
J Point Adjust Scale:	4-200 ms after R-Wave (default: 48 ms), Step: 4 ms

### QT Analysis

Patient:	Adult/Pediatric/Neonate
Parameters:	QT, QTc, ΔQTc
QTc Formula:	Bazett, Fridericia, Framingham, or Hodges
Range:	
QT/QTc:	200 to 800 ms
QT-HR:	Adult: 15 to 150 bpm Pediatric/Neonate: 15 to 180 bpm
QT Accuracy:	±30 ms
Resolution:	QT 4 ms; QTc 1 ms

### Respiration

Range:	
Adult:	0 to 120 bpm
Pediatric/Neonate:	0 to 150 bpm
Resolution:	1 rpm
Apnea Alarm Time:	10, 15, 20, 25, 30, 35, 40 s
Accuracy:	
7 - 150 rpm:	±2 rpm or ±2 % (whichever is greater)
0 - 6 rpm:	Not specified
Lead:	I, II, or auto (default: lead II)
Sweep Speed:	3 mm/s, 6.25 mm/s, 12.5 mm/s, 25 mm/s, 50 mm/s

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## Performance Specifications

### Pulse Oximetry

#### With Masimo SET® SpO<sub>2</sub>

Range:	1 to 100 %
Resolution:	1 %
Accuracy:	±2 % (70 to 100 %, Adult/Pediatric, non-motion) ±3 % (70 to 100 %, motion) ±3 % (70 to 100 %, Neonate, non-motion) 0 to 69 % unspecified
Dual-SpO <sub>2</sub> :	Yes, SpO <sub>2</sub> , SpO <sub>2</sub> b, ΔSpO <sub>2</sub>
Pulse Rate Range:	25 to 240 bpm
Pulse Rate Accuracy:	±3 bpm (non-motion) ±5 bpm (motion)

#### With Nellcor SpO<sub>2</sub>

Range:	0 to 100 %
Resolution:	1 %
Accuracy:	±2 % (70 to 100 %, Adult/Pediatric) ±3 % (70 to 100 %, Neonate) Unspecified (0 to 69 %)
Dual-SpO <sub>2</sub> :	Yes, SpO <sub>2</sub> , SpO <sub>2</sub> b, ΔSpO <sub>2</sub>
Pulse Rate Range:	20 to 300 bpm
Pulse Rate Accuracy:	±3 bpm (20 - 250 bpm) Unspecified (251 - 300 bpm)
Refresh Rate:	1 s

### Non-Invasive Blood Pressure

Method:	Oscillometry
Modes:	Manual, Auto, STAT, Sequence
Units of Measure:	mmHg, kPa (user-selectable)
Resolution:	1 mmHg
Systolic Range:	Adult: 25 to 290 mmHg Pediatric: 25 to 240 mmHg Neonate: 25 to 140 mmHg
Diastolic range:	Adult: 10 to 250 mmHg Pediatric: 10 to 200 mmHg Neonate: 10 to 115 mmHg
Mean range:	Adult: 15 to 260 mmHg Pediatric: 15 to 215 mmHg Neonate: 15 to 125 mmHg
Accuracy:	Max Mean Error: ±5 mmHg Max Standard Deviation: 8 mmHg
Cuff Deflation Technique:	Step bleed
Initial Cuff Inflation:	Adult: 80 to 280 mmHg (default: 160 mmHg) Pediatric: 80 to 210 mmHg (default: 140 mmHg) Neonate: 60 to 140 mmHg (default: 90 mmHg)
Over Pressure Protection:	Adult/Pediatric: 297 ±3 mmHg Neonate: 147 ±3 mmHg
Max Measurement Time:	Adult/Pediatric: 180 s Neonate: 90 s
Assisting Venous Puncture:	Yes
Pulse Rate Range:	30 to 300 bpm
Pulse Rate Accuracy:	±3 bpm or ±3 %, whichever is greater

### Temperature

Method:	Thermal resistance
Channels:	Up to 8 channels
Units of Measure:	Selectable °C or °F
Range:	0 to 50°C / 32 to 122°F
Resolution:	0.1°C, 0.1°F
Accuracy:	±0.1°C or ±0.2°F (without probe)

### IBP

Number:	Up to 8 channels
Measurement Range:	-50 to 300 mmHg
Resolution:	1 mmHg
Accuracy:	±1 mmHg or ±2 %, whichever is greater (excluding sensor error)
Zero Offset Range:	±200 mmHg
Excitation:	5V DC, ±2 %
Sensitivity:	5 μV/V/mmHg
Impedance Range:	300 to 3000 Ω
PPV Range:	0 to 50 %
PAWP:	Yes
Pulse Rate Range:	25 to 350 bpm
Pulse Rate Accuracy:	±1 bpm or ±1 %, whichever is greater

### Sidestream CO<sub>2</sub>

Measurement Range	etCO <sub>2</sub> : 0 to 150 mmHg
CO <sub>2</sub> Accuracy:	0 to 40 mmHg: ±2mmHg 41 to 76 mmHg: ±5 % of reading 77 to 99 mmHg: ±10 % of reading 100 to 150 mmHg: ±(3 mmHg+8 % of reading)
Resolution:	etCO <sub>2</sub> : 1 mmHg
Sample Flow Rate:	Adult/Pediatric: 120 ml/min Neonate: 70 ml/min or 90 ml/min
Sample Flow Rate Tolerance:	±15 ml/min or ±15 %, whichever is greater
Warm-up Time:	90 s (maximum), 20 s (typically)
Measured with a Neonatal watertrap and 2.5-meter Neonatal sampling line, or an Adult watertrap and a 2.5-meter Adult sampling line:	

### Rise Time

etCO <sub>2</sub> :	≤250 ms @ 70 ml/min (Neonate watertrap) ≤250 ms @ 90 ml/min (Neonate watertrap) ≤300 ms @ 120 ml/min (Adult watertrap)
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### Sampling Delay Time

etCO <sub>2</sub> :	≤5.0 s @ 70 ml/min (Neonate watertrap) ≤4.5 s @ 90 ml/min (Neonate watertrap) ≤5.0 s @ 120 ml/min (Adult watertrap)
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awRR Range:	0 to 150 rpm
awRR Accuracy:	0 to 60 rpm: ±1 rpm 61 to 150 rpm: ±2 rpm
Apnea Alarm Time:	10, 15, 20, 25, 30, 35, 40 s

### Anesthesia Gases

#### Sampling Rate

Adult/Pediatric:	200 ml/min
Neonate:	120 ml/min
Sampling Rate Tolerance:	±10 ml/min or ±10 %, whichever is greater.

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## Performance Specifications

### Anesthesia Gases (continued)

Sampling Delay Time:	<4 s
Refresh Rate:	1 s
Warm-up Time:	45 s to warm-up status 10 min to ready-to-measure status

### Measurement Range

CO <sub>2</sub> :	0 to 30 %
N <sub>2</sub> O:	0 to 100 %
Des/Sev/Enf/Iso/Hal:	0 to 30 %
O <sub>2</sub> :	0 to 100 %
awRR:	2 to 100 rpm

### Resolution

CO <sub>2</sub> :	0.1 %
N <sub>2</sub> O:	1 %
Des/Sev/Enf/Iso/Hal:	0.1 %
O <sub>2</sub> :	1 %
awRR:	1 rpm

### Full Accuracy

Gases	Range (%REL)	Accuracy (%ABS)
Cc:	0 to 1 %	±0.1 %
	1 to 5 %	±0.2 %
	5 to 7 %	±0.3 %
	7 to 10 %	±0.5 %
	>10 %	Not specified
N <sub>2</sub> O:	0 to 20 %	±2 %
	20 to 100 %	±3 %
	Des:	0 to 1 %
Des:	1 to 5 %	±0.2 %
	5 to 10 %	±0.4 %
	10 to 15 %	±0.6 %
	15 to 18 %	±1 %
	>18 %	Not specified
Sev:	0 to 1 %	±0.15 %
	1 to 5 %	±0.2 %
	5 to 8 %	±0.4 %
	>8 %	Not specified
Enf/Iso/Hal:	0 to 1 %	±0.15 %
	1 to 5 %	±0.2 %
	>5 %	Not specified
O <sub>2</sub> :	0 to 25 %	±1 %
	25 to 80 %	±2 %
	80 to 100 %	±3 %
awRR:	2 to 60 rpm	±1 rpm
	>60 rpm	Not specified

### Rise Time

Sampling flow 120 ml/min, using the Neonatal DRYLINE II™ watertrap and a Neonatal 2.5m sampling line:

CO <sub>2</sub> /N <sub>2</sub> O:	≤250 ms
Iso/Hal/Sev/Des:	≤300 ms
Enf:	≤350 ms
O <sub>2</sub> :	≤600 ms

Sampling flow 200ml/min, using Adult/Pediatric DRYLINE II™ watertrap and an Adult 2.5m sampling line:

CO <sub>2</sub> /N <sub>2</sub> O:	≤250 ms
Iso/Hal/Sev/Des:	≤300 ms
Enf:	≤350 ms
O <sub>2</sub> :	≤500 ms

### Sampling Delay Time

Sampling flow 120 ml/min, using the Neonatal DRYLINE II™ watertrap and a Neonatal 2.5m sampling line:

CO <sub>2</sub> :	≤4 s
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N<sub>2</sub>O: ≤4.2 s

O<sub>2</sub>: ≤4 s

Enf /Iso/Hal/Sev/Des: ≤4.4 s

Sampling flow 200ml/min, using Adult/Pediatric DRYLINE II™ watertrap and an Adult 2.5m sampling line:

CO<sub>2</sub>: ≤4.2 s

N<sub>2</sub>O: ≤4.3 s

O<sub>2</sub>: ≤4 s

Enf/Iso/Hal/Sev/Des: ≤4.5 s

Apnea Alarm time: 10, 15, 20, 25, 30, 35, 40 s

### Oridion Microstream CO<sub>2</sub>

Measurement Range: 0 to 99 mmHg

Resolution: 1 mmHg

Accuracy:

0 to 38 mmHg: ±2 mmHg

39 to 99 mmHg: ±5 % +0.08 % of the reading -38 mmHg

Sample Flow Rate: 50 (-7.5 +15) ml/min

Start-up Time: = 180 s max

Auto-Zeroing Interval: At start-up, and every 12 hrs thereafter

awRR Range: 0 to 150 rpm

awRR Accuracy:

0 to 70 rpm: ±1 rpm

71 to 120 rpm: ±2 rpm

121 to 150 rpm: ±3 rpm

Apnea Alarm Time: 10, 15, 20, 25, 30, 35, 40 s

### Cardiac Output

Method: Thermolulution

Measurement Range: 0.1 - 20 L/min

Resolution: 0.1 L/min

Accuracy: ±0.1 L/min or ±5 %, whichever is greater

Blood Temp Range: 23 to 43°C (73.4 to 109.4°F)

Blood Temp Accuracy: ±0.1°C (±0.2°F) (without sensor)

Blood Temp Resolution: 0.1°C (0.2°F)

### Continuous Cardiac Output Interface

Measured Parameter: Consistent with CCO-related parameters outputted by Edwards Lifescience Vigilance II®, Vigileo™, EV1000 or HemoSphere monitor

### FloTrac™ Specifications

Standard: Meets the requirements of IEC 60601-2-34: 2011

### Measured Parameter Display Range Remark

CCO: 1.0 to 20.0 L/min

Reproductibility1: ±6% or 0.1 L/min, whichever is greater

CCI: 0.0 to 20.0 L/min/m<sup>2</sup> /

SV: 0 to 300 mL/b /

SVI: 0 to 200 mL/b/m<sup>2</sup> /

SVR: 0 to 5000 dyne-s/cm<sup>5</sup> /

SVRI: 0 to 9950 dyne-s-m<sup>2</sup>/cm<sup>5</sup> /

SVV: 0 to 99% /

PPV: 0 to 99% /

Blood pressure 2 live

pressure: -34 to 312 mmHg

MAP/DIA/SYS: 0-300 mmHg

Accuracy: ±4% or ±4 mm Hg, whichever is greater, from -30 mmHg to 300 mmHg

PR: 0 to 220 bpm Accuracy 3: Arms ≤3 bpm

1 Coefficient of variation: measured using electronically generated data.

2 Parameter specifications compliant with IEC 60601-2-34. Testing performed under laboratory conditions.

3 Accuracy tested under laboratory conditions.

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## Performance Specifications

### ScvO<sub>2</sub>

Range:	0 to 99 %
Accuracy:	±3 % (50 to 80 %)

### rSO<sub>2</sub>

Patient:	Weight greater than 2.5 kg
Method:	INVOS, NIRS (Near Infrared Spectroscopy)
Number:	Up to 4 channels
Measurement Range:	15 to 95 %

### BIS

Standard:	Meets the standard of IEC 60601-2-26: 2012
Technique:	Bispectral index
Measured Parameters:	EEG

Calculated Parameters:	BIS, BIS L, BIS R: 0 to 100
	SQI, SQI L, SQI R: 0 to 100%
	EMG, EMG L, EMG R: 0 to 100 dB
	SR, SR L, SR R: 0 to 100%
	SEF, SEF L, SEF R: 0.5 to 30.0 Hz
	TP, TP L, TP R: 40 to 100 dB
	BC, BC L, BC R: 0 to 30
	sBIS L, sBIS R: 0 to 10.0
	sEMG L, sEMG R: 0 to 10.0
	ASYM: 0 to 100%

Impedance Range:	0 to 999 kΩ
Sweep Speed:	6.25 mm/s, 12.5 mm/s, 25 mm/s or 50 mm/s, ±10% error
Input Impedance:	>5 MΩ
Noise (RTI):	<0.3 μV (0.25 to 50 Hz)
Input Signal Range:	±1 mV
EEG Bandwidth:	<0.25 to 100 Hz
Patient Leakage Current:	<10 μA

### Alarm Limit

BIS High Range:	(low limit + 5) to 100	Step: 5
BIS Low Range:	0 to (high limit - 5)	Step: 5

### NMT

Sensor Type:	Acceleromyography sensor
Stimulation Modes:	ST, TOF, PTC, DBS3.2, DBS3.3
Stimulation Current Range:	0 to 60 mA
Stimulation Current Accuracy:	±5 % or ±2 mA, whichever is greater.
Stimulation Pulse Width:	100, 200 or 300 μs, monophasic rectangle pulse
Stimulation Pulse Width Accuracy:	±10 %
Max. Output Voltage:	300 V

### EEG

EEG Channels:	Up to 4 channels
Bandwidth:	0.5 to 50 Hz (-3 dB)
Input Signal Range:	- 2 mVp-p to + 2mVp-p
Max. Input DC Offset:	±500 mV
CMRR:	≥100 dB @51 kΩ imbalance and 60 Hz
Noise Level:	≤0.5 μV rms (1 Hz to 30 Hz)
Differential Input Impedance:	>15 MΩ @10 Hz
Electrode Impedance:	
Range:	0 to 90 kΩ
Accuracy:	±1 kΩ or ±10 %, whichever is greater

### Measured Parameters: Measurement Range / Resolution

SEF, MF, PPF:	0.5 to 30 Hz / 0.5 Hz
TP:	40 to 100 dB / 1 dB
SR:	0 to 100% / 1%

Delta, Theta, Alpha, Beta:	0 to 100% / 1%
Alpha/Delta (for EEG-1/aEEG module):	0 to 99 (invalid if Delta is 0%) / 0.1

### iView

CPU:	Intel Pentium N4200 2.5 GHz
Memory:	8 GB
Hard-disk:	mSATA SSD 128 GB
OS:	Windows 10

### Recorder

Type:	Thermal array
Speed:	25 mm/s, 50 mm/s
Trace:	Up to 3

### Data Storage

Trends Data:	>120 hrs @ 1min, 4 hrs @ 5 s
Events:	1000 events, including parameter alarms, arrhythmia events, technical alarms, and so on
NIBP:	1000 sets
Interpretation of Resting 12-lead ECG Results:	20 sets
Full Disclosure:	Up to 48 hrs
OxyCRG:	48 hrs
ST Review:	120 hrs @1 min

### Wi-Fi Communications

Protocol:	IEEE 802.11a/b/g/n
Modulation Mode:	DSSS and OFDM

### Operating Frequency

IEEE 802.11b/g/n (2.4G):	
FCC:	2.4 to 2.483 GHz
MIC:	2.4 to 2.495 GHz
IEEE 802.11a/n (5G):	
FCC:	5.15 to 5.35 GHz, 5.725 to 5.82 GHz
MIC:	5.15 to 5.35 GHz
Channel Spacing:	5 MHz @ 2.4 GHz, 20 MHz @ 5 GHz
Wireless Baud Rate:	IEEE 802.11a: 6 to 54 Mbps IEEE 802.11b: 1 to 11 Mbps IEEE 802.11g: 6 to 54 Mbps IEEE 802.11n: 6.5 to 72.2 Mbps
Output Power:	<30 dBm (FCC requirement, detection mode - peak power)
Operating Mode:	Infrastructure
Data Security:	WPA-PSK, WPA2-PSK, WPA-Enterprise, WPA2-Enterprise (EAP-FAST, EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, PEAP-TLS, LEAP)

Encryption:	AES
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### Auxiliary Output

Standard:	Meets the requirements of ANSI/AAMI/IEC 60601-1 for short-circuit protection and leakage current
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### ECG Analog Output

Bandwidth (- 3 dB; reference frequency: 10 Hz)	
Diagnostic Mode:	0.05 to 150 Hz
Monitor Mode:	0.5 to 40 Hz
Surgical Mode:	1 to 20 Hz
ST Mode:	0.05 to 40 Hz
QRS Delay:	≤25 ms (in diagnostic mode, and non-paced)
Sensitivity:	1 V/mV, ±5 %
Pace Enhancement:	
Signal Amplitude:	Voh ≥2.5 V
Pulse Width:	10 ms ±5 %
Signal Rising and Falling Time:	≤100 μs

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## Physical Specifications

### Auxiliary Output (continued)

#### IBP Analog Output

Bandwidth (-3 dB; reference frequency: 10 Hz) 0 to 40 Hz

Max. Transmission Delay: 30 ms

Sensitivity: 1 V/100 mmHg,  $\pm 5\%$

### Interfacing

Main Unit:	1 AC Power Connector
	2 RJ45 Network Connector, 100 Base-TX, IEEE 802.3
	6 USB 2.0 Connector
	3 Nonstandard USB SMR Connector
	1 VP Connector, VP1 for the secondary display
	1 BNC Connector
	1 Equipotential Grounding Terminal
Modular iView:	1 VP Connector, VP2
	4 USB 2.0 Connector
	1 RJ45 Network Connector, 100 Base-TX, IEEE 802.3
Multifunction Connector for Defib Sync and Analog Output	1 on multi-parameter module
Barcode Scanner:	Support 1D and 2D barcode
Keyboard and Mouse:	Support wire and wireless type
Remote Control:	Support
Network Printer:	Support

### Battery

Type:	Rechargeable lithium-ion
Number of Battery:	1
Capacity:	5600 mAh, 11.3 VDC
Run Time:	>1 hrs
	When powered by a new fully-charged battery at 25 °C $\pm 5$ °C with 12-lead ECG, Resp, SpO <sub>2</sub> , 4-ch IBP, 2-ch Temp, CO <sub>2</sub> , C.O. and NIBP measurements every 15 min, WiFi enabled, and screen brightness set to default 5
Recharge Time:	5 hrs to 90 % when the monitor is off

### Physical BeneVision N19

#### Main Unit and Primary Display Installed Together with Handle

Dimension (horizontal):	16.6" (H) x 20.0" (W) x 4.5" (D) 42.3 cm (H) x 50.9 cm (W) x 11.5 cm (D)
Dimension (vertical):	23.0" (H) x 13.7" (W) x 4.5" (D) 58.4 cm (H) x 34.8 cm (W) x 11.5 cm (D)
Weight:	22.7 lb (10.3 kg) including battery, iView module, WiFi module, display with handle and navigation knob

#### Display, 19"

Dimension:	13.7" (H) x 20.0" (W) x 1.9" (D) 34.8 cm (H) x 50.9 cm (W) x 4.8 cm (D)
Weight:	13.7 lb (6.2 kg) excluding handle

#### Main Unit

Dimension:	10.5" (H) x 10.5" (W) x 2.7" (D) 26.8 cm (H) x 26.8 cm (W) x 6.8 cm (D)
Weight:	7.5 lb (3.4 kg) including battery

### Physical BeneVision N22

#### Main Unit and Primary Display Installed Together

Dimension (horizontal):	18.0" (H) x 22.3" (W) x 4.5" (D) 45.8 cm (H) x 56.6 cm (W) x 11.5 cm (D)
Dimension (vertical):	25.2" (H) x 15.0" (W) x 4.5" (D) 64.1 cm (H) x 38.3 cm (W) x 11.5 cm (D)
Weight:	25.3 lb (11.5 kg) including battery, iView module, WiFi module, display with handle and navigation knob

#### Display, 22"

Dimension:	15.1" (H) x 22.3" (W) x 1.9" (D) 38.3 cm (H) x 56.6 cm (W) x 4.8 cm (D)
Weight:	16.3 lb (7.4 kg) excluding handle

#### Main Unit

Dimension:	10.5" (H) x 10.5" (W) x 2.7" (D) 26.8 cm (H) x 26.8 cm (W) x 6.8 cm (D)
Weight:	7.5 lb (3.4 kg) including battery

### Environmental

#### Operating Temperature:

0°C to 40°C	Main unit, MPM module, individual module of SpO <sub>2</sub> , TEMP, IBP, CO, CCO/SvO <sub>2</sub> , NMT, EEG, and BeneLink, recorder
0°C to 40°C	Microstream CO <sub>2</sub> module
5°C to 40°C	Sidestream CO <sub>2</sub> module
10°C to 40°C	AG module, ScvO <sub>2</sub> module
16°C to 32°C	rSO <sub>2</sub> module
10°C to 32.5°C	FloTrac module

#### Storage Temperature:

-20°C to 60°C	Main unit, MPM module, individual module of SpO <sub>2</sub> , TEMP, IBP, CO, CCO/SvO <sub>2</sub> , ScvO <sub>2</sub> , NMT, AG, Microstream/Sidestream CO <sub>2</sub> , EEG, and BeneLink, recorder
-20°C to 70°C	rSO <sub>2</sub> module
-18°C to 45°C	FloTrac module

#### Operating Humidity:

15 to 95 % (non condensing):	Main unit, MPM module, individual module of SpO <sub>2</sub> , TEMP, IBP, CO, CCO/SvO <sub>2</sub> , NMT, AG, Microstream/Sidestream CO <sub>2</sub> , EEG, and BeneLink, recorder
15 to 75 % (non condensing):	ScvO <sub>2</sub> module
20 to 80 % (non condensing):	rSO <sub>2</sub> module
20 to 90 % (non condensing):	FloTrac module

#### Storage Humidity:

10 to 95 % (non condensing):	Main unit, MPM module, individual module of SpO <sub>2</sub> , TEMP, IBP, CO, CCO/SvO <sub>2</sub> , ScvO <sub>2</sub> , NMT, AG, Microstream/Sidestream CO <sub>2</sub> , EEG, and BeneLink, recorder
10 to 90 % (non condensing):	ScvO <sub>2</sub> module
20 to 90 % (non condensing):	FloTrac module

#### Operating Atmospheric Pressure:

427.5 to 805.5 mmHg	Main unit, MPM module, individual module of SpO <sub>2</sub> , TEMP, IBP, CO, CCO/SvO <sub>2</sub> , ScvO <sub>2</sub> , NMT, EEG, and BeneLink, recorder
430 to 790 mmHg	Microstream/Sidestream CO <sub>2</sub> module
525 to 805.5 mmHg	AG module, and rSO <sub>2</sub> module
522.8 to 759.8 mmHg	FloTrac module

### Safety

Type of Protection:	Class I
Degree of Protection:	MPM/IBP/C.O./NMT/EEG module: CF ScvO <sub>2</sub> /CO <sub>2</sub> /AG/rSO <sub>2</sub> module: BF

Protection Against Ingress of Fluids:	IPX1
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### Power Requirements

AC Voltage:	100 to 240 VAC ( $\pm 10\%$ )
Current:	2.8 to 1.6 A
Frequency:	50 Hz/60 Hz ( $\pm 3$ Hz)
Fuse:	Time-lag 250 V T4A