Brio X50 PATIENT MONITOR

bionet

Physical Specifications

Dimension(mm)	308(H) x 273(W) x 140(D)
Weight(Kg)	3.1
Display	12.1" Capacitive Touchscreen
Resolution	1280 x 800
Control Keys	Power Key, Trim Knob, Alarm Key, Snapshot Key, NIBP measurement Key
Trace	
Waveforms	Up to 8 - ECG, SpO_2, RR or $EtCO_2$ or AG, 4CH IBP, ICG
Sweep Speed	6.25 mm/sec, 12.5 mm/sec, 25 mm/sec, 50 mm/sec

Parameters and Modules

ECG	5 Lead(7CH)
SpO_2	$ChipO_2$ or Nellcor OxiMax
NIBP	Bionet or Suntech
IBP	4CH
TEMP	2CH
$EtCO_2$	Mainstream & Sidestream
Optional	- 12CH ECG, Exergen® Temporal, - AG(Gas), ICG in "Paramount" module box

ECG

Method	Meets the requirements of IEC 60601-2-27: 2011 and IEC 60601-2-25: 2011
ECG Leads	5 Lead : 2/7CH I, II, III, aVR, aVL, aVF, V 10 Lead : 12CH I, II, III, aVR, aVL, aVF, V1, V2, V3, V4,V5,V6
Heart Rate	
Range	Adult : 15 to 300 bpm Pediatric/Neonate : 15 to 350 bpm
Accuracy	±1 bpm or ±1%, whichever is greater
ST Segment Detection Range	-2.0 to 2.0 mV
Arrhythmia Analysis	Asystole, V-Tach, V-Tach/V-Fib, Bigeminy, Trigeminy, Acc Vent Couplet, Irregular, Pause, R on T, V-Brady, Short Run, PVC
Pacemaker Detection Mode	Indicator on waveform display (user selectable)
Protection	Against electrosurgical interference and defibrillation

Respiration

Method	Thoracic impedance
Channel Selection	RA-LL / RA-LA
Measurement Range	5 to 120 bpm
Accuracy	±1 bpm
Apnea Alarm	Yes

SpO_2

$ChipO_2$

Range	0 to 100%
Accuracy*	70 to 100% : ±2 digits 0 to 69% : unspecified
Pulse Rate Range	30 to 254 bpm
Pulse Rate Accuracy	±2 bpm

Nellcor OxiMax

Range	0 to 100%
Accuracy*	70 to 100% : ±3 digits 0 to 69% : unspecified
Pulse Rate Range	20 to 300 bpm
Pulse Rate Accuracy	20 to 250 bpm ±3 bpm 250 bpm : unspecified

* The specified accuracy is the root-mean-square (RMS) difference between the measured values and the reference values.

Non-Invasive Blood Pressure

Standard	Meets the requirements of ISO 80601-2-30:2018
Method	Oscillometry with step deflation
Operation Mode	Manual/Automatic/Continuous
Measurement Range	
Adult	Systolic : 40 to 255 mmHg MAP : 26 to 220 mmHg Diastolic : 20 to 200 mmHg
Pediatric	Systolic : 40 to 230 mmHg MAP : 26 to 183 mmHg Diastolic : 20 to 160 mmHg
Neonate	Systolic : 40 to 130 mmHg MAP : 26 to 110 mmHg Diastolic : 20 to 100 mmHg
Accuracy	Mean error : less than ±5 mmHg Standard deviation : less than 8 mmHg

Temperature

Standard	Meets the requirements of ISO 80601-2-56:2018
Method	Thermal resistance
Operation Mode	Direct
Measurement Range	0 to 50℃ (32 to 122℉)
Accuracy	25 to 45℃ : ±0.1℃ Below 25℃, above 45℃ : ±0.2℃
Compatibility	98ME04GA603 temperature probes

IR Temperature

Operation Mode	Adjusted
Measurement Range	16 to 43℃ (61 to 110℉) Below 16℃ (61℉) : not supported
Accuracy	±0.1℃ (±0.2℉)

$ETCO_2$(Main/Side)

Standard	Meets the requirements of ISO 80601-2-55:2018
Measurement Range	0 to 150 mmHg, 0 to 19%
Accuracy	0 to 40mmHg ±2 mmHg, 41 to 70mmHg ±5% of reading 71 to 100mmHg ±8% of reading 101 to 150mmHg ±10% of reading
Respiration Rate	2 to 150 bpm
Respiration Accuracy	±1 bpm

IBP

Standard	Meets the requirements of IEC 60601-2-34: 2011
Channels	2CH or 4CH
Measurement Range	-50 to 300 mmHg
Accuracy	±4% of reading or ±4 mmHg, whichever is greater
Pulse Rate Measurement Range	20 to 300 bpm
Zero Balancing	Range : ±200 mmHg Accuracy : ±1 mmHg Drift : ±1 mmHg over 24 hrs
Transducer Sensitivity	5μV/V/mmHg

ICG

Method	Impedance	
Input Impedance	0 to 100 Ohm	
Measurement Range	C.O	0 to 20 L/min
	SVI	0 to 200 ml/beat
	SQI	0 to 100 %

Anesthesia Gases

Standard	Meets the requirements of ISO 80601-2-55:2018	
Technique	Infrared absorption, paramagnetic properties for O_2 monitoring	
Sampling Rate	Adult,Pediatric : 200 ml/min Neonate : 120 ml/min Accuracy : ±10 ml/min or ±10%, whichever is greater	
Warm-up Time	≤10 min	
Measurement Range	CO_2	0 to 30%
	O_2	0 to 100%
	N_2O	0 to 100%
	Des	0 to 30%
	Sev	0 to 30%
	Enf	0 to 30%
	Iso	0 to 30%
	Hal	0 to 30%
	awRR	2 to 100 rpm
Resolution	CO_2	0.1%
	O_2	1%
	N_2O	1%
	Des	0.1%
	Sev	0.1%
	Enf	0.1%
	Iso	0.1%
	Hal	0.1%
	awRR	1 rpm

Full Accuracy	Gases	Range(%REL)[1]	Accuracy(%ABS)
	CO_2	$0 \le CO_2 \le 1$ $1 < CO_2 \le 5$ $5 < CO_2 \le 7$ $7 < CO_2 \le 10$ $CO_2 > 10$	±0.1 ±0.2 ±0.3 ±0.5 Unspecified
	O_2	0 to 25 25 to 80 80 to 100	±1 ±2 ±3
	N_2O	$0 \le N_2O \le 20$ $20 < CO_2 \le 100$	±2 ±3
	Des	0 to 1 1 to 5 5 to 10 10 to 15 15 to 18 >18	±0.15 ±0.2 ±0.4 ±0.6 ±1 Unspecified
	Sev	0 to 1 1 to 5 5 to 8 >8	±0.15 ±0.2 ±0.4 Unspecified
	Enf, Iso, Hal	0 to 1 1 to 5 >5	±0.15 ±0.2 Unspecified
	awRR	2 to 60 rpm >60 rpm	±1 rpm Unspecified

Note[1] : The highest GAS LEVEL for a single halogenated anesthetic gas in a gas mixture that is concealed when the anesthetic concentration falls is 0.15/0.3%(Full/ISO accuracy)

Accuracy Drift	Meet the requirement for measurement accuracy within 6 hrs

Rise Time (10% to 90%)	Gas sample flow rate 120ml/min, using a DRYLINE II neonatal water trap and sampling line (2.5m)	
	CO_2	≤250 ms
	O_2	≤600 ms
	N_2O	≤250 ms
	Des, Sev, Iso, Hal	≤300 ms
	Enf	≤350 ms
	Gas sample flow rate 200 ml/min, using the adult DRYLINE II water trap and sampling line (2.5 m)	
	CO_2	≤250 ms
	O_2	≤500 ms
	N_2O	≤250 ms
	Des, Sev, Iso, Hal	≤300 ms
	Enf	≤350 ms

Delay time	<4 s	
Response Time	Measured with a DRYLINE II neonatal water trap and a 2.5-meter neonatal sampling line: 120 ml/min:	
	CO_2	≤4 s
	O_2	≤4.2 s
	N_2O	≤4 s
	Des, Sev, Iso, Hal, Enf	≤4.4 s
	Measured with a DRYLINE II adult water trap and a 2.5-meter adult sampling line: 200 ml/min:	
	CO_2	≤4.2 s
	O_2	≤4 s
	N_2O	≤4.3 s
	Des, Sev, Iso, Hal, Enf	≤4.5 s

Environmental Specifications

Temperature	
Operating	5 to 40 ℃ (41 to 104 ℉)
Storage	–20 to 60 ℃ (–4 to 140 ℉)
Humidity	
Operating	30 to 85%
Storage	10 to 95% (Package)
Altitude	
Operating	525 to 795 mmHg (70 to 106 kPa)
Storage	375 to 795 mmHg (50 to 106 kPa)

Power Specifications

Power Consumption	< 35 W
Line Voltage	100 to 240 VAC
Current	1.5 to 0.75 A
Frequency	50/60 Hz
Battery	Rechargeable Lithium ion 10.8 V 3,250mAh / 6,500mAh

Interface Specifications

Interface	AC input connector
	LAN port for transferring data
	HDMI output connector
	2 USB 2.0 connector
	Printer module connector
	Paramount module connector
Data Storage	
Common	168 hrs trends data
Option	10,00 alarm events
	(All numbers and waveforms for a total of 16 sec, 8 sec before and after the event)
Clinical Assistive Application (CAA)	OXY CRG, EWS, GCS, Drug Cal.
Indicators	3 Colors visual alarm lamp, SpO_2 pulse pitch tone, Battery status, External power LED
Network	
Wired	IEEE 802.3
Wireless	IEEE 802.11 (a, b, g, n)
Safety	
Type of Protection	Class I
Ingress Protection	IPX2

Headquarters Bionet Co., Ltd.
5F, 61 Digital-ro 31-gil, Guro-gu, Seoul, Korea 08375
TEL. +82 2 6292 6410
E-Mail. domestic.sales@ebionet.com
info.sales@ebionet.com (Overseas Sales)