

Flexible Modular Design and Comprehensive Monitoring

Q series monitor provides the most frequently used vital parameters including 3/5 lead ECG, 2-IBP, NIBP, SpO₂, 2-TEMP & RESP.

Thanks to plug-and-play modular structure, advanced monitoring functions such as Masimo SpO₂, Nellcor SpO₂, Suntech NIBP, 2-IBP, C.O. EtCO₂ or Multi-gas can be flexibly added according to specific clinical requirements. Additionally, modules with advanced parameter can be shared among beds, and compatible with Biolight's A series Modular Monitor (A8/A6/A5/A3), which offers a flexible and efficient solution, allows hospitals to make the most of their monitoring investment by sharing modules and reducing the total cost of ownership.

Advanced parameters through easy upgrades



Masimo SpO₂



Nellcor SpO₂

Fastest response time with the best sensitivity.



Microflow/Mainstream EtCO₂



Sidestream EtCO₂

Sidestream, Microflow, and Mainstream EtCO₂ are all optional. Various option can be suitable for intubated patient, non-intubated patient, and ventilation relied patient.



2-IBP

Maximum 8-channel IBP measurements with waveform, systolic, diastolic, mean pressure on ART, CVP, ICP, PA, LAP to fulfill different positions invasive blood pressure measuring demands.



SunTech Advantage NIBP

The module was created as a result of more than 29 years of medical research on blood pressure monitoring. The outcomes of the clinical tests show that the accuracy of SunTech Advantage NIBP technology is quite high.



Mainstream AG



Sidestream AG

Anaesthesia Gas module measures the concentration of Et and FiCO₂, O₂, N₂O, ISO, ENF, DES, SEV, and HAL.



C.O.

Enables hemodynamic monitoring using thermodilution method, provides an important measurement of the blood flow and oxygen delivery to the tissues.

Various software functions meet clinical requirements



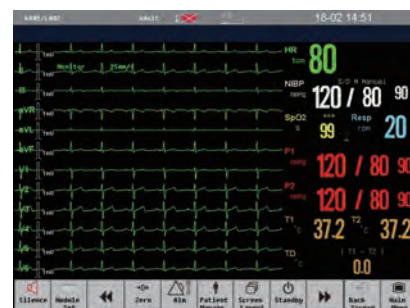
Hi-Res Trend

Maximum 168 hours graphics and tabular trends



Other bed (Remote view)

Displays all other bedside monitor's parameters with one waveform, supports user defined parameter display



12-lead ECG

Captures and reviews diagnostic 12-lead ECG waveforms at one screen.



OxyCRG screen

Oxycardiorespirography combines the compressed trends of heart rate, respiration, and oxygenation levels in an easy to interpret display. OxyCRG is an indicator of breathing efficiency and brain maturity.

Q7

15" TFT LCD, Resolution: 768 * 1024
Module Slot: 3

Q5

12.1" TFT LCD, Resolution: 800 * 600
Module Slot: 2

Q3

10.4" TFT LCD, Resolution: 800 * 600
Module Slot: 2

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*Specifications subject to change without prior notice.
Q3/Q5/Q7-2207-eng-V1; Date: JUL. 2022

Q Series

Semi-Modular patient monitor

Best Choice for Acute Care Monitoring





Q7/Q5/Q3

Best Choice for Acute Care Monitoring

The BiLight Q series modular monitor is made to easily fit into the hospital workflow while yet meeting regular clinical requirements.

A patient monitor for acute care must be reliable, simple to use, upgradeable with sophisticated parameters, and give data access when and where it is needed. The equipment should be simple to transport in the event of patient transport.

Q series patient monitor is the greatest option for acute care because of its lightweight, plug-and-play modular architecture, robust features, and simple user interface.

User Friendly Design for Convenient Operation

- The Q series monitor was created to satisfy the needs of different medical environments. Every standard monitoring requirement is met by the main unit integrated parameters. The Q series monitor can be upgraded to support acute care monitoring with the extra modules.
- Q series monitor's built-in recorder and automatic event recording function guarantee the integrity of monitoring data.
- Q series monitor intuitive interface includes mass alarm set up, large font, and other bed view functions. This interface together with the touch screen, rotary knob, and customized quick keys, makes the Q series exceptionally user friendly.
- Q series is applicable for Emergency Room, General Ward, Operating Room, ICU, etc.

Streamlined appearance design with modernized style and beautiful shape

IPX1 waterproof level can effectively resist water and moisture

Plug-and-play and multi-parameter module design, which can be upgraded easily

Low power consumption and fanless design, noise-free, pollution-free standards

Various expandable interfaces: VGA output, Ethernets, 2*USB, Defib Sync, Nurse Call

360 degree three-level sound light alarm for physiological & technical issues

Brand new user operating software, unlimited upgraded functions with perfect user experience

High resolution color LCD touch screen & user-friendly display interface meet the clinical requirements of operation and observation

Optimized circuit design reduces energy consumption and increases battery running time by 25%

Q Series achieve long time monitoring of vital sign stably and accurately by using BM100A all-in-one module engine.

Q7/Q5/Q3

Modular Patient Monitor



Size and Weight

Size	Q7: 335× 366×172mm Q5/Q3: 318×264×152mm
Weight	Q7 < 6kg Q5/Q3 < 4.5kg

Power

Standard According to	IEC 60601-1 and IEC 60601-1-2
Input voltage	100V-240V AC
Frequency	50Hz/60Hz
Earth leakage current	<0.3 mA
Input current	1.7A -0.8A
Fuse	T 2A/250V

Display

Type	Color TFT LCD
Size(diagonal)	Q7: 15 inch Q5: 12.1 inch Q3: 10.4 inch
Resolution	Q7: 1024×768 pixels Q5/Q3: 800×600 pixels

External display

Type	Medical-Grade TFT display
Size	>15inch
Resolution	Q7: 1024×768 pixels Q5/Q3: 800×600 pixels

Recorder

Type	Thermal dot array
Horizontal resolution	16 dots/mm(at 25 mm/s paper speed)
Vertical resolution	8 dots/mm
Recording speed	12.5 mm/s, 25 mm/s, 50 mm/s
Recording waveform	Maximum 3 tracks
Recording way	Real-time / periodic / alarm recording

Battery

Type	Rechargeable lithium ion battery 11.1V/4Ah
Operating time	Q7: > 120 minutes (1 Battery) Q7: > 240 minutes (2 Battery) (Option) Q5/Q3: > 210minutes
(1 new and fully charged battery at 25°C temperature, connecting SpO2 sensor & NIBP work on AUTO mode for 15 minutes interval)	
Charge time	6h to 100%(Standby)

Data Storage

Alarm event	128 groups and associated waveform
Trend	168h, minimum resolution is 1min 2h, minimum resolution is 5s
ARR event	128 groups and associated waveform
NIBP	1000 groups

Interfacing & I/O devices

Keyboard & Mouse	Support
Barcode Scanner	Support 1D barcode (USB connector)
Touch screen	Q7: Standard Q5/Q3:Option
Wired network	1 standard RJ45 interfaces
Wireless network	2.4G / 5G dual band (Option)
USB socket	2 sockets
Video output	1 VGA (option)
Nurse call	1 RJ11 connector
Analog signal output	Option.
Defibrillation synchronization	1 BNC connector

Environmental requirements

Operating temperature	5°C to +40°C
Operating humidity	15% to 85%(non condensing)
Operating air pressure	700hPa to 1060hPa
Storage temperature	-20°C to +55°C
Storage humidity	< 93%(non condensing)
Storage air pressure	500hPa to 1060hPa

ECG

Lead	3 lead: I, II, III 5 lead: I, II, III, aVR, aVL, aVF, Vx 12 lead: I, II, III, aVR, aVL, aVF, V1-V6
Lead standard	AHA, IEC
Gain	x 0.125, x 0.25, x 0.5, x 1, x 2, x 4, Auto.
CMRR	Diagnostic mode ≥ 89 dB Monitor mode ≥ 105 dB Surgery mode ≥ 105 dB
Bandwidth (-3dB)	Diagnostic mode: 0.05 Hz to 150 Hz Monitor mode: 0.5 Hz to 40 Hz Surgery mode: 1 Hz to 25Hz
Input impedance	≥ 5.0 M Ω
ECG signal range	± 10.0 mV
Electrode offset potential	± 500 Mv
Patient leakage current	< 10 μ A
System noise	≤ 30 μ Vpp (RTI)
Standardizing signal	1 mV $\pm 5\%$
Baseline recovery	Monitor mode: ≤ 3 s; Surgery mode: ≤ 1 s
Recovery time after defibrillation:	waveform recover to baseline in 10s.
Sweep speed	6.25 mm/s, 12.5 mm/s, 25 mm/s, 50 mm/s

ST segment

Measurement Channels	Calculating I, II, V- lead etc. at the same time
Default	II lead
Measurement range	-2.0 mV to +2.0 mV
Accuracy	-0.8 mV to +0.8 mV: ± 0.02 mV or $\pm 10\%$, (whichever is greater) Over ± 0.8 mV: unspecified
Resolution	0.01mV

Heart Rate

Measurement range	Adult	10 bpm to 300 bpm
	Pediatric & Neonatal	10 bpm to 350 bpm
Accuracy	±1% or ±1 bpm, whichever is greater	

Arrhythmia analysis

Kinds ASYSTOLE, VENT FIB/TACH, PAC, RUN PVCs, COUPLET, BIGEMINY, TRIGEMINY, R on T, TACHY, BRADY, MISSED BEATS, MULRI PACS, PNP, PNC, NOISE, VPB, ST HIGH, ST LOW, VTACH, PVCs HIGH.

Respiration

Lead	Selected from: I (RA-LA) or II (RA-LL)	
Measurement range	0 rpm to 150 rpm	
Sweep speed	6.25mm/s, 12.5mm/s, 25mm/s	
Accuracy	±2 rpm or ±2% , whichever is the greater	
Delay of apnea alarm	10/15/20/25/30/35/40/45/50/55/60s	

NIBP

Standard	IEC 80601-2-30	
Measurement way	Automatic oscillometry	
Measurement mode	Manual , Auto, STAT	
Intervals for Auto measurement: 1/2/3/4/5/10/15/30/60/90min, 2/4/8/12h.		
STAT mode cycle time	Keep 5 minutes, at 5 seconds interval.	
Systolic range	Adult	30 to 270 mmHg
	Pediatric	30 to 235 mmHg
	Neonatal	30 to 135 mmHg
Diastolic range	Adult	10 to 220 mmHg
	Pediatric	10 to 220 mmHg
	Neonatal	10 to 110 mmHg
Mean range	Adult	20 to 235 mmHg
	Pediatric	20 to 235 mmHg
	Neonatal	20 to 125 mmHg
Cuff pressure range	0 to 280 mmHg	
Pressure accuracy	Static: ±3 mmHg	
	Clinic: Average error ±5 mmHg, standard deviation: ≤8 mmHg	
PR range	40 bpm to 240 bpm	
Measurement time:	20s to 45s (depend on HR & moving interference)	
Software overpressure protection	Adult	(297±3) mmHg
	Pediatric	(252±3) mmHg
	Neonatal	(147±3) mmHg

SunTech NIBP (option)

Way of measurement	Oscillometric		
Measurement range	Adult	SYS	40~260 mmHg
		DIA	20~200 mmHg
		MAP	26~220 mmHg
Child	Pediatric	SYS	40~160 mmHg
		DIA	20~120 mmHg
		MAP	26~133 mmHg
Neonate	Neonatal	SYS	40~130 mmHg
		DIA	20~100 mmHg
		MAP	26~110mmHg
Pressure Accuracy	± 3 mmHg (± 0.4 kPa) or 2 % of the reading		
Pulse rate range	30 ~ 220 bpm		
Pulse Rate Accuracy	2% or 3 bpm, whichever is greater		
Overpressure Protect (Hardware & software)	Adult	<300 mmHg	
	Child	<300 mmHg	
	Neonatal	<150 mmHg	

BLT Digital SpO2

Measurement range	0% ~ 100%	
Resolution	1%	
Accuracy	70% ~ 100%	±2%
	0% ~ 69%	unspecified

Perfusion index

Measurement range	0.05% to 20%
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PR

Measurement range	20 bpm to 250 bpm
Resolution	1 bpm
Accuracy	±1% or ±1 bpm, whichever is the greater

Nellcor SpO2 (option)

Measurement range	0% to 100%
Resolution	0.01
Accuracy	70% to 100%: $\pm 2\%$ (adult/pediatric)
	70% to 100%: $\pm 3\%$ (neonate)
	0% to 69%, unspecified

Perfusion index

Measurement range	0.05% to 20%
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PR

Measurement range	20 bpm to 300 bpm
Accuracy	20 bpm to 250 bpm: ±3 bpm
	251 bpm to 300 bpm: unspecified
Resolution	1 bpm

Masimo SpO2 (option)

Measurement range	0% to 100%
Resolution	0.01
Accuracy	70% to 100% ±2% (adult/pediatric, non-motion)
	70% to 100% ±3% (neonate, non-motion)
	70% to 100% ±3%(motion conditions)
	0% to 69% unspecified

PR

Measurement range	25 bpm to 240 bpm
Accuracy	±3 bpm(non-motion conditions)
	±5 bpm(motion conditions)
Resolution	1 bpm

SpCO

Measurement range	0% to 100%
Accuracy	0% to 40%: ±3%(non-motion conditions)
	> 40%, unspecified

SpMet

Measurement range	0% to 100%
Accuracy	0% to 15% ±1%(non-motion conditions)
	> 15% unspecified

PI

Measurement range	0.05% to 20%
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SpHb

Measurement range	0 g/dl to 25 g/dl
Accuracy	8g/dl to 17g/dl: ±1g/dl (non-motion conditions)
	< 8 g/dl or > 17 g/dl, unspecified

SpOC

Measurement range	0 ml/dl to 35 ml/dl
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PVI

Measurement range	0% to 100%
Resolution	≤1%

Temperature

Standard	ISO80601-2-56
Measurement way	Thermal resistance way
Measurement range	0.0°C to 50.0°C(32°F to 122°F)
Accuracy	0.0°C-50.0°C: $\pm 0.1^{\circ}\text{C}$ (not including the probe) 25.0°C-45.0°C: $\pm 0.2^{\circ}\text{C}$ (including the probe)
Resolution	0.1°C or 1°F
Unit	°C or °F

IBP (option)

Standard	EN 60601-2-34 / IEC 60601-2-34
Sensitivity of transducer	5uV/V/ mmHg, $\pm 2\%$
Impedance of transducer	300 Ω to 3000 Ω
Static measurement range	-50 mmHg to +300 mmHg
Static measurement accuracy	± 1 mmHg or $\pm 2\%$ of the reading, whichever is the greater (exclusive of transducer) ± 4 mmHg or $\pm 4\%$ of the reading, whichever is the greater (inclusion of transducer)
Dynamic measurement range	-50 mmHg to +350mmHg
Dynamic measurement accuracy	± 4 mmHg or $\pm 4\%$ of the reading whichever is the greater
Resolution	1 mmHg
Unit	mmHg, kPa, cmH ₂ O
Frequency Response	0 Hz to 20 Hz
Kinds of Measurement	ART, PA, CVP, RAP, LAP, ICP, P1/P2

Sidestream CO₂ (option)

Measurement range	0.0 % to 13.1 % (0 mmHg to 99.6 mmHg)
Resolution	0.1% or 1mmHg
Unit	%, mmHg, kPa
Accuracy	0% to 4.9% ± 0.3 % (± 2.0 mmHg) 5.0% to 13.1% $< \pm 10$ % of the reading
Measurement range of awRR:	0 rpm to 150 rpm
Calibration	Offset calibration, auto/ manual; gain calibration
Alarm range	0.0~13.1%(0~99.6mmHg) , high/low limit can be adjusted continuously.

Mainstream CO₂ (option)

Warm up time	Capnogram displayed in less than 15s, at ambient temperature 25°C,full specifications within 2min.
Measurement range	0% to 19.7 %(0 mmHg to 150 mmHg)
Resolution	0.1% or 1mmHg
Rise time	< 60ms
Unit	%, mmHg, kPa
Accuracy	0 mmHg to 40 mmHg, ± 2 mmHg 41 mmHg to 70 mmHg, $\pm 5\%$ of reading 71 mmHg to 100 mmHg, $\pm 8\%$ of reading 101 mmHg to 150 mmHg, $\pm 10\%$ of reading (The temperature is 35°C)
awRR range	0 rpm to 150 rpm
awRR accuracy	± 1 rpm

MicroFlow CO₂ (option)

Warm up time	Capnogram displayed in less than 20s, At ambient temperature 25°C, full specifications within 2min.
Measurement range	0% to 19.7 %(0 mmHg to 150 mmHg)
Resolution	0.1% or 1 mmHg
Unit	%, mmHg, kPa

Accuracy	0 mmHg to 40 mmHg, ± 2 mmHg 41 mmHg to 70 mmHg, $\pm 5\%$ of reading 71 mmHg to 100 mmHg, $\pm 8\%$ of reading 101 mmHg to 150 mmHg, $\pm 10\%$ of reading
awRR range	2 rpm to 150 rpm
awRR accuracy	± 1 rpm
Sample flow rate	50 ml/min (~7.5mL/min ~ +15mL/min)

Mainstream AG (option)

Parameters	CO ₂ , N ₂ O, agent(ISO, ENF, SEV, HAL, DES)
Resolution	0.1%
Calibration	Zeroing recommend when chang airway adapter.
System response time	< 1s
Warm up time	Concentration are reported & automatic agent identification running in 10s,full accuracy in 20s.
Rise time	CO ₂ ≤ 90 ms N ₂ O ≤ 300 ms ISO, ENF, SEV,HAL,DES ≤ 300 ms (Flowing speed 10L/min)
Measurement range and accuracy of gas	
Gas	Range (%) Accuracy
CO ₂	0 to 15% $\pm (0.2\% + 2\%$ of reading)
N ₂ O	0 to 100% $\pm (2\% + 2\%$ of reading)
ISO, ENF, HAL	0 to 8% $\pm (0.15\% + 5\%$ of reading)
SEV	0 to 10% $\pm (0.15\% + 5\%$ of reading)
DES	0 to 22% $\pm (0.15\% + 5\%$ of reading)
awRR range	0 rpm to 150 rpm
awRR accuracy	± 1 rpm

Sidestream AG (option)

Sampling flow rate	50ml/min ± 10 ml/min
Parameters	CO ₂ , N ₂ O, O ₂ , agent (ISO,ENF,SEV,HAL,DES)
Compensations	Automatic compensation for pressure, temperature & broadening effects on CO ₂ .
Calibration	No span calibration is required for the IR bench. An automatic zero reference calibration is performed at startup & then 1~3 times perday.
Warm-up time	< 20s(Concentrations reported, automatic agent identification enabled and full accuracy)
Typical rise time	CO ₂ ≤ 300 ms N ₂ O, O ₂ ,ISO, ENF, SEV, DES ≤ 400 ms HAL ≤ 500 ms (at 50ml/min sample flow)
Measurement range and accuracy of gas :	
Gas	Range (%) Accuracy
CO ₂	0 to15% 0 to 15%: $\pm(0.2\%+2\%$ of reading) 15 to 25%: Unspecified
N ₂ O	0 to 100% $\pm(2\% + 2\%$ of reading)
HAL, ENF, ISO	0 to 25% 0 to 8%: $\pm(0.15\%+5\%$ of reading) 8 to 25%: Unspecified
SEV	0 to 25% 0 to 10%: $\pm(0.15\%+5\%$ of reading) 10 to 25%: Unspecifie
DES	0 to 25% 0 to 22%: $\pm(0.15\%+5\%$ of reading) 22 to 25%: Unspecified
O ₂	0 to 100% $\pm(1\% + 2\%$ of reading)
Agent identification time	<20s (typically <10s)
System response time	< 4s (with 2m Nomoline Airway Adapter Set sampling line)

Primary agent threshold 0.15%. When an agent is identified,
concentrations will be reported below 0.15%.

Second agent threshold 0.2 % +10% of total agent concentration

awRR range 0 rpm to 150 rpm

awRR accuracy ± 1 rpm

C.O. (option)

Measurement Mode	Thermal dilution method
Measurement Wave	Thermal dilution curve
Parameters	C.O., TB, TI,
Measurement Range	C.O. : 0.1 L/min ~ 20 L/min TB: 23.0 ~ 43.0°C TI: -1.0 ~ 27.0°C
Resolution	C.O.: 0.1 L/min TB: 0.1°C TI: 0.1°C
Accuracy	C.O.: 2% SD TB, TI: $\pm 0.1^\circ\text{C}$

Option Module:

2-IBP module, 2-Temp module, Masimo SpO2 Module, Nellcor SpO2 module, Suntech NIBP module, Sidestream CO2 module, MicroFlow CO2 module, Mainstream CO2 module, Mainstream AG module, Sidestream AG module, C.O. module.

Other options

Thermal Printer, Rolling stand, Wall mount, VGA, External Display, WIFI, Analog Output (ECG or IBP), Touch Screen(Q5/Q3).



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Q7/Q5/Q3/S-1808-eng-V1; Date: Aug. 2018

