



# Q5/Q3

Modular Patient Monitor



NEW

## Q5/Q3 Main Unit

### Size and Weight

- Size : 318mmX264mmX152mm
- Weight : ≤ 4.5kg
- Standard module slot: 2

#### Power supply

- Power Voltage: AC 100-240V 50/60Hz
- Input Current: 1.1~0.5A
- Safety class: Category I

#### Display

- Q5 : 12.1"/Q3:10.4" Color TFT-LCD
- Resolution : 800X600 pixels

#### Battery

- Type: Rechargeable Lithium battery, 11.1V/4.0AH
- Operating time under the normal use and full charge : ≥210minutes

#### Recorder (Option)

- Method : Thermal dot array
- Paper width : 50 mm (1.97 in)
- Paper length: 15m
- Paper Speed : 12.5 / 25 / 50 (mm/sec)
- Traces : Maximum 3 tracks
- Recording way : Real-time recording, Periodic recording, Alarm recording

#### Alarm

- Level : Low, medium and high
- Indication : Auditory and visual
- Patient Physiological Alarm Light color: Yellow & Red;
- Equipment Technical Alarm Light color: Blue
- Supports Pitch Tone and multi-level volume;

#### Input device

- Touch screen:standard config
- Knob:standard config
- Mouse input:Support
- Keyboard input:Support

#### System Output & Extensible Interfaces

- Ethernet Network: 1 Standard RJ45 socket
- Defibrillation Output:1 BNC connector
- Nurse Call: 1 RJ11 connector
- Video Output : 1 VGA port
- USB1.1 port : 2
- SD memory card : 2G (Option)
- Analog Output (ECG or IBP) : Option

#### Trend & Reviewing :

- Trend : Long trend:168h,minimum resolution is 1min (store when power goes off)  
High resolution trend:2h, minimum resolution is 5s
- NIBP measurement reviewing : 1000 groups
- ARR event: 128 groups of ARR event and the associated waveform.
- Alarm events:128 groups of parameter alarm events and associated parameter waveform at the alarm moment
- Full Disclosure waveform: 96hours for 3 waveforms(with 4G SD card)

#### Environment

- Operating temperature:0℃ ~ +40℃
- Storage temperature:-20℃ ~ +50℃
- Operating humidity:15% to 85% non condensing
- Storage humidity:10% to 93% non condensing
- Operating atmospheric pressure: 860hPa to 1060hPa
- Storage atmospheric pressure:500hPa to 1060hPa

#### Safety:

- IEC60601-1 Approved, CE marking according to MDD93/42/EEC

### Performance:

#### ECG

- Lead Mode : 3-leads ECG input  
5-leads ECG input  
12-leads ECG input
- Lead selection : I, II, III  
I, II, III, aVR, aVL, aVF, V-  
I, II, III, aVR, aVL, aVF, V1~V6 (option)
- Gain : 2.5 mm/mV(x0.25), 5 mm/mV(x0.5), 10 mm/mV(x1),  
20 mm/mV (X2),40mm/mV(x4),Auto
- CMRR : Monitor mode≥105dB  
Surgery mode ≥105dB  
Diagnostic mode≥90dB
- Frequency response (-3dB):  
Monitor mode 0.5~40Hz  
Surgery mode 1~25Hz  
Diagnostic mode 0.05~150Hz
- Input impedance : ≥5.0 Mohm
- ECG signal range : ± 10.0mV
- Electrode offset potential: ± 500mV
- Patient Leakage Current : <10 uA
- Standardizing signal :1 mV ± 5%
- Baseline recovery : <5s after Defibrillation. (Mon or Surg mode)
- Indication of electrode separation : Every electrode (exclusive of RL)
- Protection: Breakdown Voltage 4000VAC 50/60Hz; defibrillator proof
- Sweep speed : 12.5mm/s, 25mm/s, 50mm/s

#### HR

- Range : Adult 10~300 bpm  
Pediatric & Neonate: 10 ~350bpm

- Refreshing time : ≤50 bpm Per 2 pulses  
50~120bpm Per 4 pulses  
≥120bpm Per 6 pulses

- Resolution : 1 bpm
- Accuracy : ± 1% or ± 1bpm, whichever is greater

#### ST segment

- Measurement range : -2.0mV~2.0mV
- Accuracy: -0.8mV~0.8mV ; ± 0.02mV or ± 10%, whichever is greater  
Over ±0.8mV: unspecified
- Resolution : 0.01mV

#### RESP

- Method : Thoracic impedance
- Lead Selected from: I (RA-LA) or II (RA-LL); Default: I
- Gain : x0.25, x1, x2, x4
- Bandwidth: 0.25 Hz to 2.0Hz (-3dB)
- Sweep speed : 6.25mm/s, 12.5mm/s, 25mm/s
- Measurement Range : 0~150 rpm
- Resolution : 1 rpm
- Accuracy : ± 2rpm or ± 2%, whichever is greater
- Delay of Apnea Alarm : 10s,15s,25s,30s,35s,40s,45s,50s,55s, 60s

#### NIBP

- Way of measurement : Automatic oscillometry
- Range of measurement :
- Adult : SYS 30~270 mmHg  
DIA 10~220 mmHg  
MAP 20~235 mmHg
- Child: SYS 30~235 mmHg  
DIA 10~220 mmHg  
MAP 20~225 mmHg
- Neonate: SYS 30~135 mmHg  
DIA 10~100 mmHg  
MAP 20~125 mmHg
- Cuff pressure range : 0~300 mmHg
- Resolution : 1 mmHg
- Pressure Accuracy : Static : ± 2% or ± 3mmHg, whichever is greater  
Clinical : ± 5 mmHg average error  
standard deviation : ≤8 mmHg
- Unit: mmHg, kPa
- Measurement mode:Manual, Auto, STAT
- Intervals for AUTO measurement time : 1,2,3,4,5,10,15,30,60,90 minutes;  
2,4,8,12hours
- STAT mode cycle time : Keep 5 minutes, at 5 seconds interval.
- Overpressure Protection : Hardware and software double protections
- Pulse rate range : 40 ~ 240 bpm

#### BLT-SpO<sub>2</sub> (Digital Technic)

- Measurement Range : 0~100%
- Resolution: 1%
- Accuracy: At 70~100%, ±2%  
At 40~69%, ±3%  
At 0~39%, unspecified

#### PR

- Measurement Range : 25~254 bpm
- Resolution : 1 bpm
- Accuracy : ± 1% or ± 1 bpm, whichever is greater

#### Nellcor-SpO<sub>2</sub> (option)

- Measurement Range : 0~100%
- Resolution : 1%
- Accuracy : At 70~100%, ±2% (Adult/Pediatric)  
At 70~100%, ±3% (Neonate)  
At 0~69%, unspecified

#### PR

- Measurement Range : 20~300 bpm
- Resolution : 1 bpm
- Accuracy : 20bpm to 250bpm: ± 3 bpm  
251bpm to 300bpm: unspecified

#### Masimo SpO<sub>2</sub> (option)

- Measurement range:0% to 100%
- Resolution: 1%
- Accuracy: 70% to 100% ± 2% Adult/pediatric, non-motion conditions  
70% to 100% ± 3% Neonate, non-motion conditions  
70% to 100% ± 3% Motion conditions  
0% to 69% unspecified
- Average time: 2-4s, 4-6s, 8s, 10s, 12s, 14s, 16s

#### PR

- Measurement range:25 bpm to 240 bpm
- Accuracy : ± 3bpm Non-motion conditions  
± 5bpm motion conditions
- Resolution:1 bpm

#### TEMP

- Max Channel : 6
- Measurement way : Thermal resistance way
- Measurement Range : 0.0℃ ~ 50.0℃ (32°F~122°F)
- Accuracy : ±0.1℃ or ±1°F (exclusive of probe)
- Resolution : 0.1℃ or 1°F
- Unit : Celsius (℃), Fahrenheit (°F)

#### IBP

- Max Channel : 6
- Measurement way : Directly invasive pressure measurement
- Sensitivity of transducer: 5uV/V mmHg, ± 2%
- Impedance of transducer: 300 to 3000Ω

- Measurement Range : -50 ~ +350 mmHg
- Resolution : 1mmHg
- Unit : mmHg, kPa,cmH2O

- Accuracy : Static: ±1mmHg or 2%, whichever is greater (exclusive of transducer)  
±4mmHg or 4%, whichever is greater (inclusive of transducer)  
Dynamic : ±4mmHg or 4%, whichever is greater
- Transducer sites : Arterial Pressure (ART)  
Pulmonary Artery Pressure (PA)  
Left Atrium Pressure (LAP)  
Right Atrium Pressure (RAP)  
Central Venous Pressure (CVP)  
Intracranial Pressure (ICP)  
P1/P2

- Selection of measurement range : ART : 0 ~ +350mmHg  
PA : -10 ~ +120 mmHg  
CVP/RAP/LAP/ICP: -10 ~ +40 mmHg  
P1/P2 : -50 ~ +350 mmHg

#### EtCO<sub>2</sub> (Sidestream)

- Measurement method : Infrared spectrum
- Measurement Range : 0.0~13.1% (0~99.6 mmHg)
- Resolution : 1 mmHg
- Unit : % mmHg, kPa
- Accuracy : 0% to 4.9% ± 0.3% ( ± 2mmHg)  
5.0% to 13.1%, < ± 10% of reading
- Measurement range of awRR : 3~150 rpm
- Calibration: Offset calibration: auto, manual, Gain calibration

#### EtCO<sub>2</sub> (Mainstream)

- Measure method : Infrared spectrum
- Warm up time : Capnogram displayed in less than 15 seconds, At an ambient temperature of 25℃, full specifications within 2 minutes.
- Measurement Range : 0.0~19.7% (0~150 mmHg)
- Resolution : 1 mmHg
- Rise time (10 l/min) : ≤ 60 ms
- Unit : % mmHg, kPa
- CO<sub>2</sub> Accuracy : 0 - 40 mmHg, ± 2mmHg  
41 - 70 mmHg, ± 5% or reading  
71 - 100 mmHg, ± 8% or reading  
101 - 150 mmHg, ± 10% of reading  
(at 760 mmHg, ambient temperature of 35℃)
- awRR measurement range: 0~150 rpm
- awRR measurement Accuracy: ± 1 rpm

#### EtCO<sub>2</sub> (Microstream)

- Measure method : Infrared spectrum
- Warm up time : Capnogram displayed in less than 20 seconds, At an ambient temperature of 25℃, full specifications within 2 minutes.
- Measurement Range : 0 ~ 19.7%(0~150mmHg)
- Resolution : 1mmHg
- Unit : %, mmHg, kPa
- CO<sub>2</sub> Accuracy : 0 - 40 mmHg, ± 2mmHg  
41 - 70 mmHg, ± 5% of reading  
71 - 100 mmHg, ± 8% of reading  
101 - 150 mmHg, ± 10% of reading  
(at 760 mmHg, ambient temperature of 25℃)  
(when Rr >80 rpm, all the range is ± 12% or reading)
- CO<sub>2</sub> response time : < 3s
- awRR measurement range 2~150 bpm
- awRR measurement Accuracy : ± 1rpm
- Sample Flow Rate 50 ml/min ± 10ml/min

#### Anesthetic Gas

- Measure method : Infrared spectrum
- Measure mode : Mainstream or Sidestream
- Fi and Et values : CO<sub>2</sub> N<sub>2</sub>O O<sub>2</sub> AG (HAL, ISO, ENF, SEV, DES)
- Resolution : 1%
- Unit : %
- Calibration : Room air calibration performed automatically when changing airway adapter (<5 sec)
- Warm-up time : <10 s, full accuracy within 1 min
- Measurement and alarm range of AG:

- | Gas              | Range  | Accuracy             |
|------------------|--------|----------------------|
| Co <sub>2</sub>  | 0-10%  | ± (0.3%ABS+4% REL)   |
| N <sub>2</sub> O | 0-100% | ± (2% ABS+5% REL)    |
| O <sub>2</sub>   | 0-100% | ± (2% ABS+2% REL)    |
| HAL, ISO, ENF    | 0-5%   | ± (0.2% ABS+10% REL) |
| SEV              | 0-8%   | ± (0.2% ABS+10% REL) |
| DES              | 0-18%  | ± (0.2% ABS+10% REL) |

- awRR measurement range : 0~150 rpm
- awRR measurement Accuracy : ± 1 rpm
- Rise time (flowing speed 10 l/min) CO<sub>2</sub> ≤ 90 ms  
O<sub>2</sub> ≤ 300 ms  
N<sub>2</sub>O ≤ 300 ms  
Hal, Iso, Enf, Sev, Des ≤ 300 ms

- Total system response time : < 1 seconds

#### C.O.

- Measurement Mode: Thermal dilution method
- Measurement Wave: Thermal dilution curve
- Measurement parameters: C.O., TB, TI, C.I.
- Measurement Range:C.O.: 0.1 L/min ~ 20 L/min  
TB: 23.0 ~ 43.0℃  
TI: -1.0 ~ 27.0℃
- Resolution :C.O.: 0.1 L/min  
TB: 0.1℃  
TI: 0.1℃
- Accuracy:C.O.: 2% SD TB.TI:±0.1℃
- TB Alarm range:23.0~43.0℃, high/low limit can be adjusted continuously

### Standard configuration:

Mainunit: Q5 : 12.1"/Q3:10.4" TFT-LCD display, 2 Standard module slot, Touch Screen, 1 RJ45 ethernet socket, 1 Defibrillation Output, 1 Nurse Call socket, 1 VGA port, 2 USB1.1 port, 1 Lithium rechargeable battery.

### Option:

Option Module: Sidestream CO<sub>2</sub> Module, Microstream CO<sub>2</sub> module, Mainstream CO<sub>2</sub> module, AG module, C.O. module, IBP module, Temp module, Masimo SpO<sub>2</sub> module, Nellcor SpO<sub>2</sub> module.  
 Navigating: USB compatible mouse and keyboard.  
 Printing: 3 channel thermal recorder  
 Mounting: Rolling stand, wall mount  
 Battery: 11.1V/4.0AH Rechargeable Lithium Battery.  
 Other options: External Display, Wireless Lan, Extensive Memory card, Analog Output (ECG or IBP)



\*Specifications subject to change without prior notice.

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