



## MONITEUR MULTIPARAMETRES MODULAIRE M6

# AcuitSign M6

## Modular Patient Monitor



- 14.1" High Resolution TFT Display with Full Touch Screen option;
- With powerful functionality, flexible configuration on unique modular design;
- Exceptional visibility and usability at the bedside or during transport/transfer.
- High-end Parameters: 4-Temp, 6-IBP, EtCO2, AG, ICG, SD Memory Card;
- Powerful Data Review up to 168 hours of graphic & numeric data review
- Up to 12 channels of waveforms with various layouts;
- Built-in 3-trace recorder offers convenient documentation;



## AcutiSign M6 Main Unit

### Size and Weight

- Size: 422mm×213mm×362mm
- Weight:  $\approx$  11kg
- Standard module slot: 4
- Additional module rack Slot: 1

### Power supply

- Power Voltage: AC 100-240V 50/60Hz
- Power Input:  $\approx$  150VA
- Input Current: 1.7~0.8V
- Safety class: Category I

### Display

- 14.1" Color Anti-glare TFT-LCD
- Resolution: 1280×800 pixels

### Battery (Option)

- Type: Rechargeable Lithium battery, 11.1V/4.0AH
- Operating time under the normal use and full charge:  $\approx$  60minutes
- (2 batteries for 120 minutes)

### Recorder (Option)

- Method: Thermal dot array
- Paper width: 50mm(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;
- Supports custom arrhythmia tone

### Input device

- Touch screen (Option)
- knob: standard config
- Mouse input: Support
- Keyboard input: Support

### System Output & Extensible Interfaces

- Ethernet Network: 2 Standard RJ45 socket
- Defibrillation Output: 1 RJ11 socket
- Nurse Call: 1 BNC socket
- Video Output: 1 DVI port, 1VGA port
- USB 1.1 port: 6
- Auxiliary Module Rack connector: 1
- SD memory card: 2G (standard config)
- Analog Output (ECG or IBP): Option

### Trend & Reviewing

- Trend: 168 hours
- 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
- Holographic waveform: The storage time depends on the stored waveforms and the quantity of them.

### Environment

- Operating temperature: 0~+40℃
- Storage temperature: -20℃ to +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, aVR, aVL, aVF, V1, V2, V3, V4, V5, V6 (option)
- Gain: 2.5mm/mV( $\times 0.25$ ), 5mm/mV( $\times 0.5$ ), 10mm/mV( $\times 1$ ), 20mm/mV( $\times 2$ ), 40mm/mV( $\times 4$ ), Auto
- CMRR: Monitor mode  $\approx$  105dB
- Surgery mode  $\approx$  105dB
- Diagnostic mode  $\approx$  90dB
- Frequency response(-3dB): Monitor mode 0.5~40Hz
- Surgery mode 1~25Hz
- Diagnostic mode 0.05~150Hz
- input impedance:  $\approx$  5.0Mohm
- ECG signal range:  $\pm 10.0$ mV
- Electrode offset potential:  $\pm 500$ mV
- Patient Leakage Current:  $< 10$ uA
- Standardizing signal: 1mV $\pm 5\%$
- Baseline recovery:  $< 5$ s after Defibrillation (Mon or Surg mode)
- Indication of electrode separation: Every electrode(exclusive of RL)
- Protection: Breakdown Voltage 4000AVC 50/60Hz; defibrillator proof
- Sweep speed: 12.5mm/s, 25mm/s, 50mm/s

#### HR

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

- Refreshing time:  $\approx$  50 bpm Per 2 pulses
- 50~120bpm per 4 pulses
- $\approx$  120bpm per 6 pulses
- Resolution: 1bpm
- Accuracy:  $\pm 1\%$  or  $\pm 1$ bpm, whichever is greater

#### ST segment

- Measurement range: -2.0mV~2.0mV
- Accuracy: -0.8mV~0.8mV:  $\pm 0.02$ mV or  $\pm 10\%$  whichever is greater
- Over  $\pm 0.8$ mV: unspecified
- Resolution: 0.01mV

#### RESP

- Method: Thoracic impedance
- Lead Selected from: I (RA-LA) or II (RA-LL); Default: I
- Gain:  $\times 0.25, \times 1, \times 2, \times 4$
- Bandwidth: 0.25Hz to 2.0Hz (-3dB)
- Sweep Speed: 6.25mm/s, 12.5mm/s, 25mm/s
- Measurement Range: 0~150 rpm
- Resolution: 1rpm
- Accuracy:  $\pm 2$ rpm 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 30~270mmHg
- DIA 10~220mmHg
- MAP 20~235mmHg
- Child: SYS 30~235mmHg
- DIA 10~220mmHg
- MAP 20~225mmHg

- Neonate: SYS 30~135mmHg
- DIA 10~100mmHg
- MAP 20~125mmHg

- Cuff pressure range: 0~300mmHg
- Resolution: 1mmHg
- Pressure Accuracy: Static:  $\pm 2\%$  or  $\pm 3$ mmHg, whichever is greater
- Clinical:  $\pm 5$ mmHg average error
- Standard deviation:  $\approx 8$ mmHg
- Unit: mmHg, kPa
- Measurement mode: Manual, Auto, STAT
- Intervals for AUTO measurement: 1, 2, 3, 4, 5, 10, 15, 30, 60, 90 minutes; 2, 4, 8, 12 hours
- STAT mode cycle time: keep 5 minutes, at 5 seconds interval.
- Overpressure Protection: Hardware and software double protections
- Pulse rate range: 40~240bpm

#### Standard SpO2 (Digital)

- Measurement Range: 0~100%
- Resolution: 1%
- Accuracy: A170~100%:  $\pm 2\%$
- A10~69%: unspecified

#### PR

- Measurement Range: 25~255bpm
- Resolution: 1bpm
- Accuracy:  $\pm 1\%$  or  $\pm 1$ bpm, whichever is greater

#### Nellcor-SpO2

- Measurement Range: 0~100%
- Resolution: 1%
- Accuracy: A170~100%:  $\pm 2\%$  (Adult)
- A170~100%:  $\pm 3\%$  (Neonate)
- A170~100%:  $\pm 2\%$  (Low Perfusion)
- A10~69%: unspecified

#### PR

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

#### Masimo-SpO2

- Measurement Range: 0% to 100%
- Resolution: 1%
- Accuracy: 70% to 100%:  $\pm 2\%$  (adult/pediatric, non-motion conditions)
- 70% to 100%:  $\pm 3\%$  (neonate, non-motion conditions)
- 70% to 100%:  $\pm 3\%$  (motion conditions)
- 0% to 69%: unspecified
- Average time: 2-4s, 4-6s, 8s, 10s, 12s, 14s, 16s

#### PR

- Measurement Range: 25bpm to 24bpm
- Accuracy:  $\pm 3$ bpm (non-motion conditions)
- $\pm 5$ bpm (motion conditions)
- Resolution: 1bpm

#### TEMP

- Max Channel: 8
- Measurement way: Thermal resistance way
- Measurement Range: 0.0℃~50.0℃ (32℉~122℉)
- Accuracy:  $\pm 0.1$ ℃ or  $\pm 1$ ℉ (exclusive of probe)
- Resolution: 0.1℃ or 1℉
- Unit: Celsius(℃), Fahrenheit(℉)
- Connecting cable: Compatible with YSI-400 serial

#### IBP

- Max Channel: 8
- Measurement way: Directly invasive pressure measurement
- Sensitivity of transducer: 5uV/V/mmHg,  $\pm 2\%$
- Impedance of transducer: 300 to 3000Ω

- Measurement Range: -50~+350mmHg
- Resolution: 1mmHg
- Unit: mmHg, kpa, cmH2O
- Accuracy:
  - Static:  $\pm 1$ mmHg or  $\pm 2\%$ , whichever is grater(exclusive of transducer)
  - $\pm 4$ mmHg or  $\pm 4\%$ , whichever is grater(inclusion of transducer)
  - Dynamic:  $\pm 4$ mmHg or 4%, whichever is grater
  - 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~+120mmHg
  - CVP/RAP/LAP/ICP: -10~+40mmHg
  - P1/P2: -50~+350mmHg

#### ETCO2(Sidestream)

- Measure method: Infrared spectrum
- Measure Range: 0.0~13.1%(0~99.6mmHg)
- Resolution: 1mmHg
- Unit: %mmHg,kpa
- Accuracy: 0% to 4.9%:  $\pm 0.3\%$  ( $\pm 2.0$ mmHg)
- 5.0% to 13.1%:  $\pm 10\%$  of the reading
- Measurement range of awRR: 3~150rpm
- Calibration: Offset calibration: auto, manual, Gain calibration

#### ETCO2(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.
- Measure Range: 0.0~19.7%(0~150mmHg)
- Resolution: 1mmHg
- Rise time(10l/min):  $\approx 60$ ms
- Unit: %mmHg,kpa
- CO2 Accuracy: 0-40mmHg,  $\pm 2$ mmHg
- 41-70mmHg,  $\pm 5\%$  of reading
- 71-100mmHg,  $\pm 8\%$  of reading
- 101-150mmHg,  $\pm 10\%$  of reading
- (at 760 mmHg, ambient temperature of 35℃)
- awRR measurement range: 0~150rpm
- awRR measurement Accuracy:  $\pm 1$ rpm

#### ETCO2(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.
- Measure Range: 0.0-19.7%(0-150mmHg)
- Resolution: 1mmHg
- Unit: %mmHg,kpa
- CO2 Accuracy: 0-40mmHg,  $\pm 2$ mmHg
- 41-70mmHg,  $\pm 5\%$  of reading
- 71-100mmHg,  $\pm 8\%$  of reading
- 101-150mmHg,  $\pm 10\%$  of reading
- (At 760 mmHg, ambient temperature of 25℃)
- (When RR>80 rpm, all the rang is  $\pm 12\%$  of reading)
- CO2 response time:  $< 3$ S
- awRR measurement range: 2~150rpm
- awRR measurement Accuracy:  $\pm 1$ rpm
- Sample Flow Rate: 50ml/min  $\pm$  10ml/min

#### Multi Gas

- Measure method: Infrared spectrum
- Fi and ET values: CO2, N2O, O2, AG(HAL, ISO, NEF, SEV, DES)
- Resolution: 1%
- Unit: %
- Calibration: Room air calibration automatically when changing aieway Adapter ( $< 5$  sec)
- Warm-up time:  $< 10$ S, full accuracy within 1min
- Measurement and alarm range of AG
- Gas Range Accuracy
- CO2 0-10%  $\pm (0.3\% \text{ ABS} + 4\% \text{ REL})$
- N2O 0-100%  $\pm (2\% \text{ ABS} + 8\% \text{ REL})$
- O2 10-100%  $\pm (2\% \text{ ABS} + 2\% \text{ REL})$
- HAL, ISO, ENF 0-5%  $\pm (0.15\% \text{ ABS} + 10\% \text{ REL})$
- SEV 0-8%  $\pm (0.15\% \text{ ABS} + 10\% \text{ REL})$
- DES 0-18%  $\pm (0.15\% \text{ ABS} + 10\% \text{ REL})$
- awRR measurement range: 0~150rpm
- awRR measurement Accuracy:  $\pm 1$ rpm
- Rise time(flowing speed 10l/min) CO2  $\approx 90$ ms
- O2  $\approx 300$ ms
- N2O  $\approx 300$ ms
- Hal, Iso, Enf, Sev, Des  $\approx 300$ ms
- Total system response time:  $< 1$ seconds

#### Noninvasive Cardio Output (ICG):

- Method: Measurement of thoracic electrical bioimpedance
- Measurement Range: HR: 40~250bpm
- SV: 5~250ml
- SI: 5~125ml/m2
- C.O.: 1.4~15L/min
- TFC: 15~143KΩ
- Accuracy: HR  $\pm 2$ bpm
- SV: unspecified
- C.O unspecified
- Alarm range: C.L.: 0.0L/min/m2 to 15.0 L/min/m2 continuously adjustable
- TFC: 10/KΩ to 150/KΩ continuously adjustable.

### Standard Configuration of AcutiSign M6:

Main unit: 14.1" Anti-glare TFT-LCD display, 4 Standard module slot, 1 Additional module rack Slot (for EMS all-in-one module), 2 RJ45 internet socket, 1 Defibrillation Output, 1 Nurse Call socket, 1 DVI port, 1VGA port, 6 USB 1.1 port, 1 Auxiliary Module Rack connector, 2G SD memory card.

### Option of AcutiSign M6:

EMS module: 8 Kinds of option  
 Option Module: Sidestream CO2 module, Microstream CO2 module, Mainstream CO2 module, AG module, ICG module, IBP module, Temp module, spO2 module  
 Module Rack: Auxiliary Module Rack  
 Navigating: USB compatible mouse and keyboard.  
 Printing: 3channel thermal recorder  
 Mounting: Rolling stand, Wall mount  
 Battery: 11.1V/4.0AH Rechargeable Lithium Battery (max 2 pcs),  
 Other options: External Display, Wireless Lan, Extensive Memory card, Analog Output (ECG or IBP)