SINOHERO

深圳市中豪生物电子有限公司
Sino-Hero(Shenzhen) Bio-Medical Electronics Co., LTD.

AcuitSign M8
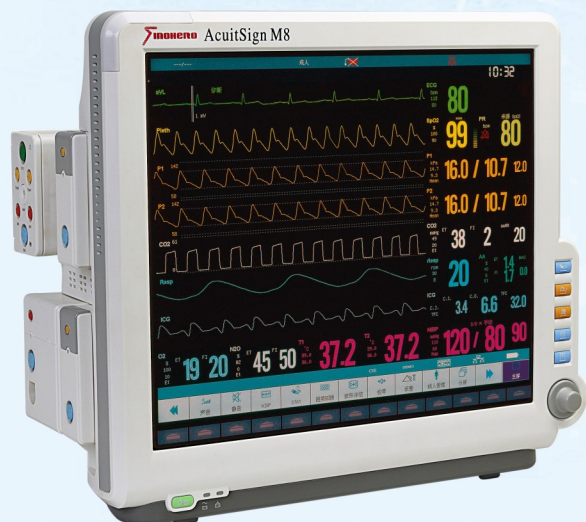## Modular Patient Monitor

NEW Features:

- 17" LCD High Resolution Display with Full Touch Screen option
- Unique Multi-measurement & Transport Module Design
- Advanced Modular Design with powerful Networking
- High-end Parameters: BIS, CO, 8-Temp, 8-IBP, EtCO2, AG, etc.
- Powerful Data Review with 168 hours of graphic & numeric data review
- Up to 12 channels of waveform with various screen layout
- Ultra Quiet Design suitable for night-time operation

Feature highlight:
Multi-measurement module EMS & MMS, small in Size, big in Capacity:

- 3.5" full-touch color display and wireless networking come with the EMS Module
- Difference parameter configuration enables continuous monitoring of patient
- To ensure seamless information workflow
- Multi-measurement Server

Main unit of AcuitSign M8

- Display: 17" Anti-glare TFT-LCD display
- Touch Screen: 13 Touch buttons and Full Touch Screen option
- 4 Standard module slot, 1 Additional module rack slot (for EMS/MMS all-in-one module), 2 RJ45 internet socket, 1 Defibrillation Output, 1 Nurse Call socket, 1 DVI port, 1 VGA port, 6 USB1.1 port, 1 Auxiliary Module Rack connector, 2G SD memory card, 1 Lithium battery (11.1V 4.0Ah).

Module Option

- EMS/MMS Module: 12 types
- Other Modules:
  Sidestream EtCO2 module, Mircostream EtCO2 module, Mainstream EtCO2 module, AG module, IBP module, TEMP module, Nellcor SpO2 module, Masimo SpO2 module BIS module, CO module

Suitable for

- OR, ICU (EMS: Transfer/Transport)

MMS Module   **EMS Module**

EMS Charging Stand

EMS/MMS module list:

	RESP	2-TEMP	NIBP	SpO2	Nellcor SpO2	Masimo SpO2	3/5 lead ECG	12 lead ECG	2-IBP
EMS/MMS1	√	√	√	√			√		√
EMS/MMS2	√	√	√	√				√	√
EMS/MMS3	√	√	√	√			√		
EMS/MMS4	√	√	√	√				√	
EMS/MMS5	√	√	√		√		√		√
EMS/MMS6	√	√	√		√			√	√
EMS/MMS7	√	√	√		√		√		
EMS/MMS8	√	√	√		√			√	
EMS/MMS9	√	√	√			√	√		√
EMS/MMS10	√	√	√			√		√	√
EMS/MMS11	√	√	√			√	√		
EMS/MMS12	√	√	√			√		√	

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TECHNICAL SPECIFICATION: —————— AcuitSign M8

Size and Weight
- Size:434mm×389mm×206mm
- Weight:≦11kg
- Standard module slot:4
- Additional module rack Slot:1

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

Display
- 17″ Color Anti-glare TFT-LCD
- Resolution:1280×1024 pixels

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

Recorder
- 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 button: standard config, support operation of shortcut menu.
- 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
- USB1.1 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 humisity:15%to85%(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
  Ⅱ,Ⅲ,aVR,aVL,aVF,V-
  Ⅰ,Ⅱ,Ⅲ, aVR,aVL,aVF,V1～V6(option)
- Gain: 2.5mm/mV(×0.25), 5mm/mV(×0.5), 10mm/mV(×1),
  20mm/mV(×2), 40mm/mV(×4),Auto
- CMRR: Monitor mode≧105dB
  Surgery mode≧105dB
  Diagnostic mode≧90dB
- Frequency response(-3d B):
  Monitor mode 0.5～40Hz
  Surgery mode 1～25Hz
  Diagnostic mode 0.05~150Hz
- input impedance: ≧5.0Mohm
- ECG signal range:±10.0mV
- Electrode offset potential: ±500mV
- Patient Leakage Current:<10uA
- Standardizing signal:1mV±5%
- Baseline recovery:<5s 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:≦50 bpm Per2 pulses
  50～120bpm per 4 pulses
  ≧120bpm per 6 pulses
- Resolution: 1bpm
- 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:×0.25, ×1, ×2, ×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: ±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 30～270mmHg
  　　　　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:±2% or ±3mmHg,whichecer is greater
  Clinical: ±5mmHg average error
  Standard deviation: ≦8mmHg
- 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:40～240bpm

Standard SpO2〈Digital〉
- Measurement Range:0～100%
- Resolution:1%
- Accuracy: At70～100%,±2%
  At0～69%,unspecified

PR
- Measurement Range:25～255bpm
- Resolution:1bpm
- Accuracy: ±1% or ±1bpm,whichever is greater

Nellcor-SpO2
- Measurement Range:0～100%
- Resolution:1%
- Accuracy:At70～100%:±2%(Adult)
  At70～100%:±3%(Neonate)
  At70～100%:±2%(Low Perfusion)
  At0～69%,unspecified

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

Masimo-SpO2
- 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:25bpm to 240bpm
- Accuracy: ±3bpm(non-motion conditions)
  ±5bpm(motion conditions)
- Resolution:1bpm

TEMP
- Max Channel:8
- Measurement way: Thermal resistance way
- Measurement Range: 0.0℃～50.0℃(32℉～122℉)
- Accuracy: ±0.1℃ or ±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, ±2%
- Impedance of transducer: 300 to 3000Ω
- Measurement Range: -50～+350mmHg
- Resolution: 1mmHg
- Unit: mmHg, kpa, cmH2O
- Accuracy:
  Static: ±1mmHg or ±2%, whichever is grater(exclusive of transducer)
  　　　 ±4mmHg or ±4%, whichever is grater(inclusion of transducer)
  Dynamic: ±4mmHg 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%,±0.3%(±2.0mmHg)
  5.0%to 13.1%,<±10%of the reading
- Measurement range of awRR:3～150rpm
- Calibration: Offset calibration:auto,manual,Gain calibration

EtCO2(Mainstream)
- Measure method: Infrared s pctrum
- 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):≦60ms
- Unit: %,mmHg,kpa
- CO2 Accuracy:0-40mmHg, ±2mmHg
  41-70mmHg, ±5% of reading
  71-100mmHg, ±8% of reading
  101-150mmHg, ±10% of reading
  (at 760 mmHg,ambient temperature of 35℃)
- awRR measurement range:0～150rpm
- awRR measurement Accuracy: ±1rpm

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, ±2mmHg
  41-70mmHg, ±5% of reading
  71-100mmHg, ±8% of reading
  101-150mmHg, ±10% of reading
  (At 760 mmHg,ambient temperature of 25℃)
  (When RR>80 rpm, all the rang is ±12% of reading)
  CO2 res ponse time: <3S
- awRR measurement range:2～150rpm
- awRR measurement Accuracy: ±1rpm
- Sample Flow Rate:50ml/min ±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 airway
  Adapter (<5 sec)
- Warm-up time:<10S,full accuracy within 1min
- Measurement and alarm range of AG

Gas	Range	Accuracy
CO2	0-10%	±(0.3% ABS+4%REL)
N2O	0-100%	± (2% ABS+ 8%REL)
O2	10-100%	±(2% ABS+2%REL)
HAL,ISO,ENF	0-5%	±(0.15% ABS+10%REL)
SEV	0-8%	±(0.15% ABS+10%REL)
DES	0-18%	±(0.15% ABS+10%REL)

- awRR measurement range: 0～150rpm
- awRR measurement Accuracy: ±1rpm
- Rise time(flowing speed 10l/min)CO2≦90ms
  O2≦300ms
  N2O≦300ms
  Hal,Iso,Enf,Sev,Des≦300ms
- Total system response time :<1seconds

BIS
- More details please refer to BIS specification

CO
- More details please refer to CO specification

Mainunit of AcuitSign M8:

Mainunit:17″Anti-glare TFT-LCD display,4 Standard module slot,1Additional module rack Slot(for EMS/MMS all-in- one module),13 Touch buttons,2RJ45 internet socket,1 Defibrillation Output,

1 Nurse Call socket,1DVI port,1VGA port,6 USB1.1 port,1 Auxiliary Module Rack connector,2G SD memory card, 1 Lithium battery (11.1V 4.0Ah).

Option of AcuitSign M8:

Option Module: 12 types of EMS modules,12 types of MMS modules, Sidesteam CO2 module, Microstream CO2 module, Mainstream CO2 module, AG module,
IBP module, Temp module, Nellcor SpO2 module, Masimo SpO2 module, BIS module,CO module
Module Rack: Auxiliary Module Rack
Navigating: USB compatible mouse and keyboard.
Printing: 3 Channel thermal recorder
Mounting: Rollin gstand, 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), Full Touch Screen, EMS Charging Stand , HL7 Output

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