SM-PM06 Multi-parameter Patient Monitor (12.1 inches)

Technical Data Sheet - Release V1.0

The SM-PM06 patient monitor is designed to match the pace and unique needs of adult, pediatric, and neonatal intensive care; anesthesia and peri-operative care; OR and cardiac care environments. Pacemaker detection and Arrhythmia analysis..

An optional **USB Mouse/Keyboard control** eases navigation and data entry.

Humane fashion design and handle of humanized **integration design**, easy to carry.

Designed without fan, characterized with no noise and **lower consumption**.

Features

Core
- Newly advanced A9 main board with Linux OS, calculating speed is 4 times faster than traditional products

- Support **storage** of 2160 hours trend table and graph review, 2 hours waveform review, 2000 groups NIBP review and 2000 alarm events review

Body
- **12.1 inch** high-brightness TFT **LED**
- Support display **9~12 waveforms**
- Support **7 channel** ECG waveform display
- Optional **touch screen**

Printer
- Built-in high-speed 50mm thermal printer (Brand: SEIKO, Japan)

Central System
- Support wired/wireless connection to the central monitoring station.

Alarm
- Three-level acousto-optic alarm
- Sensor-off alarm

- Support alarm review
- Support alarm pause

OS
- Support **operation with mouse and computer keyboard** (option)

- **Multi-display mode** to meet different clinical requirement, including standard, big font, OxyCRG, trend graph, NIBP review and full leads ECG interface.

- **NIBP self-test mode**: including overpressure test, static pressure test and air leakage test.
- **Generate ID** automatically when register a new patient

- Support **medical history search** by patient ID, name and mobile number

- 18 types of **Arrhythmia analysis** and real-time **S-T** segment analysis and **pacemaker detection**

- **Drug calculation** and **titration table**

- Support **multi-language** display
- Support **online software upgrading** by net/USB
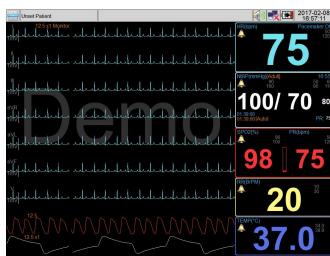

ECG Full Lead
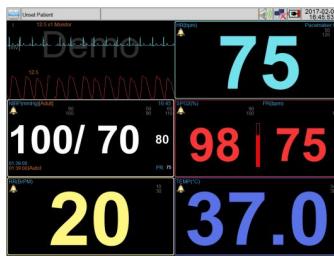
Big Font Display
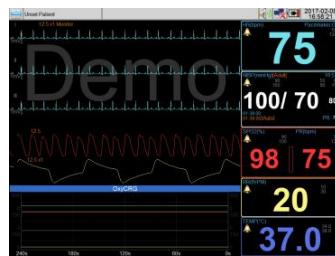
Standard Display
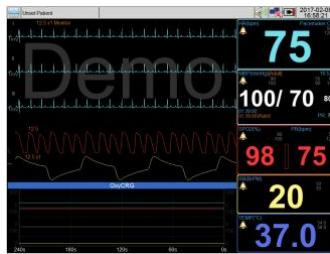
OxyCRG
- Paper out alarm
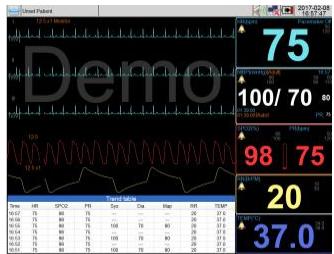
Trend Table
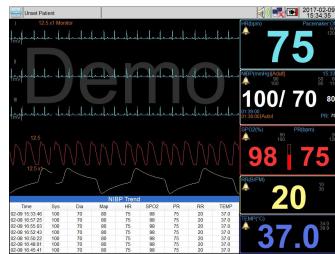
NIBP Review

Interface

Transducer socket

- ECG
- SPO2
- NIBP
- IBP 1 / IBP 2
- TEMP 1 / TEMP 2 (Mainstream EtCO2)

LAN / Central monitor system interface

- The LAN port is for connecting the monitor to a central monitor system network.

Input device interface

- Knob (Standard)
- USB interface (optional)
- Touch screen (optional)

- This optional interface provides an USB ports to enable the monitor to be connected to off-the-shelf input devices:
- Mouse: any specified trackball or USB mouse may be used for navigation and data entry.
- Computer keyboard: an USB computer keyboard can be used for data entry instead of the on-screen pop-up keyboard.
  [Remark: user has to restart the machine after plug and unplug the mouse / computer keyboard.]
- Knob (Standard)

Service Features

- The Support Tool helps technical personnel to
  – carry out configuration, upgrades and troubleshooting on an individual monitor.
  – back up the monitor settings.

- The Service Mode is password-protected and ensures that only trained staff can access service tests and tasks. It includes Skin Type, Brightness Setting, Clear Data and NIBP Calibration.

- The Support Tool uses the USB interface of the monitor for software upgrading.

Related Product

- IBP accessories

- Respironics EtCO2 module

- Nellcor SpO2 module

- Masimo Spo2 module

Performance Specifications

Dimension and Weight

- Dimension: 375mm*330mm*180mm
- Weight: 3.4kg (excluding accessories）

Power Supply

- Voltage: AC100 ～ 240V, 50/60HZ,
- Power≤60W

Display

- 12.1" color TFT LED
- Resolution: 800*600 pixels

Battery

- Type: Rechargeable lithium battery:
  12V/2200mAh
- Charge Cycle: ≥500 times
- Working time: 2 hours

Recorder (Option)

- Method: Thermal printer
- Paper width: 50 mm (1.97 in)
- Printing speed: 12.5/ 25/ 50 mm/s
- Trace: Max. 3 tracks
- Recording way: Real-time Recording, Review Printing,
  Periodic Recording, Alarm Recording

Alarm

- Level: Low, medium and high
- Indication: Auditory and visual
- Alarm volume adjustable
- Alarm pause time: 1min, 2min
- Parameter alarm type: Latch/ Unlatch

Input Device

- Touch screen (option)
- Knob (Standard)
- Keypad input (Standard)
- Mouse/ Keyboard input (option)

System Output & Extensible Interface

- Ethernet Network: 1 standard RJ45 socket

Safety

- IEC60601-1 Approved, CE marking according to MDD93/42/EEC
- With reference to RoHS Directive 2011/65/EU recasting

Trend & Reviewing

- Trend: 2160 hours
- ARR events: 128 groups of ARR events and associated waveform
- NIBP measurement reviewing: 2000 groups
- Waveform review: 2 hours

Alarm event: 2000 groups of parameter alarms events and associated parameter

ECG

- Lead mode: 3/5 Leads, I, II, III or I, II, III, AVR, AVL, AVF, V
- Gain: 2.5mm/mV(×0.25), 5.0mm/mV(×0.5), 10mm/mV (×1), 20mm/mV (×2), 40 mm/ mV (×4), Auto
- Sweep speed: 6.25mm/s, 12.5mm/s, 25mm/s, 50 mm/s
- ECG signal range:　±12 mV (Gain × 0.25) Auto
- ECG signal range:　±6 mV
- Accuracy: ±1bpm/ ±1%, whichever is greater
- Resolution: 1 bpm
- Leakage Current < 10 μA
- Baseline Recovery:
  < 5 s after defibrillation (MOR or Surgery mode)
- Bandwidth:　Surgery 1 ~ 20 Hz
  Monitor 0.5 ~ 40 Hz
  Diagnostic 0.05 ~ 130 Hz
- Indication of Electrode Separation: Every electrode (exclusive of RL)

Heart Rate

- Measure range:
  Adult: 0bpm; 15 ~ 300 bpm
  Neo/Ped: 0bpm; 15 ~ 350 bpm
- Resolution: 1 bpm
- Accuracy: ± 1% or ± 1bpm, whichever is greater

ST Measurement

- Range: -2.0 ~ +2.0 mV
- Accuracy: -0.8mV ～ +0.8mV: ±0.02mV or ±10%, whichever is greater
- Other range: unspecified
- Resolution: 0.01mV

Respiration

- Method: Impedance between RA-LL, RA-LA
- Gain: ×0.25, ×0.50, ×1, ×2
- Respiration Rate: Adult: 0 ~ 120 BrPM;
  Neonatal / Pediatric: 0 ~ 150 BrPM
- Resolution: 1 BrPM
- Accuracy: ±2 bpm or ±2%, whichever is greater
- Apnea Alarm: 10 ~ 40 s

SpO2 (Analog Technic)

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

Pulse Rate

- Measuring and Alarm Range: 20~300bpm
- Accuracy: ± 3bpm
- Resolution: 1bpm

Nellcor-SpO2 (Option)

- Measurement Range: 0 ~ 100 %
- Resolution: 1 %
- Accuracy: 70% ~ 100%, ±2 % (adult)
  70% ~ 100%, ±3 % (Neonate)
  70% ~ 100%, ±2 % (Low Perfusion)
  0% ~ 69%, unspecified

Pulse Rate

- Measurement range: 20 ~ 300 bpm
- Resolution: 1bpm
- Accuracy:
  ±3 bpm (20 ~ 250 bpm)
  Unspecified (251~300 bpm)

Masimo-SpO2 (Option)

- - Measurement Range: 0 ~ 100 %
- - Resolution: 1 %
- Accuracy:
  70% ~ 100%, ±2 % (adult/ pediatric, non-motion conditions)
  70% ~ 100%, ±3 % (neonate, non-motion conditions)
  70% ~ 100%, ±3 % (motion conditions)
  0% ~ 69% unspecified

Pulse Rate

- Measurement range: 25 ~ 240 bpm
- Resolution: 1bpm
- Accuracy: ±3 bpm (non-motion condition)

Temperature

- Technique: Thermistor probe (2.25K/10K)
- Channel: Dual-Channel, provide T1; T2; ΔT
- Measuring and Alarm Range:
  0.0 ℃~ 50 ℃ (32℉~ 122℉)
- Unit: Celsius (℃), Fahrenheit (℉)
- Resolution: 0.1℃or 1℉
- Accuracy: ±0.1℃(exclusive probe error)

Performance Specifications

NIBP

- Method: Oscillometric
- Measure mode: Manual, Auto, STAT
- STAT mode cycle time: Keep 5 minutes, at 5 seconds interval
- Measure Interval in AUTO Mode:
  1,2,3,4,5,10,15,30,60,90,120,180,480 min
- Measure and Alarm Range:

Adult:	SYS:	40 ~ 280 mmHg
	DIA:	10 ~ 220 mmHg
	MEAN:	20 ~ 240 mmHg
Pediatric:	SYS:	40 ~ 220 mmHg
	DIA:	10 ~ 160 mmHg
	MEAN:	20 ~ 170 mmHg
Neonate:	SYS:	40 ~ 135 mmHg
	DIA:	10 ~ 100 mmHg
	MEAN:	20 ~ 110 mmHg

- Static pressure accuracy: ±3mmHg
- Resolution: 1mmHg
- Accuracy: Maximum Mean error ±5mmHg
  Maximum Standard deviation ≤8mmHg
- Over pressure Protection: Dual protection via software & hardware

EtCO2 (Mainstream) (Option)

- Measure method: Non-dispersive infrared (NDIR)
- Measure Range: 0 ~19.7% (0 ~ 150 mmHg)
  0 ~ 20 kPa
- Resolution: 0.1 mmHg
- CO2 Accuracy:
  0 ~ 40 mmHg, ±2 mmHg
  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℃)
- Respiratory Rate: Range: 3 ~150 BrPM
  Accuracy: ±1 bpm

IBP (Option)

- Max Channel: 2
- Measurement way: Thermal resistance way
- Press Sensor: Sensitivity 5 uV/V/mmHg, ±2%
  Impedance 300 to 3000Ω
- Resolution: 1 mmHg
- Unit: mmKg, kPa

IBP (Option)

- Transducer sites:
  Arterial Pressure (ART)
  Pulmonary Arterial (PA)
  Left Arterial (LAP)
  Right Arterial (RAP)
  Central Venous Pressure (CVP)
  Intracranial Pressure (ICP)
  P1/ P2
- Measuring and alarm range:

ART	0 ~ +350mmHg
PA	-6 ~ +120 mmHg
CVP/ RAP/ LAP/ ICP	-10 ~ +40 mmHg
P1/ P2	-10 ~ +300mmHg

- 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

Specifications subject to change without prior notice

Model Configuration

Standard Config.	12.1 inch LED, 3/5 Lead ECG, NIBP, SpO2, Pulse Rate, Temperature, Respiration
Optional Config.	2-Temperature, 1/2 IBP, Mainstream EtCO2, Nellcor SpO2, Masimo SpO2
Optional Accessories:	Touch Screen, Printer, Central Monitoring Station, Neo/Ped Accessories, Wall-mounting, Trolley

Gallery for Optional Accessories:

IBP Disposable Kits
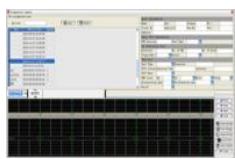
Central Monitoring Station

Reusable Ped. SpO2 Probe

Disposable Ped SpO2 Probe

Disposable Neo SpO2 Probe

Trolley with Basket

Wall-mount with basket

Printer