MULTI-PARAMETER

PATIENT MONITOR

touching for life

S90 Express

Features:

15" TFT with 10 waveforms

High-end parameters: EtCO2(Sidestream, Mainstream, Microstream), Multi-gas/O2, SD memory card

Powerful software features: OxyCRG, large font, short trend, and drug calculation

Pitch tone for audibly recognized SpO2

Maximum 168-hour trends review

CE 0123

SINOHERO

Technical Specification

S90 Express

Size and Weight
- Product size: 36.6x33x16.2cm
- Packing size: 54x36x43cm
- Net weight: 5kg
- Gross weight: 10kg

Power supply
- Power Voltage: AC 100-240V 50/60Hz
- Power Input: ≦85VA
- Safety class: Category I

Display
- 15" Color TFT display
- Resolution:1024x768 pixels

Battery
- Type: Rechargeable Acid Battery
- Operating time under the normal use and full charge:≧120minutes
- 2 batteries ≧240 minutes

Thermal Recorder
- Method: Thermal dot array
- Paper width:50mm(1.97 in)
- Paper Speed:12.5/25/50(mm/sec)
- Traces: Maximum 3 tracks

Alarm
- Three Levels: Low, medium and high
- Indication: Auditory and visual
- Setup: Default and custom
- Silence: All alarm can be silenced
- Volume: 45-85 dB measured at 1 meter

Trend
- Trend: 168 hours
- Parameters option: HR, SpO2, NIBP, PR, RESP, EtCO2, Temp1, Temp2, AA, N2O,O2, IBP1, IBP2, ST.
- Cycle intervals of trend storage1 min, 2 min, 3 min, 4 min, 5 min, 10 min, 15 min, 20 min, 25 min, 30 min.

Storage & Reviewing
- ECG: 30 minutes one important lead's ECG waveform
- Alarm: 1800 groups alarm events reviewing
- NIBP: 1000 groups NIBP measurement
- Arrhythmia: 128 groups data(8 seconds ECG waveform)
- Power-off storage: 72 hours trend data & 1 ECG wave form (Option)

ECG
- Lead Mode:3-leads ECG input
  5-leads ECG input
- Lead selection: Ⅰ,Ⅱ,Ⅲ
  Ⅰ,Ⅱ,Ⅲ,aVR,aVL,aVF,V-
- 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
- Resolution:0.01mV

RESP
- Method: Impedance variation between RA-LL(R-F)
- Gain: ×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
- Accruacy:±2rpm

NIBP
- Method: Automatic oscillometry
- Range of measurement:
  Adult: 10～270mmHg
  Child: 10～235mmHg
  Neonate: 10～135mmHg

- Accuracy: Static:±2% or ±3mmHg,whichecer is greater
- Unit: mmHg, kPa
- Intervals for AUTO measurement time:1,2,3,4,5,10,15,20,30,45,60,90 minutes; 2,4,8 hours
- Pulse rate range:40～240bpm

Standard SpO2 (Digital)
- Measurement Range:0～100%
- Accuracy: At70～100%,±2%
  At0～69%,unspecified

PR
- Measurement Range:25～250bpm
- 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, on-motion conditions)
  70% to 100%:± 3 %(neonate, on-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
- Measurement Range: 0℃～50.0℃
- Accuracy: ±0.1℃ (exclusive of probe)
- Unit: Celsius(℃),Fahrenheit(℉)
- Connecting cable: Compatible with YSI-400 serial

IBP
- Channel: 2
- Measurement way: Directly invasive pressure measure ment
- Sensitivity of transducer: 5uV/V/mmHg, ±2%
- Impedance of transducer: 300 to 3000Ω
- Measurement Range: -50～+300mmHg
- 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)

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 spectrum
- Warm up time: Capnogram displayed in less than 15 seconds,At an ambient temperature of 25℃,full specifications within 2 minutes.
- Measure Range: 0.0～10%(0～76mmHg)
- Resolution: 1mmHg
- Rise time(10 l/min):≦90ms
- Unit: %,mmHg,kpa
- Accuracy: (±4.0mmHg) or <±10% of reading,which is grater
- awRR measurement range:0～150rpm
- awRR measurement Accuracy: ±1rpm

EtCO2 (Microstream)
- 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
- 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 response 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

Environment
- Operating temperature:0~+40℃
- Transportation and Storage temperature:-20℃ to +50℃
- Relative humisity:Working≦85%
  Transportation and storage ≦93%
- Atmospheric pressure:860hPa to 1060hPa
  Transportation and storage 500-1060 hPa

Standard configuration of S90 Express:
ECG,HR,RESP,SpO2,NIBP,2-TEMP,Lithium Battery

Optional parameter& configuration of S90 Express:
Nellcor SpO2,Masimo SpO2,2-TEMP,2-IBP,EtCO2(Side-stream,Microstream,Mainstream)
Multigas/O2,VGA output,Thermal recorder.

Specification subject to be changed without prior notice.

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SINOHERO
touching for life

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