

C90 Patient Monitor

Safety Standards

ISO 13485:2003 approved, CE marking according to MDD93/42/EEC

Physical Characteristics

Product Size:	400*400*180
Net Weight:	10kg (standard configuration)
Display:	17" color TFT touch screen
Resolution:	1280x1024
Trace	12 waveforms
Sweep Speed:	6.25mm/s 12.5mm/s, 25mm/s, 50mm/s

Operation Environment

Temperature:	0-40°C
Humidity:	15-85%
Power Supply	AC100-250V, 50/60Hz
Battery Type:	Rechargeable plug & play battery Lithium-ion
Battery Capacity:	4000mA
Battery Recharging	Maximum 6.5 hours for charging;
Time:	
Battery backup:	4 hours for continuous working
Interface	A . USB interface, mouse, keyboard and PCL printer can be connected B . RJ45 Ethernet interface C . SD card interface D . Nurse Call interface。 E . AC interface F . Grounding pole G . synchronization defibrillation interface。 H . DVI-D interface I . Multi-function interface to connect with sub-monitor and plugin slot J . Wifi module K . IR module interface, it supports the following modules: CO2, dual IBP, AG, ICG
Recorder:	Waveform: 2channels Built-in; thermal array 2 waveforms Speed:25mm/s,50mm/s Record width:50mm

Printer:	External printer supported
Respiration	
Method:	impedance method
RR measurement	Adult: 0-120bpm Neonate: 0 -150bpm
range:	
Resolution:	±1 rpm
Accuracy:	7-150rpm: ± 1rpm or 1%, whichever is greater 0-6rpm: unspecified
RESP Apnea Alarm:	10s-40s
Alarm:	Audible and visual alarm; alarm events recallable
Sweep Speed:	12.5、25、50mm/s
Gain Selection:	X0.25, X0.5, X1, X2

ECG

Lead Type	Cardio Tec™ 12-leads ECG Analysis, 5 Lead and 3 lead selectable
12-lead cable	I; II; III; aVR; aVL;aVF; V1-V6.
5-lead cable:	RA; LA; RL; LL; V or R; L; N; F; C
3-lead cable:	RA; LA; LL or R; L; F
Lead selection:	12-Lead I; II; III; aVR; aVL;aVF; V1-V6. 5-lead: I; II; III; aVR; aVL 3-lead: I; II; III
Gain Selection	X 0.125, X0.25, X0.5, X1, X2, X4,auto
Sweep Speed	6.25,12.5, 25, 50mm/s
Heart Rate Range	Adult: 15-300bpm Pediatric/Neonate:15-350bpm
Resolution:	1 bpm
Protection:	Withstand 4000VAC/50Hz voltage in isolation ,Again electrosurgical interference and defibrillation
Accuracy:	±1% or ±1bpm (whichever is greater)
Filter	ECG enlarge width: MON: 0.5-55Hz DIA: 0.05-150Hz OPE:1-20Hz
ST SEGMENT	-2.0mV - +2.0Mv (Automatic)
detection:	
Arrhythmia Analysis :	Yes
pacemaker detection:	detectable
Alarm:	Yes, audible and visual alarm, alarm events recallable
12 lead ECG Analysis:	yes

NIBP

Method	Automatic oscillometric
Work mode:	Manual / Automatic/Continuous
Measurement Time:	Adjustable (1-480min)
Measurement Unit:	mmHg / Kpa selectable
Measurement types:	Systolic, Diastolic, Mean
Range of systolic pressure:	Adult Mode:40-270mmHg Pediatric Mode:40-200mmHg Neonate Mode 40-135mmHg
Range of diastolic pressure:	Adult Mode:10-215mmHg Pediatric Mode:10-150mmHg Neonate Mode 10-100mmHg
Range of mean pressure:	Adult Mode:20-235mmHg Pediatric Mode:20-165mmHg Neonate Mode 20-110mmHg
Over-pressure protection:	both Hardware and software over pressure protection
Accuracy:	Less than ±5mmHg
Resolution	1mmHg
Alarm	Systolic, Diastolic, Mean PR from NIBP: 40-240bpm

Nellcor SPO2

Measurement & alarm range:	0~100%
Resolution:	1%
Accuracy:	±2% (70-100%, MAX-A, MAX-AL, MAX-N, MAX-P, MAX-I and MAX-FAST sensors); ±3% (70-100%, D-YS, DS-100A, OXI-A/N and OXI-P/I sensors); 0-69% unspecified
PR Measurement	20~300bpm
Range:	
Resolution:	1bpm
Accuracy:	±3bpm
Alarm range:	20-250bpm
Masimo SPO2	
Measurement & alarm range	1~100%
Resolution:	1%
Accuracy:	±2% (70~100%,Ped, non-motion+ ±3% (70-100%, Neo, non-motion); 0-69% unspecified
Alarm range	0~100%
Pulse rate:	Range: 25~240bpm Resolution:1bpm Accuracy: ±3bpm(non-motion) ±5bpm(motion) Alarm range:25~240bpm

Comen SPO2

Measurement & alarm range	1~100%
Resolution:	1%
Accuracy:	±2% (70~100%, Ped, non-motion+ ±3% (70-100%, Neo, non-motion); 0-69% unspecified
Alarm range	0~100%
Pulse rate:	Range: 20~300bpm Resolution:1bpm Accuracy: ±3bpm(non-motion) ±5bpm(motion) Alarm range: 20~250bpm

EtCO2(Sidestream)

CO2 Measurement Range:	0 -150 mm Hg, 0 to 79%, 0 to 20kPa (at 760mmHg)
Accuracy:	± 2 mm Hg (0 – 40 mm Hg) ± 5% of reading (41 – 70 mm Hg) ± 8% of reading (71 –100 mm Hg) ± 10% of reading (101 –150 mm Hg)
Respiration rate:	2-120bpm
RR accuracy:	±2rpm (0-70rpm) ±5rpm (> 70rpm)
Response time:	< 240msec (10% to 90%)
Delay time:	< 2s

EtCO2(mainstream)

CO2 Measurement Range:	0 -150 mm Hg, 0 to 79%, 0 to 20kPa (at 760mmHg)
Accuracy:	± 2 mm Hg (0 – 40 mm Hg) ± 5% of reading (41 – 70 mm Hg) ± 8% of reading (71 –100 mm Hg) ± 10% of reading (101 –150 mm Hg)
Respiration rate:	0-120rpm
Respiration rate accuracy:	±2rpm (0-70rpm) ±5rpm (> 70rpm)
Delay time:	< 2s

Temperature (Dual Channel)

Measurement range:	0-50°C
TEMP sensor:	Standard configuration- skin TEMP sensor,
Resolution:	0.1°C
Accuracy:	±0.1°C (exclusive of error of sensor)
Channel:	T1, T2, TD (Temperature Difference)

IBP

Measured Pressure	AVP, CVP, PAR, LAP, RAP, ICP
Measurement	-50mmHg ~ 300mmHg

Range:	
Alarm Range:	-50mmHg ~ 300mmHg
Accuracy:	±2% or ±1mmHg, whichever is greater
Channel	4 channels
Multi-Gas/O2	
Method:	Infrared Absorption
Gas sorts:	CO2,N2O,Des,Iso,Enf,Sev,Hal,O2 (optional paramagnetic sensor)
Measurement range:	CO ₂ : 0-15 vol% ±(0.2 vol% + 2 % of the reading) N ₂ O: 0-100 vol% ±(2 vol% + 2 % of the reading) HAL, ISO, ENF: 0-8 vol% ±(0.15 vol% + 5 % of the reading) SEV : 0-10 vol% ±(0.15 vol% + 5 % of the reading) DES: 0-22 vol% ±(0.15 vol% + 5 % of the reading) O ₂ : 0-100vol% ±(1 vol% + 2 % of the reading)
Data output:	Fi and Et values
Respiratory rate:	0-150 bpm
Preheating time:	ISA CO ₂ : < 10s , ISA OR+/AX+ : < 20s
Alarm:	User selectable alarm limits for all measurement
others:	Up to 4 waveforms displayed Agent mixture detection MAC value displayed
Cardiac Output	
Method:	Thermodilution
Measurement range:	C.O. : 0.1 ~ 20L/min BT: 25 ~ 43°C IT: 0 ~ 25°C
Resolution:	C.O. : 0.1L/min BT, IT:0.1°C
Accuracy:	C.O. : ±5% or ±0.1 L/min , whichever is greater BT, IT: ±0.1°C (no sensor)
Alarm Range: (C.O.)	BT Hi limit: (LO limit +0.1) ~ 43°C BT Lo limit:23.0 ~ (Hi limit-0.1)°C Step: 0.1°C

Impedance Cardiography (ICG)

Method:	Thoracic Bio-impedance measurement
Measurement range:	SV : 5 ~ 250 ml/b HR : 40 ~ 250 bpm

C.O. :	1.4 ~ 15L/min
Accuracy:	SV : unspecified HR : ±2bpm C.O : unspecified
Alarm range:	CI: HI (LO + 0.1) ~ 15.0 L/min/m ² LO 0 ~ (HI - 0.1)L/min/m ² TFC: HI (LO + 1) ~ 150/KΩ LO 10 ~ (HI - 1) KΩ
Alarm Deviation	CI:±0.1 L/min/m ² TFC:±1 KΩ
Bispectral Index(IOC)	
Measurement range:	IOC : 0-99 SQ I:0-100% EMG : 0-100dB ESR : 0-100%
IOC Alarm:	HI limit : (Lo limit+2) ~ 99 Lo limit : 0 ~ (HI limit-2)
Total index update delay:	8s
EEG sampling frequency:	2048 Hz, 16 bits
CMRR:	>140 dB
Event Marker:	yes
Sweep speeds:	12.5/25/50mm/sec

Standard Configuration 1:

5-lead ECG,RESP, Dual-Temp, Comen SPO2,NIBP,Reserved EtCO2 interface,

Standard Configuration 2:

12-lead ECG,RESP, Dual-Temp, Masimo SPO2,NIBP,Reserved EtCO2 interface,

Optional:

EtCO2 module, Nellcor SPO2, packet, External battery, 4-IBP, ICG,AG,IOC,C.O.