

# Specifications: C22



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# Fetal Monitor

## C22



<b>Standard Configuration</b>		AC power input socket	
FHR1, TOCO, FM, Recorder, 3/5-lead ECG, NIBP, Resp, HR, Temp (Single Channel), Comen SpO2		Two USB ports	
<b>Optional Configuration</b>		RJ45 port	
12-lead ECG, Fetal Stimulator, FHR2, Nellcor/ Masimo SpO2, Trolley		<b>Data storage</b>	
<b>Safety Standards</b>		Alarm Event Review	300 groups
ISO 13485:2003 approved, CE marking according to MDD93/42/EEC		Full Disclosure	
<b>Physical Characteristics</b>		Waveform Review	48 hours
Product Size	340mm×270mm×95mm	NIBP Review	2000 groups
Net Weight	5.5kg	Trend Table	120 hours
<b>Operation Environment</b>		Freeze Review	240s waveform review (Maternal); 60 hours waveform review (Fetal)
Working Temperature	5—40°C	Power-off storage	Yes
Humidity	≤93%	Alarm	User-adjustable High and Low 3-level Limits;
Power Supply	100—240V~, 50/60Hz±1Hz		Prioritized audible and visual alarm
Battery Type	Rechargeable & Lithium-ion battery	Network	Connects to Central Monitoring System by hardwire/wireless
Battery Capacity	4400mAh	<b>Recorder</b>	
Battery Recharging Time	Maximum 5.5 hours for charging	Type	Built-in; thermal array
Battery backup	4 hours for continuous working	Channel	5 channel waveforms (2FHR, MHR, TOCO, FM)
Display	12.1" color TFT touch screen	Mode	Fast, real time
Resolution	800×600	Speed	1/2/3cm/min selectable, 25mm/s(review)
Trace	7 Waveforms (Max)	Record width	150mm
<b>Indicators</b>		<b>Ultrasound</b>	
	Two Alarm indicators	Technique:	Ultrasound Pulse Doppler
	Power indicator	Pulse Repetition Rate:	1.32KHz
	Battery indicator	Ultrasound Frequency:	1.0MHz ±1%
	QRS beep and alarm sound & FHR Sound	Mechanical Index (MI)	<1
	Operating key sound	Soft-tissue Thermal Index (TIS)	<1
<b>Interface</b>			
	Parameter cable interface		

Bone Thermal Index (TIB)	<1		
FHR Measurement Range:	30bpm ~ 250bpm		
Resolution:	1bpm		
Accuracy:	±1 bpm		
Alarm Measurement Range:	31bpm ~ 249bpm		
Alarm time:	≤30s		
Alarm Accuracy:	±1 bpm		
I <sub>ob</sub> :	<5mW/cm <sup>2</sup>		
P (Peak negative acoustic pressure)	<1MPa		
I <sub>spta</sub> (spatial peak - temporal average intensity)	<100mW/cm <sup>2</sup>		
I <sub>sata</sub>	<20mW/cm <sup>2</sup>		
I <sub>sppa.3</sub>	<190mW/cm <sup>2</sup>		
I <sub>spta.3</sub>	<94mW/cm <sup>2</sup>		
Max Output Power	<30mW		
Effective Radiating Area	1356.5mm <sup>2</sup> ±15%		
Dielectric Strength	4000Vrms		
Maximum Transducer Temperature Rise during Use	<5°C		
Expanded Uncertainty of Temperature Test	U=0.4°C, k=2		
<b>TOCO</b>			
TOCO Range:	0-100%		
Resolution:	1%		
TOCO alarm range and error	High alarm: Upper limit ≥ (medial alarm higher limit - 100); Lower limit : 0. Medial alarm: Upper limit ≥(low level higher limit - high level higher limit); Lower limit :0. Low alarm:		
		Uterine pressure measurement nonlinear error	Upper limit ≥ (low level lower limit+1 - medial alarm higher limit); Lower limit:0. error:≤±1 ≤±10%
		Baseline Drift due to Temperature Change	1unit/min/°C (free air) 5units/min/°C(underwater)
		Dielectric Strength	4000Vrms
		Zero Mode	Auto/Manual
		<b>Auto Fetal Movement (AFM)</b>	
		Technique	Ultrasound Pulse Doppler
		Range	10—80 (%)
		Resolution	10%
		<b>FM-Marking</b>	
		Marking Modes	Auto/Manual fetal movement mark
		<b>Respiration</b>	
		Method	RA-LL Impedance Method
		RR measurement range	Adult: 6-120bpm
		Accuracy	Pediatric neonate: 6-150bpm 7—150bpm, ±1bpm or 1%, whichever is greater. 0-6bpm unspecified
		Resolution	±1 bpm
		RESP Apnea	Off,10s, 15s, 20s, 25s, 30s, 35s, 40s, 45s,55s,60s, error: 5s.
		Alarm	Audible and visual alarm; alarm events reviewable
		Sweep Speed	6.25,12.5,25mm/s
		Gain Selection	X0.125, X0.25, X0.5, X1, X2, X4
		<b>ECG</b>	
		Lead Type	CardioTec™ 5-lead ECG Analysis, 12-lead and 3-leads selectable
		Lead selection	12-Lead I; II; III; aVR; aVL; aVF; V1-V6. 5-lead: I; II; III; aVR; aVL;aVF; V 3-lead: I; II; III
		Gain Selection	X0.125, X0.25, X0.5, X1, X2, X4, Auto
		Sweep Speed	6.25,12.5, 25, 50mm/s
		Heart Rate Range	Adult: 15—300bpm

Resolution	1 bpm
Protection	Withstand 4000VAC/50Hz voltage in isolation;
	Against electrosurgical interference and defibrillation;
Accuracy	±1% or ±1bpm (whichever is greater)
Bandwidth	MON Mode:0.5 Hz—40 Hz
	OPE Mode:1 Hz—20 Hz
<b>NIBP</b>	
Method	Automatic Oscillometric
Working modes	Manual/Automatic/Continuous
Measurement time	Adjustable (1—720min)
Maximum measurement time	Adult: 120s
Measurement Unit	mmHg / kPa selectable
Measurement types	Systolic, Diastolic, Mean
Range of systolic pressure	Adult Mode: 40—270mmHg
Range of diastolic pressure	Adult Mode: 10—215mmHg
Range of mean pressure	Adult Mode: 20—235mmHg
Over-pressure protection	Both hardware and software over pressure protection
Accuracy	±3mmHg
Resolution	1mmHg
Alarm	Systolic, Diastolic, Mean
<b>Nellcor SpO<sub>2</sub></b>	
Measurement range	0—100%
Resolution	1%
Accuracy	±2% (70—100%, Adu/Ped, non-motion)
Accuracy	±3% (70—100%, Neo, non-motion)
Alarm range	1—69% unspecified
	20—100%
PR Measurement Range	20—300bpm
Resolution	1bpm
Accuracy	±3bpm (20—250bpm); Unspecified (251—300bpm)
Alarm Range	20—300bpm
<b>Masimo SpO<sub>2</sub></b>	

Measurement & alarm range	1—100%
Resolution	1%
Accuracy	±2% (70—100%, Adu/Ped, non-motion)
	±3% (70—100%, Neo, non-motion)
	1—69% unspecified
PR Measurement Range	25—240bpm
PR Resolution	1bpm
PR Accuracy	±3bpm(non-motion) ±5bpm(motion)
PR Alarm Range	20—300bpm
PI Value	0.02~20%
PI Resolution and Accuracy	0.01% (0.02%—9.99%) 0.1% (10.0%—20.0%) Unspecified
<b>Comen SpO<sub>2</sub></b>	
Measurement & alarm range	0—100%
Resolution	1%
Accuracy	±2% (70—100%, Adu/Ped, non-motion)
Accuracy	±3% (70—100%, Neo, non-motion)
PR Measurement Range	Unspecified (0—69%) 20—254bpm
PR Resolution	1bpm
PR Accuracy	±1bpm
PR Alarm Range	20—300bpm
<b>Temperature</b>	
Measurement & alarm range	0—50°C
Sensor	Skin/rectal TEMP sensor
Resolution	0.1°C
Accuracy	±0.1°C (excluding sensor-based error)
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