

DATA SHEET

EPSIMED CMS 8000

Multi-Parameter Monitor



Product Specification

1 Classification

Anti-electroshock type	Class I equipment and internal powered equipment
Anti-electroshock degree	ECG(RESP), SpO ₂ , NIBP, IBP,TEMP,CO ₂ CF
Harmful liquid proof degree	Ordinary equipment (sealed equipment without liquid proof)
Disinfection/sterilizing method	Refer to Chapter 11 ~ Chapter 16 for details.
Working system	Continuous running equipment

2 Specifications

2.1 Size and Weight

Size	Monitor	314 x 145 x 264 mm
Weight	Monitor	3.8 kg

2.2 Environment

Temperature		
	Working	5 ~ 40 °C
	Transport and Storage	-40 ~+ 55 °C
Humidity		
	Working	30%~75%
	Transport and Storage	≤95 %(no condensation)
Altitude		
	Working	-500 to 4,600m
	Transport and Storage	-500 to 13,100m
Power Supply		
		100~240VAC, 50/60 Hz, Pmax=150VA FUUSE T1.6A

2.3 Display

Device	12.1 in. Color TFT, 3 LED Resolution:800*600
Messages	8 Waveforms Maximum 1 Alarm LED (Yellow/Red) 1 Power LED (Green) 1 Battery Charge LED (Yellow) 3 Sound Mode corresponding Alarm Mode

2.4 Battery

Rechargeable 3.7 A/Hr 7.4V Li battery

Operating time under the normal use and full charge greater than 90 minutes

Operating time after the first alarm of low battery will be about 5 minutes

2.5 Recorder (Option)

Record Width 48 mm
 Paper Speed 25/50 mm/S
 Trace 2

Recording types:

Continuous real-time recording
 8 second real-time recording
 Auto 8 second recording
 Parameter alarm recording
 Waveform freeze recording
 Trend graph/table recording
 ARR events review recording
 Alarm event review recording
 NIBP review recording
 Drug Calculation and titration table recording

2.6 Recall

Trend Recall

Short 1 hrs, 1 Second Resolution
 Long 480 hrs, 1 Min. Resolution

Alarm Event Recall

71 alarm events of all parameters and 8/16/32seconds of corresponding waveform.

NIBP Measurement Recall

At least 2400 NIBP measurement data.

SD card

72 hrs ECG waveform
 TREND review

2.7 ECG

Lead Mode 5 Leads (R, L, F, N, C or RA, LA, LL, RL, V)
 Lead selection I, II, III, avR, avL, avF, V,
 Waveform 2 ch
 Lead mode 3 Leads (R, L, F or RA, LA, LL)
 Lead selection I, II, III,
 Waveform 1 ch
 Gain $\times 2.5\text{mm/mV}$, $\times 5.0\text{mm/mV}$, $\times 10\text{mm/mV}$, $\times 20\text{mm/mV}$
 HR

Measure and Alarm Range

Adult 15 ~ 300 bpm

Neo/Ped	15 ~ 350 bpm						
Accuracy	±1% or ±1bpm, which great						
Resolution	1 bpm						
Sensitivity	> 200 uV P-P						
Differential Input Impedance	> 5 MΩ						
CMRR	<table border="0"> <tr> <td>Monitor</td> <td>≥ 100dB</td> </tr> <tr> <td>Operation</td> <td>≥ 100 dB</td> </tr> <tr> <td>Diagnosis</td> <td>≥60dB</td> </tr> </table>	Monitor	≥ 100dB	Operation	≥ 100 dB	Diagnosis	≥60dB
Monitor	≥ 100dB						
Operation	≥ 100 dB						
Diagnosis	≥60dB						
Electrode offset potential	±300mV						
Leakage Current	< 10 uA						
Baseline Recovery	≤ 5 s After Defi.						
ECG Signal Range	±8 mV (Vp-p)						
Bandwidth	<table border="0"> <tr> <td>Surgery</td> <td>1 ~ 20 Hz(+0.4dB,-3dB)</td> </tr> <tr> <td>Monitor</td> <td>0.5Hz~40Hz(+0.4dB,-3dB)</td> </tr> <tr> <td>Diagnostic</td> <td>0.05Hz~75Hz(+0.4dB,-3dB);76Hz~150Hz(+0.4dB,-4.5dB)</td> </tr> </table>	Surgery	1 ~ 20 Hz(+0.4dB,-3dB)	Monitor	0.5Hz~40Hz(+0.4dB,-3dB)	Diagnostic	0.05Hz~75Hz(+0.4dB,-3dB);76Hz~150Hz(+0.4dB,-4.5dB)
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Monitor	0.5Hz~40Hz(+0.4dB,-3dB)						
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Calibration Signal	1 mV (Vp-p), ±5% Accuracy						
ST Segment Monitoring Range							
Measure and Alarm	-2.0 ~ +2.0 mV						
Accuracy	<table border="0"> <tr> <td>-0.8~+0.8mv</td> <td>±0.04mv or ±10% which is greater</td> </tr> <tr> <td>Other</td> <td>unspecified</td> </tr> </table>	-0.8~+0.8mv	±0.04mv or ±10% which is greater	Other	unspecified		
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Other	unspecified						
ARR Detecting							
Type	ASYSTOLE, VFIB/VTAC, COUPLET, BIGEMINY, TRIGEMINY, R ON T, VT>2, PVC, TACHY, BRADY, MISSED BEATS, PNP, PNC						
Alarm	Available						
Review	Available						
Tall T-wave rejection capability	1.2mV						
Heart rate averaging	the average value of the latest 6 R-R intervals which have ignored the maximum and minimum						
Updating rate of the display	1s						
Heart rate meter accuracy and response to irregular rhythm:							
Bigeminy ventricular	80bpm						
Bigeminy ventricular alternative lente	57 or 63bpm						
Bigeminy ventricular alternative rapid	122 or 123bpm						
Systoles bidirectional	95bpm						
Response time to heart rate meter to change in heart rate							
80 to 120bpm	<table border="0"> <tr> <td>Average</td> <td>3.7s</td> </tr> <tr> <td>Range</td> <td>3.2s ~ 4.1s</td> </tr> </table>	Average	3.7s	Range	3.2s ~ 4.1s		
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80 to 40bpm	<table border="0"> <tr> <td>Average</td> <td>4.7s</td> </tr> <tr> <td>Range</td> <td>4.3s ~ 5.1s</td> </tr> </table>	Average	4.7s	Range	4.3s ~ 5.1s		
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Time to ALARM for tachycardia

Tachycardia ventricular:amplitude =1mV(p-v),heart rate = 206bpm

Ampitude	Average(s)	Range (s)
×1	2.5	2.2~ 2.9
×0.5	3.7	3.5~3.9
×2	3.2	3.0~3.3

Tachycardia ventricular :amplitude =2mV(p-v),heart rate = 195bpm

Ampitude	Average(s)	Range (s)
×1	4.2	4.1~4.3
×0.5	11.9	11.5~12.1
×2	3.0	2.9~3.1

2.8 RESPIRATION

Method Impedance between R-F(RA-LL)

Differential Input Impedance >2.5 MΩ

Measuring Impedance Range: 0.3~5.0Ω

Base line Impedance Range: 0.1 KΩ– 2.5 KΩ

Bandwidth 0.3 ~ 2.5 Hz

Resp. Rate

Measuring and Alarm Range

Adult 0 ~ 120 rpm

Neo/Ped 0 ~ 150 rpm

Resolution 1 rpm

Accuracy ±2 rpm

Apnea Alarm 10 ~ 40 s

2.9 NIBP

Method Oscillometric

Mode Manual, Auto, STAT

Measuring Interval in AUTO Mode

1, 2, 3, 4, 5, 10, 15, 30, 60, 90,120,180,240,480 Min

Measuring Period in STAT Mode 5 Min

Alarm Type SYS, DIA, MEAN

Measuring and alarm Range

Adult Mode

SYS 40 ~ 270 mmHg

DIA 10 ~ 215 mmHg

MEAN 20 ~ 235 mmHg

Pediatric Mode

SYS 40 ~ 200 mmHg

DIA 10 ~ 150 mmHg

MEAN 20 ~ 165 mmHg

Neonatal Mode

SYS 40 ~ 135 mmHg

DIA 10 ~ 100 mmHg

MEAN 20 ~ 110 mmHg

Resolution	
Pressure	1mmHg
Accuracy	
Pressure	
Mean error	±5mmHg
Maximum Standard deviation	8mmHg
Software Overpressure Protection	
Adult Mode	297±3 mmHg
Pediatric Mode	240±3 mmHg
Neonatal Mode	147±3 mmHg

2.10 SpO₂

Measuring Range	0 ~ 100 %
Alarm Range	0 ~ 100 %
Resolution	1 %
Accuracy	70% ~ 100% ±2 % 0% ~ 69% unspecified
Actualization interval	about 1Sec.
Alarm Delay	10 Sec.
Pulse Rate	
Measuring and Alarm Range	30~250bpm
Resolution	1bpm
Accuracy	±2bpm

2.11 TEMPERATURE

Channel	2
Measuring and Alarm Range	0 ~ 50 °C
Resolution	0.1°C
Accuracy	±0.1°C
Actualization interval	about 1 Sec.
Average Time Constant	< 10 Sec.

2.12 IBP

Channel	2
Label	ART, PA, CVP, RAP, LAP, ICP, P1, P2
Measuring and alarm range	-10~300mmHg
Press Sensor	
Sensitivity	5 uV/V/mmHg
Impedance	300-3000Ω
Resolution	1mmHg
Accuracy	±2% or 1mmHg which great
Actualization Interval	about 1 Sec

2.13 CO₂

Method	Infra-red Absorption Technique	
Measuring mode	MainStream and Sidestream	
Side-stream mode sampling gas flow rate	50ml/Min.±10ml/Min.	
Measuring range		
	CO ₂	0~150mmHg
	INSCO ₂	0~150mmHg
	AwRR	0~150 BPM
Resolution		
	CO ₂	0.1mmHg(0~69mmHg) 0.25mmHg(70~150mmHg)
	INSCO ₂	0.1mmHg(0~69mmHg) 0.25mmHg(70~150mmHg)
Accuracy		
	CO ₂	±2mmHg 0~40mmHg ±5% of reading 41~70mmHg ±8% of reading 71~100mmHg ±10% of reading 101~150mmHg
	AwRR	±1 rpm
Initialization Time		
	Mainstream	Capnogram displayed in less than 15 seconds at an ambient temperature of 25°C, full specifications within 2 minutes.
	Sidestream	Capnogram displayed in less than 20 seconds at an ambient temperature of 25°C, full specifications within 2 minutes.
Mainstream Rise Time		
	Less than 60ms-Adult Reusable or Single-Patient-Use Airway Adapter Less than 60ms-Infant Reusable or Single-Patient-Use Airway Adapter	
Actualization interval	about 1 Sec	
Sidestream Delay Time:	2~3Sec	
Alarm range		
	CO ₂	0~150 mmHg
	InsCO ₂	0~150 mmHg
	AwRR	0~150 BPM
Suffocation Alarm Delay		
	AwRR	10~60 Sec.