

PM-9000Express

Patient Monitor

Technical specifications

Safety

IEC60601-1 approved, CE marking according to MDD93/42/EEC

Dimension and Weight

Dimension: 318mm (W) x 270mm (H) x 137mm (D)
Weight: < 7.5kg

Operation Environment
Power Requirements: AC100-240V(10%), 50/60 Hz(3Hz), 140VA
Temperature: 0-40°C
Humidity: 15-95% non-condensing

Patient Range
Neonate, pediatric, and adult patients
Performance Specifications
Display:

12.1 ± color TFT
Rolling and refreshing waveform display
Resolution: 800x600
Multi displays selectable, including:
Standard display
Large-font Display
Trend coexist display
Freeze display with 40-second full-disclosure
Alarm limit display
Multi-lead and ECG simultaneous display
Bed-to-bed view display
OxyCRG dynamic view display

Trace:
8 waveforms
Sweep Speed: 6.25mm/s, 12.5mm/s,
25mm/s, 50mm/s

Indicator:
Alarm indicator light
Power indicator light
Battery indicator light
Working indicator light
QRS beep and alarm sound
Parameter cable interface
AC Power input socket

Interface:
Network interface
External VGA interface for connection
of an alternate display
Aux Output interface
(Analog/Defi-Synchro/Nurse Call)

Li-ion Battery:
Rechargeable
Maximum 6.5 hours for charging;
5 hours for continuous working

Trend time:
Alarm:
User-adjustable High and Low limits 3-level
audible and visual alarm

Networking:
Connected to central monitoring system
(available soon in US market)

Recorder:
Built-in, thermal array
Plethysmogram waveform: 2 channels
Record mode: manual, on alarm, time-defined, etc.
Paper width: 50mm
Print speed: 25mm/s, 50mm/s

ECG

5-lead and 3-lead selectable
Input:
5-lead: RA, LA, RL, LL, V
I, II, III; avR; avL; avF; V1-V6
2 channels
Lead selection:
ECG waveform:
Gain selection:
Sweep speed:
Heart Rate range:
Accuracy:
Resolution:
Filter:

x0.125;x0.25;x0.5;x1;x2; auto
12.5mm/s, 25mm/s, 50mm/s
Adult: 15-300bpm; neonate/ Pediatric: 15-350bpm
1bpm or ± 1%, whichever is greater
1bpm
Diagnostic mode: 0.05-100Hz
Monitoring mode: 0.5-40 Hz
Surgical mode: 1-20Hz
Withstand 4000VAC/50Hz voltage in isolation
Against electro-surgical interference
and defibrillation
1mV5%
15-350bpm
YES, audible and visual alarm, alarm events
recallable

Respiration

Method:
Sensing leads:
Operation modes:

Thoracic impedance
Lead I and lead II are optional (default: lead II)
Auto/ Manual

Standard configuration:

ECG, RESP, Dual-TEMP, NIBP, SpO₂, Li-ion Battery

Measurement range:
Apnea alarm:
Alarm:

Adult: 0-120rpm; Neonate/Pediatric: 0-150rpm
YES
YES, audible and visual alarm,
alarm events recallable

NIBP

Method:
Operation modes:
Auto measure time:
Measurement unit:
Measurement types:

Automatic oscillometric
Manual/Automatic/Continuous
Adjustable
mmHg/kPa selectable
Systolic, Diastolic, Mean

Range of systolic pressure
Range of diastolic pressure
Range of mean pressure

Adult Mode 40-270 mmHg
Pediatric Mode 40-200 mmHg
Neonatal Mode 40-135 mmHg
Adult Mode 10-210 mmHg
Pediatric Mode 10-150 mmHg
Neonatal Mode 10-95 mmHg
Adult Mode 20-230mmHg
Pediatric Mode 20-165mmHg
Neonatal Mode 20-110mmHg

Accuracy of blood pressure measurement

The mean error shall be less than ±5 mmHg
The standard deviation shall be less than 8 mmHg

Over-pressure protection:

Resolution:
Alarm:

double safety protection
1mmHg
Systolic, Diastolic, Mean

SpO₂

MINDRAY SpO₂

Measurement range:
Resolution:
Accuracy:
Alarm range:
Pulse rate:

0-100%
1%
±2% (70-100%, Adult/Pediatric);
±3% (70-100%, Neonate);
0-69% unspecified
0-100%
Range: 20-254bpm
Resolution: 1bpm
Accuracy: ±3bpm
±5bpm
Alarm range: 20-254bpm

MASIMO SpO₂

Measurement range:
Resolution:
Accuracy:
Alarm range:
Pulse rate:

0-100%
1%
±2% (70-100%, Adult/Pediatric, non-motion);
±3% (70-100%, Neonate, non-motion);
±3% (70-100%, Adult/Pediatric/Neonate,
motion);
0-69% unspecified
0-100%
Range: 25-240bpm
Resolution: 1bpm
Accuracy: ±3bpm (non-motion),
±5bpm (motion)
Alarm range: 25-240bpm

NELLCOR SpO₂

Measurement range:
Resolution:
Accuracy:
Alarm range:
Pulse rate:

0-100%
1%
±2% (70-100%, MAX-A, MAX-AL, MAX-N, MAX-P,
MAX-I and MAX-FAST sensors);
±2.5% (70-100%, OxiCliq A, OxiCliq N,
OxiCliq P and OxiCliq I sensors);
±3% (70-100%, D-Y5, D5-100A, OXI-A/N
and OXI-P/I sensors);
±3.5% (70-100%, MAX-R, D-Y5E and D-YSPD
sensors);
0-69% unspecified
0-100%
Range: 20-300bpm
Resolution: 1bpm
Accuracy: 3bpm(20-250bpm);
251-300bpm unspecified
Alarm range: 20-250bpm

Temperature

Measurement range:
Resolution:
Accuracy:
Channel:

0-50°C
0.1°C
0.1°C
Dual-channel. Provide T1; T2; ΔT

Options:

Multigas/O₂, Dual-IBP, EtCO₂, Thermal Recorder

IBP

Measurement range:
Channel:
Pressure transducer:
Pressure names:
Resolution:
Accuracy:
Alarm range:

-50-300mmHg
2 channels
Sensitivity: 5V/mmHg
Impedance range: 300-3000
ART, PA, CVP, RAP, LAP, ICP, CPP
1mmHg
±2% or ±1 mmHg, whichever is greater
(exclusive of transducer)
-50-300mmHg

EtCO₂

Microstream CO₂

CO₂ range:
Accuracy:
Resolution:
Sampling rate
Initialization time:

0-99mmHg
0-38 mmHg ±2 mmHg
39-99 mmHg ±5% of reading + 0.08% for
every 1 mmHg
(above 38 mmHg)
Waveform: 0.1mmHg
Value: 1 mmHg
50ml/min-7.5+15ml/min
30 seconds (typical),
Reaches ±5% steady-state accuracy
within 3minutes.

Response time

Typical value: 2.9s, including the rising time
and the delay time
(adopting the FilterLine of standard length)
Rising time: <190ms (rising from 10% to 90%)
Delay time = 2.7s (typical value)

Respiration rate

Respiration rate accuracy
Mode

0-150 breaths/min
0 70bpm ±1bpm
71 120bpm ±2bpm
121 150bpm ±3bpm
Adult, neonate

Delay time

(Sampling line length):
7 inches; internal diameter:
0.055 inches; sampling gas flow rate: 150ml/min

WelchAllyn CO₂ (Mainstream)

Method:
Measuring Mode:
Measurement range:
Resolution:
Accuracy:
Alarm range:

Infrared Absorption
Mainstream
EtCO₂: 0-99mmHg
InsCO₂: 0-99mmHg
AwRR: 0-150bpm
EtCO₂: 1mmHg
InsCO₂: 1mmHg
AwRR: 1bpm
CO₂ concentration:
2mmHg (0-40mmHg)
5% of reading (41-76mmHg)
10% of reading (77-99mmHg)
AwRR: 2bpm
Same as Measurement range

Multi-Gas/O₂

Method:
Gas sorts:
Measurement range:

Infrared Absorption
CO₂, N₂O, Des, Iso, Enf, Sev, Hal, O₂
(optional paramagnetic sensor)
CO₂: 0-30%
N₂O: 0-105%
O₂: 0-105%
Enf, Iso, Hal: 0-30%
Sev: 0-30%
Des: 0-30%

Data output:

Respiration rate:
Other:

Fi and ET values
±1bpm(2-60 bpm)
61-100 bpm (unspecified)
Up to 3 waveforms displayed
Agent mixture detection
MAC value displayed



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Taking high cost out of quality healthcare



Parameters: ECG, RESP, NIBP, SpO₂, 2-TEMP, 2-IBP, EtCO₂, Multi-Gas/O₂

MINDRAY **PM-9000Express**
Patient Monitor

- 12.1" color TFT display with maximum 8 waveforms
- Anesthetic agent monitor (Artema)
- MasimoSET™ / Nellcor OxiMax™ / Mindray SpO₂
- Microstream EtCO₂ (Oridion)/Mainstream EtCO₂(WelchAllyn)
- Maximum 96-hour graphic and tabular trends of all parameters
- Large font display
- SpO₂ pulse-tone modulation (Pitch Tone)
- 40-second full-disclosure waveform review
- Alarm light indicator
- Compact flash memory card option
- Li-ion battery
- Suitable for adult, pediatric and neonatal patients



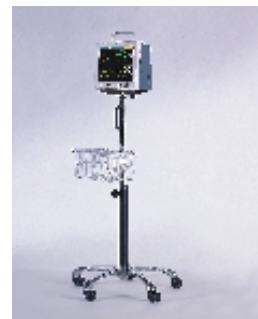
Multi-Gas/O₂ Module

Measures concentration of anesthesia gases (Des, Sev, Iso, Enf, Hal), N₂O, CO₂ and O₂
Automatically identifies the anesthetic agents
Short response time



Microstream™ EtCO₂

Suitable for non-intubated and intubated applications
For adult, pediatric, infant/neonate patients
Low sampling rate 50ml/min (± 7.5ml/min)

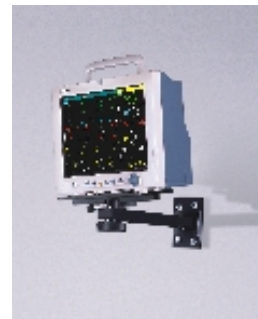


Rolling Stand



Fixed Memory Card

Provides power off storage for 96-hour graphic and trend, 800 NIBP records and 70 alarm records



Wall Mount



Left Side Panel

Connectors for ECG, NIBP, SpO₂, TEMP, IBP and Mainstream CO₂ cables and sensors



Large Font Display Mode

Basic parameters (ECG, SpO₂, NIBP) in large font for distance view



"Viewbed Screen" Mode

View patient data from another monitor with a simple LAN connection



Multi-gas/O₂ Option

Adopting infrared absorption technique to measure the concentration of EtCO₂, N₂O, O₂ and other five anesthesia gases (Des, Sev, Iso, Enf, Hal)



"Trend Screen" Mode

Dynamic 2-hour trend data viewed next to real-time waveform data