

M9/M9A

High performance patient monitor for intensive care
critical care / anesthetic and surgical monitoring

Safety Standards

CE Marking in accordance to Council Directive 2007/47/EC concerning Medical Devices
IEC 60601-1+A1+A2; IEC 60601-1-2+A1;

Physical Specification

Device dimension: 322 mm (L) x 150 mm (W) x 285 mm (H)
Weight: Standard Configuration 4.2 kg (with battery)

Display

Color TFT LCD 12.1" (M9) 10.4" (M9A)
Resolution: 800 X 600 dpi
Traces Displayed: up to 8
Waveforms Displayed: up to 13

Various Working Interface Selectable:

Standard Monitoring Display
Large Font Intensive Care Display
Trend Graph/ Monitoring Co-Display
Bed to Bed view Display (Optional)
OxyCRG Dynamic View Display
Drug Dose Calculation Interface
Hemodynamics Calculation Interface
Sweep Speed: 6.25mm/s, 12.5mm/s, 25mm/s, 50mm/s

Environment requirement

Ambient Temperature: -20°C - 55°C (-4 - 131° F)
Humidity: 15%-95% non-condensing

Power Supply

External Power Supply
100-240V AC, 50/60Hz
Pmax=80VA
Internal Battery Power Supply
Type: Rechargeable Li-ion
14.8 V DC 2200 mAh
4400 mAh (optional)

Battery working period: up to 4.5 hours
Recharging time: <150 minutes (2200 mAh)

RESP

Method: Trans-thoracic impedance
Operation mode: Auto/Manual
RR Measurement range: Adult: 0~120 /PM
Neonate/Pediatric: 0~150 /PM
Resolution: 1/PM
Apnea alarm threshold: 10s, 15s, 20s (default), 25s, 30s, 35s, 40s
Alarm: Yes, audible and visual alarm, alarm events recallable
Band width: 0.2-2.5Hz (1-3dB)
Sweep speed: 6.25mm/s, 12.5mm/s, 25mm/s, 50mm/s

ECG

Lead type: 5-lead and 3-lead selectable, 12-lead optional;
3 leadwire cable: RA, LA, LL or R, L, F
5 leadwire cable: RA, LA, RL, LL, V or R, L, N; F, C
12-lead (including 3/5-lead) optional
Input: 10 leadwire cable: RA, LA, RL, LL, V1-V6 or R, L, N, F, C1-C6
Lead selection: 3-lead: I, II, III; 5-lead: I, II, III; aVR, aVL, aVF, V1-V6
12-lead: I, II, III; aVR, aVL, aVF, V1-V6
Gain selection: x0.125; x0.25; x0.5; x1; x2; x4; auto
Sweep speed: 6.25mm/s, 12.5mm/s, 25mm/s, 50mm/s
ECG HR Range: Adult: 15-300bpm;
Pediatric/Neonate: 15-350bpm
Resolution & accuracy: ±1bpm or ±1%, whichever is greater
Filter: Diagnostic mode: 0.05-150Hz (optional 12-lead)
Monitoring mode: 0.5-40 Hz

Surgical mode: 1-20Hz
Protection: Withstand 5000VAC/50Hz voltage in isolation against defibrillation and electrocautery interference
ST-Segment Detection: Measurement range: -2.0 mV~2.0mV
Alarm range: -2.0 mV~2.0mV
ST-Segment Arrhythmia analysis and categorization: Yes
ARR Alarm: Audible and visual alarm, alarm events recallable
12 lead ECG analysis: 208 Reference Diagnostic Results
Pacemaker detection: Yes, and 5 types abnormal status detectable
IEC 60601-2-25; AAMI EC 11/EC 13
IEC 60601-2-27

NIBP (EDAN)

Method: Automatic Oscillometric
Operation modes: Manual/Automatic/Continuous
Auto measurement time interval: Adjustable
1/2/3/6/10/15/30/60/90/120/240/480 Minutes
Measurement unit: mmHg/kPa selectable
Measurement types: Systolic, Diastolic, Mean
Pressure range for Adults: Systolic: 40-270 mmHg
Diastolic: 10-215 mmHg
Mean: 20-235 mmHg
Pressure range for Pediatrics: Systolic: 40-200 mmHg
Diastolic: 10-150 mmHg
Mean: 20-165 mmHg
Pressure range for Neonates: Systolic: 40-135 mmHg
Diastolic: 10-100 mmHg
Mean: 20-110 mmHg

Leak test and pressure auto calibration: Yes
Over-pressure protection: Dual Safety protection
Resolution: 1mmHg
Accuracy: Max mean error: ±5 mmHg
Max standard deviation: ±8 mmHg
Alarm: Systolic, Diastolic, Mean
PR from NIBP: Measurement 40~240 bpm
Resolution: 1 bpm
Accuracy: ±3bpm or 3% whichever is greater
Leak test and pressure auto calibration: Yes
IEC 60601-2-30

NIBP (Optional, by Omron M3600)

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SMART INFLATION™ is a trademark of Omron Healthcare Co., LTD.)
Measurement Ranges

Adult/Pediatric	Pulse Rate: 40-200bpm	Systolic Pressure: 60-250mmHg	Diastolic Pressure: 40-200mmHg	Mean Arterial Pressure: 45-235mmHg
Neonate:	Pulse Rate: 40-200bpm	Systolic Pressure: 40-120mmHg	Diastolic Pressure: 20-80mmHg	Mean Arterial Pressure: 30-100mmHg
Measurement Accuracy	Pulse Rate: ±2bpm or 2% of reading whichever is greater	Blood Pressure: Complies with ANSI/AAMI SP10:2002		
Measurement	Modes of Measurement: Manual Long-term automatic Short-term automatic Smart Inflation™ Smart measurement High speed Pressure Transducers: Two independent solid-state Deflation Methods: Dynamic Linear Deflation, rate specific to pulse rate			

SpO2 (EDAN)

Measurement & Alarm Range: 0-100% (EDAN SPO2)
Resolution: 1%;
Accuracy: ±2% (70-100%, Adult/Pediatric);
±3% (70-100%, Neonate)
PR Measurement and Alarm Range: 25-300bpm
Resolution: 1 bpm;
Accuracy: 3 bpm
Refresh rate: 1s
ISO 9919

SpO2 (optional, by Nellcor Oximax)

Measurement & Alarm Range: 0-100%
Resolution: 1%;
Accuracy: ±2-3% (70-100%, Adult/Pediatric);
±3-3.5% (70-100%, Neonate)
PR Measurement and Alarm Range: 20-300bpm
Resolution: 1 bpm;
Accuracy: 3bpm (depends on probe)
Refresh rate: 1s
ISO 9919

IBP (2-Channels, optional)

Measurement Pressure: ART, PA, CVP, RAP, LAP, ICP, P1, P2
Measurement range: -50 - 300 mmHg
Resolution: 1 mmHg
Accuracy: ±2% or ±1 mmHg, whichever is greater (without probe)
Sensitivity: 5 µV/V/mmHg; Impedance range: 300-3000 Ω
IEC 60601-2-34

Respiratorics CO2 (Mainstream and Sidestream, optional)

By Philips Respiratorics CAPNOSTAT™SP & LoFlo™ Technology
Range: 0~150mmHg
Accuracy: ±2% 0~40mmHg,
±5% 41~70mmHg
±8% 71~100mmHg
±10% 101~150 mmHg
AwRR Accuracy: ±1 rpm
Convenient design for intubated and non-intubated applications
Possible to work at low sample flow rate: 50ml / minute
Detailed specification refer to the user manual of Respiratorics
ISO 21647

C.O. (optional)

Method: Thermolimit
Measuring range:
CO: 0.1 L/min ~ 20L/min
T1: 23° C ~ 43° C
T2: -1° C ~ 27° C
Alarm range: 23° C ~ 43° C

Anesthetic GAS/O2 (optional)

Technology: Infra-red absorption characteristic
Gas: CO₂, O₂, N₂O, Des, Iso, Enfl, Hal, Sed
Warm-up time: Iso accuracy mode: 45 s
Full accuracy mode: 10 min
Sample flow rate: Adu/Ped: 120, 150, 200 ml/min
Ned: 70, 90, 120 ml/min
Measuring range:
CO₂: 0~30%
O₂/N₂O: 0~100 %
Hal/Iso/Enfl/Sev/Des: 0~30 %
AwRR: 2~100 rpm
MAC Value display
ISO 21647

Temperature (2 Channels, 1 probe by default)

Measurement/Alarm range: 0~50°C (32~122° F)
Probe type: YSI (B Series) and Cf-Fi
Resolution: 0.1°C
Accuracy: ±0.1°C (without probe)
Channel: Dual-channel. Provide T1; T2; ΔT
IEC 12470-4

Thermal Recorder (optional)

Built-in, direct thermal print array recorder
Up to 3 channels printing, 1, 2, 3 channels selectable
Print speed: 25mm/s, 50mm/s Paper width: 50 mm

I/O Interface

USB Port,
RJ-45 Ethernet Port: IEEE 802.3,
Nurse Call output
WLAN Access Point 802.11g 54Mbps (optional)

M9A



EDAN



M9

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Patient Monitor



EDAN

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ENG-PM-M9/M9A-V2.1-20101008

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Patient Monitor
High performance patient monitor
for intensive care / critical care /
anesthetic and surgical monitoring

Feature

- 12.1" /10.4" color TFT display with maximum 13 waveforms simultaneously
- Light (4.2kg with battery), portable and easy-to-use
- Conventional diagnostic 12-lead ECG (optional) for cardiac monitoring
- Pacemaker detection and defibrillation protection
- Arrhythmia and S-T segment analysis
- Respiration sidestream and mainstream CO₂ for intubated and non-intubated application
- Up to 4 kinds display modes to meet different critical care needs, OxyCRG is available to judge the respiration and circulation function for neonates
- Customize alarm limits display around the individual patient's condition
- Long time frozen waveform review (up to 720s)
- Large internal data storage for 96-hour graphic and tabular trends of all parameters, 500 NIBP measurements and 60 alarm events
- USB interface and data safety storage for unexpected power-off
- Built-in rechargeable Li-ion battery
- Nurse Call function and bi-directional communication with MFM-CMS central station
- Complete and flexible mounting solution for ICU and operation room

Standard configuration: 3/5 lead ECG, EDAN NIBP, EDAN SpO₂, RESP, 2-TEMP, PR

Optional: EDAN 12-lead ECG, Nellcor SpO₂, 2-IBP, Omron® M3600 NIBP, CO₂, C.O., Anesthetic Gas/O₂, Thermal recorder, Mounting systems, WLAN kit



ECG Module (EDAN E8, optional)

Continuous 12-lead ECG waveform display, ST Segment analysis and alarm
Automatically 208 kinds of analysis results, up to 16 kinds of arrhythmias, 50 sets 12-lead analysis result review, 10s of 12-lead waveform to review and print out
SEMIP interpretation has tested by CSE and AHA database



Omron® M3600 NIBP (optional)

Smart Inflation™ for comfortable measurement experience for the patient
Dynamic Linear Deflation for faster measurements
Dual Systems for safety



Anesthetic Gas/O₂ (optional)

Automatic identification of five anesthetic agents
Simultaneous display of inspired and expired concentrations of anesthetic agent, O₂, CO₂ and N₂O
Automatic calibration
Suitable for adult, pediatric and neonatal patients



Mounting Solution

Complete and flexible mounting solution for ICU and operation room. With a variety of highly innovative mounting systems, M9's wall mount and rolling stand offer you more versatile interactions with the healthcare environment than ever before.



Clinical Network Solution

Bi-directional communication with EDAN MFM-CMS central station by wired or wireless connection
Nurse call