

# F9 EXPRESS

Fetal & Maternal Monitor with DECG/IUP



Twin Monitoring Capabilities



12" Touch Screen



Various Printing & Display Modes

The F9 stands as a top-tier fetal and maternal monitor, providing cutting-edge integrated monitoring capabilities tailored for delivery rooms in large hospitals, private obstetrician offices, and antepartum clinics. Uniquely crafted for dynamic situations, the F9 spans the entire spectrum of antepartum, intrapartum, and postpartum applications.

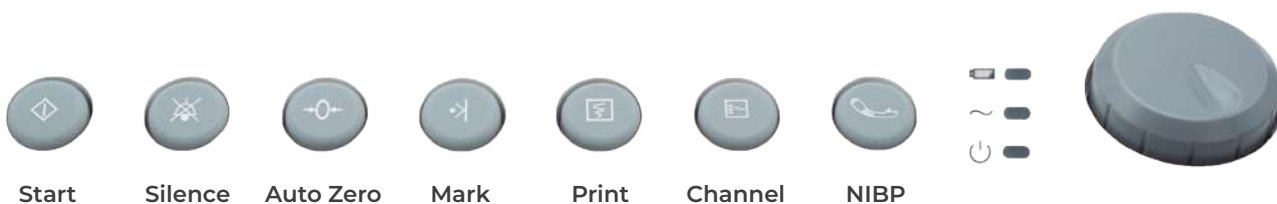
## Features:

- Handle for easy carry
- Signal Overlap Verification
- Probe rack and wall mounting rack
- DECG and IUP parameters included to provide stable signals during high risk pregnancies
- The antepartum CTG analysis provides objective assessment of CTG and FHR patterns
- 24 hours waveforms playback
- 4 Hours continuous battery life
- Optional built-in wireless module to connect to central nursing station software for data transmission to PC

**Basic Parameters:** Twins FHR, TOCO, Event Mark, AFM, Maternal ECG, NIBP, Spo2, and TEMP

**Internal Parameters:** IUP, DECG

## Quick Setup & Simplified Workflow:



The selection knob and functional keys provides various shortcuts to achieve functions for clinical use. The 'start' button can be configured to integrate patient info and printing, helping the doctor simplify the workflow and operate with only one button.

## Central Monitoring Made Easy

MFM-CNS offers a comprehensive central nursing system covering the entire continuum of obstetric care across the whole pregnancy, from the first antepartum visit to post delivery care. View real time FHR and maternal readings, alarms, and export PDFs.

## 12-Crystal & 1 MHz Waterproof Transducer

Our 12-crystal ultrasound probe employs advanced technology unique to EDAN, providing a wider beam area and a more homogeneous signal, thus providing better performance for bedside monitors compared to conventional transducers.

## Included Accessories

- FHR Probe, Qty 2 — **02.01.107705015**
- TOCO Probe (F9 with DECG and IUP function) — **02.01.210260**
- Rechargeable Lithium-ion Battery (4400mAh) — **21.21.064150**
- Event Marker — **02.01.210095**
- Belt, Qty 3 — **933862**
- Fixed ECG Cable with 3 Lead Wires — **01.57.471095-10**
- Adult Disposable Adhesive Electrodes (Snap Connector) — **T716-50**
- Adult Reusable SpO2 Sensor — **SH1.Lemo**
- Adult NIBP Cuff — **Cuff.E9**
- NIBP Tube and Connector — **01.59.036118-11**
- Temp Skin Probe — **01.15.040187**
- Recording Paper (90mm×152mm×150p, US Standard) — **Fetal-P**
- Power Cord (US Standard) — **01.13.036106**
- DECG Cable — **01.13.036358**
- IUP Cable and Commutator Cable — **01.13.037841**
- Ethernet Cable
- Ultrasound Gel (250g)

# Specifications

## PHYSICAL SPECIFICATION

Dimensions: 347 mm x 330 mm x 126 mm  
Weight:

F9: Approx. 5.5 kg  
F9 Express: Approx. 6.3 kg

## DISPLAY

12.1" Multicolor LCD Touch Screen  
Resolution: 800 x 600 Pixel

## POWER SUPPLY

Main Supply:  
Operating Voltage: 100V ~ 240 V  
Operating Frequency: 50 Hz/60 Hz  
Input Power: 1.0 ~ 0.5 A

Rechargeable Li-ion Battery:  
Nominal Voltage: 14.8 V  
Nominal Capacity: 5000 mAh  
Continuous Working Time >2 hr  
Necessary Charge Time <7 hr  
Cycle Life >300 times

## SIGNAL INTERFACE

RS232 Interface (DB9 or D-Sub)  
RJ45 Interface

## ULTRASOUND TRANSDUCER

I2-Crystal Transducer  
Cable Length: 2.5m  
Weight: 190g  
Dimension: 88 mm x 35 mm  
Color Identification  
Color: Yellow/Purple

## TOCO TRANSDUCER

Cable Length: 2.5m  
Weight: 180g  
Dimension: 88mm x 35mm

## RECORDING

Recorder: Thermal Dot Matrix Recorder  
Paper:

Z-fold, Thermosensitive  
(compatible with GE and  
PHILIPS recorder papers)

Paper Width: 152 mm /150mm

Effective Printing Width:  
110 mm (American Standard)  
120 mm (International Standard)

FHR Printout Width:  
70 mm (American Standard)  
80 mm (International Standard)

FHR Scaling:  
30 bpm/cm (American Standard)  
20 bpm/cm (International Standard)

TOCO Printout Width: 40 mm  
TOCO Scaling: 25%/cm  
Printing Speed:  
Standard Speed (RealTime Traces) 1/2/3 cm/min  
Fast Print Speed (Stored Traces) Up to 15mm/sec  
Accuracy of Data: ± 5% (X-Axis), ± 1% (Y-Axis)  
Resolution: 8 dots/mm

## NIBP

Measurement:

Systolic Pressure,  
Diastolic Pressure,  
Mean Artery Pressure

Method: Oscillometric Method

Measurement Range:  
Systolic Pressure: 40 mmHg ~ 270  
mmHg (5.3 kPa~36.0 kPa)  
Diastolic Pressure: 10 mmHg ~ 215  
mmHg (1.3 kPa~28.7 kPa)  
Mean Artery Pressure: 20 mmHg ~ 235  
mmHg (2.7 kPa~31.3 kPa)

Resolution: 1 mmHg (0.1 kPa)

Measuring Accuracy:

Max. average deviation:  
≤ ±5 mmHg (≤ ±0.8 kPa)  
Max. standard deviation:  
≤ 8 mmHg (≤ 1.2 kPa)

## FHR

Operating Mode:  
Ultrasound Pulse Doppler  
with autocorrelation

Working Frequency: (1.0±10%) MHz  
FHR Measurement Range:  
50 bpm ~ 240 bpm

Resolution: 1 bpm  
Accuracy: ±2 bpm  
Alarm: FHR Alarm  
Ultrasound Output:

sppa.3 <190 W/cm 2  
spta.3 <94 mW/cm 2  
sata 20 mW/cm 2  
TI<1.0 MI<1.0

Temperature Rise:

When applied to the patient, the ultrasound  
transducer may warm slightly (less than 2°C (3.63.6°F) above ambient temperature). When NOT  
applied, at the ambient temperature of 40 °C  
(104.04°F), the ultrasound transducer may reach  
the highest

temperature of 43 °C 109.4109.4°F

Effective Radiating Area:  
(94±15%) mm²

Dielectric Strength: 4000 Vrms

## TOCO

TOCO Range: 0-100  
Non-linear Error: ±10%  
Resolution: 1  
Baseline Drift due to  
Temperature Changes:  
1 unit/min/°C (free air)  
5 units/min/°C (underwater)

Zero Mode:  
Automatic (TOCO value  
becomes zero or below  
lasting for 30 seconds)/

Manual  
Dielectric Strength: 4000 Vrms

## DECG

DFHR Measurement Range:  
30 bpm ~ 240 bpm  
Resolution: 1 bpm  
Accuracy: ±1 bpm  
Alarm: DFHR Alarm  
Input Impedance:  
> 10 MΩ  
(Differential, DC 50/60 Hz)  
> 20MΩ (Common CMRR)

CMRR: > 110 dB

Noise: < 4 µVp  
Skin Voltage Tolerance: ±500 mV  
Fetal Input Voltage Current:  
20 µVp ~ 3 mVp

## IUP

Pressure Range:  
0 mmHg ~100 mmHg  
(0.0 kPa~13.3 kPa)

Non-linear Error: ±3 mmHg(±0.4kPa)

Resolution: 1 mmHg (0.1 kPa)

Sensitivity: 5 µV/V/mmHg

Zero Mode: Manual

Measuring Time (Normal): 30~45s

Measuring Time (MAX): 120 s

Alarm Limits:

Systolic Pressure: 40 mmHg ~ 270  
mmHg (5.3 kPa~36.0 kPa)  
Diastolic Pressure: 10 mmHg ~ 215  
mmHg (1.3 kPa~28.7 kPa)  
Mean Artery Pressure: 20 mmHg ~ 235  
mmHg (2.7 kPa~31.3 kPa)

Alarm:

Systolic Pressure  
Diastolic Pressure,  
Mean Artery  
Pressure Alarm

Software Over Voltage Protection:

(297 ± 3) mmHg [(39.6 ± 0.4) kPa]

Hardware Over Voltage Protection:

(320 ± 10) mmHg [(42.8 ± 1.3) kPa]

Cuff Pressure Measuring Range:  
0 mmHg ~ 300 mmHg(0.0kPa ~ 40.0kPa)

## MFM&AFM

Display Range: 0 ~ 999  
FM Mode: Automatic/Manual  
AFM Mode: Trace (default) / Black Mark  
AMF Technique: Pulsed Doppler Ultrasound

## MECC

MHR Measurement Range: 30~240 bpm  
MHR Measuring Accuracy: ±2 bpm  
Resolution: 1 bpm  
MHR Alarm Limits: 30~240 bpm  
Alarm: HR Alarm

Anti-electric Shock Type:

Defibrillating proof

Input Signal Range: ±8 mV PP

ECG Waveform:

Manual control ECG  
waveform display

ECG falls off: Detect Automatically

Differential Input Impedance: >5 MΩ

Display Sensitivity:

2.5 mm/mV (X0.25), 5 mm/mV  
(X0.5), 10mm/mV (X1), 20mm/mV  
(X2), AUTO gain

Electrode Offset Potential Tolerance:  
±500 mV

Bandwidth (-3dB):

Diagnosis: 0.05 Hz ~ 150 Hz  
Monitor: 0.5 Hz ~ 40 Hz

Response time to Change in MHR:

MHR range: 80 bpm ~ 120 bpm  
Range: 7s ~ 8 s (average:7.5 s)  
MHR range: 80 bpm ~ 40 bpm  
Range: 7s ~ 8 s (average: 7.5 s)

Tall T-wave Rejection:

Exceeds ANSI/AAMI EC13  
2002 Sect. 3.1.2.1 (C) maximum  
recommended 1.2 mVT-wave amplitude

Sweep Speed: 25 mm/s 10%

## SPO2

Measurement Range: 50% ~ 100%  
Resolution: 1 %

Measuring Accuracy(EDAN):  
90% ~ 100% ± 2  
70% ~ 90% ± 4  
<70% unspecified

Measuring Accuracy(Nellcor):  
70% ~ 100% ± 2  
<70% unspecified

Data update period (EDAN): 1s

Data update period (Nellcor): 2s

PR Measurement: Range: 30~240 bpm

Resolution: 1 bpm

Accuracy: ±3 bpm

SpO2 Alarm Limits: 50% ~ 100%

Alarm: PR Alarm and SpO2 Alarm

Wavelength:

Red light: (660±3) nm  
Infrared light: (905±10) nm  
Emitted light energy: < 15 mW

## TEMP

Channel: 1

Measurement Range: 0°C ~ 50 °C

Resolution: 0.1°C

Accuracy: ±0.3°C

(Transducer error excluded ± 0.1°C)

(Transducer ± 0.2°C)

Unit: °C, °F

Refresh Time: 1 ~ 2s

Self Check: 5 ~ 10 min

Alarm Limits: 0.0°C ~ 50.0 °C

Alarm: TEMP Alarm

Measuring Mode: Direct Mode

Position: Axilla

## DATA TRANSMISSION

Data Export: Ethernet/USB

Report Format: TRC

Data Management System: MFM-CNS

HIS connectionHL7/GDT