iM3 (Dual batteries)

Patient Monitor

Version 1.3

Main Unit Specification

Physical Specifications

Dimension	(159±1) mm (W) × (262±1) mm (H) × (166±1) mm (D)
Weight	<2.5 kg (standard configuration, without accessories)

Power Supply

Power Supply	100 V to 240 V~, 50 Hz/60 Hz
Current	0.7 A-0.35 A

Battery

Battery Type	Rechargeable lithium-ion battery
Number of Batteries	2
Capacitance	≥4800 mAh
Operating Time	≥10 hrs
Fast Charging Time	≤6 hrs
Charging Time	≤20 hrs

Display

Display screen	8 inch color TFT LCD, capacitive touch screen
Resolution	800×600

Data Storage

Monitor Mode

For every single patient	Trend graph/Trend table: 240 hrs
	Alarm/Monitoring Event data: Up to 200 sets
	NIBP Measurement Review: 1200 sets

Each 1 GB extension space for data storage: ≥400 hrs
With all parameters on, storage interval of 1 s, one SpO_2 wave, and one alarm event occurring for each 10 s.

Round Mode

For every single patient	Round record: Up to 800 thousand sets
	SpO_2: Up to 20 sets for a single patient
	NIBP: Up to 20 sets for a single patient
	TEMP: Up to 20 sets for a single patient

Each 1 GB space for data storage: ≥100 thousand sets of round records. Up to 800 thousand sets of round records are supported (one round record has 20 original records).

Spot-checking mode	Storage data maximally contains 16 million sets of spot-checking data for multiple patients.

Recorder

Record Width	49 mm~50 mm
Paper Speed	12.5 mm/s, 25 mm/s, 50 mm/s
Trace	1
Recording types	Continual real-time recording

8 seconds real-time recording
Recording manually
Physiological Alarm recording
Trend graph recording
Trend table recording
NIBP review recording
Alarm review recording
Recording automatically
NIBP auto triggered recording

Wi-Fi

IEEE	802.11a/b/g/n
Frequency Band	2.4 GHz & 5 GHz ISM band

E-link (Bluetooth)

Transmit Frequency	2402 MHz ~ 2480 MHz
Frequency Band	2402 MHz ~ 2480 MHz

Interfaces and others

USB Port	1
Micro USB Port	1
Network interface	1
Nurse Call	Micro USB port
Built-in Barcode Scanner	Optional

EDAN Module NIBP

Method	Oscillometric
Mode	Manual, Auto, Continuous, Average
Measuring Interval in Auto Mode	1/2/3/4/5/10/15/30/60/90/120/180/240/360/480 min
Continuous	5 min, interval is 5 s
Measuring Type	SYS, DIA, MAP, PR
Average measurement	Interval: 1/2/3/4/5 min
	Times: 3/5

Measuring Range

Adult Mode	SYS: 25 mmHg to 290 mmHg
	DIA: 10 mmHg to 250 mmHg
	MAP: 15 mmHg to 260 mmHg
Pediatric Mode	SYS: 25 mmHg to 240 mmHg
	DIA: 10 mmHg to 200 mmHg
	MAP: 15 mmHg to 215 mmHg
Neonatal Mode	SYS: 25 mmHg to 140 mmHg
	DIA: 10 mmHg to 115 mmHg
	MAP: 15 mmHg to 125 mmHg
Cuff Pressure Measuring Range	0 mmHg to 300 mmHg

EDAN

Pressure Resolution	1 mmHg
Maximum Mean Error	±5 mmHg
Maximum Standard Deviation	8 mmHg
Maximum Measuring Period	Adult/Pediatric: 120 s Neonatal: 90 s
Typical Measuring Period (depend on HR/motion disturbance)	iCUFS measurement: 20 s to 35 s iFAST measurement:15 s
Overpressure Protection	Adult : 297 mmHg ±3 mmHg Pediatric: 245 mmHg ±3 mmHg Neonatal: 147 mmHg ±3 mmHg

SunTech Module NIBP

Method	Oscillometric
Mode	Manual, Auto, Continuous, Average
Measuring Interval in AUTO Mode	1/2/3/4/5/10/15/30/60/90/120/180/240/360/480 min
Continuous	5 min, interval is 5 s
Measuring Type	SYS, DIA, MAP, PR
Average measurement	Interval: 1/2/3/4/5 min Times: 3/5
Measuring Range	
Adult Mode	SYS: 40 mmHg to 260 mmHg DIA: 20 mmHg to 200 mmHg MAP: 26 mmHg to 220 mmHg
Pediatric Mode	SYS: 40 mmHg to 230 mmHg DIA: 20 mmHg to 160 mmHg MAP: 26 mmHg to 183 mmHg
Neonatal Mode	SYS: 40 mmHg to 130 mmHg DIA: 20 mmHg to 100 mmHg MAP: 26 mmHg to 110 mmHg
Pressure Resolution	1 mmHg
Maximum mean error	±5 mmHg
Maximum standard deviation	8 mmHg
Maximum measuring period	Adult: 130 s Pediatric: 90 s Neonate: 75 s
Overpressure protection	Adult/Pediatric: <300 mmHg Neonate: <150 mmHg

EDAN Module SpO$_2$

Measuring Range	0% to 100%
Resolution	1%
Data update period	1 s
Accuracy	Adult/Pediatric: ±2% (70% to 100% SpO$_2$) Undefined (0% to 69% SpO$_2$) Neonatal: ±3% (70% to 100% SpO$_2$) Undefined (0% to 69% SpO$_2$)

PI (Perfusion Index)

Measuring Range	0-10
Resolution	1

RR (Respiration Rate)

Measuring Range	4 rpm – 70 rpm
Resolution	1 rpm

Accuracy	Arms ≤ 3 rpm, mean error [-1,1] rpm Arms accuracy is a statistical calculation of the difference between the measurement value and the reference measurement value.

Nellcor Module SpO$_2$

Measuring Range	1% to 100%
Resolution	1%
Data Update Period	1 s
Accuracy	
MAX-A, MAX-AL, MAX-N, MAX-P,MAX-I, MAX-FAST	±2% (70% ~ 100% SpO$_2$)
D-YS (from infant to adult), DS-100A,OXI-A/N (adult), OXI-P/I	±3% (70% ~ 100% SpO$_2$)
If sensor is used for neonate as recommended, the accuracy will be larger than adult by ±1.	

PR

PR (SpO$_2$)

Measuring range	EDAN: 25 bpm to 300 bpm Nellcor: 20 bpm to 300 bpm
Accuracy	EDAN: ±2 bpm Nellcor: ±3 bpm (20 bpm to 250 bpm)
Resolution	EDAN: 1 bpm Nellcor: 1 bpm

PR (NIBP)

Measuring range	EDAN: 40 bpm to 240 bpm SunTech: 30 bpm to 220 bpm
Accuracy	EDAN: ±3 bpm or 3.5%, whichever is greater SunTech: ±3 bpm or ±2%, whichever is greate
Resolution	EDAN: 1 bpm SunTech: 1 bpm

T2A Module (EDAN Quick TEMP) TEMP

Measuring range	Monitor mode: 25°C ~45°C Predict mode: 35.5°C ~42°C
Sensor type	Oral /Axillary /Rectal
Resolution	0.1°C
Accuracy	Monitor mode: ±0.1°C (25°C ~ 45°C)
Response time	< 60 s
Time for predicting	< 30 s
Measuring Mode	Direct Mode/ Adjusted Mode

THP59J Module (Infrared Ear TEMP)

Measuring range	34°C ~ 42.2°C
Resolution	0.1°C
Response time	1 s
Clinical Accuracy	±0.2°C (0.4°F) (35.5°C ~ 42°C) (95°F ~ 107.6°F) ±0.3°C (0.5°F) (out of the range mentioned above)
Laboratory Accuracy	±0.2°C

Filac 3000 Module (Covidien Quick TEMP)

Measuring range	30°C ~ 43°C
Prediction measurement range	35°C ~ 43°C
Cold mode prediction measurement range	33°C ~ 43°C
Sensor type	Oral / Axillary / Rectal

EDAN

Resolution	0.1°C
Accuracy	Monitoring Mode and Predictive Mode: ±0.1°C
	Quick Predictive Mode: ±0.3°C
Typical measurement time	Oral (Quick Predictive Mode): (3 ~ 5) s (non-fever temps); (8 ~ 10) s (fever temps)
	Oral (Predictive Mode): (6 ~ 10) s
	Axillary: (8 ~ 12) s
	Rectal: (10 ~ 14) s
	Monitoring Mode (all sites): (60 ~ 120) s
Measuring mode	Direct Mode /Adjusted Mode

HTD8808C Module (HTD Infrared TEMP)

Measuring range	Body Mode: 34°C ~ 43°C / 93.2 °F ~109.4 °F
	Surface Mode: 0°C ~ 100.0°C / 32 °F ~212 °F
Resolution	0.1 °C or 0.1 °F
Laboratory Accuracy	Body mode:
	34.0 °C-34.9 °C: ±0.3 °C (93.2 °F-94.8 °F: ±0.5 °F)
	35.0 °C-42.0 °C: ±0.2 °C (95.0 °F-107.6 °F: ±0.4 °F)
	42.1 °C-43.0 °C:±0.3 °C (107.8 °F-109.4 °F: ±0.5 °F)
	Surface mode: ±2°C (±3.6 °F)
Measuring time	≤ 2 s
Measuring distance	0.1cm ~ 15cm
Auto power off time	18s

TAT-5000S Module (Exergen Infrared TEMP)

Measuring range	61 °F to 110 °F (16 °C to 43 °C)
	(16 °C rounded up from 15.5 °C)
Resolution	0.1 °C or 0.1 °F
Arterial heat balance Range for Body Temperature	94 °F to 110 °F (34.5 °C to 43 °C)
Clinical Accuracy	±0.2 °F or 0.1 °C
	Per ASTM E1112
Response time	~0.04 seconds

TD-1261 Module (TaiDoc Infrared Ear TEMP)

Measuring range	32 °C to 43 °C (89.6 °F to 109.4 °F)
Resolution	Meet the accuracy requirement specified in ASTM E1965-98
	0.2 °C (±0.4 °F) (36 °C ~39 °C)
	0.3 °C (±0.5 °F) (34 °C ~35.9 °C) and (39.1 °C ~42.2 °C)

Genius™3 (Covidien Infrared Ear TEMP)

Measuring range	33.0°C to 42.0°C (91.4 °F to 107.6 °F)
Resolution	0.1°C or 0.1 °F
Accuracy	±0.3°C(±0.5°F)
Response Time	1-2 seconds
Measuring Mode	Direct Mode(Ear)
	Equivalence Mode /Adjusted Mode(Oral/Rectal)

Safety Specifications

Compliant with Standards	IEC 60601-1; IEC 60601-1-2; EN 60601-1; EN 60601-1-2; IEC 80601-2-49; IEC 60601-2-37; IEC 60601-1-11; IEC 61266:1994
Anti-electroshock Type	Class I equipment and internal powered equipment
Anti-electroshock Degree	SpO2, NIBP: DEFIBRILLATION-PROOF CF
	TAT5000S: DEFIBRILLATION-PROOF BF
	TH TEMP, FHR, TD1261 TEMP: BF
	T2A, F3000 TEMP: CF

Ingress Protection	IPX1
	With T2A, TAT5000S, TH or F3000 TEMP module: Ordinary equipment (Sealed equipment without liquid proof)
	IP22 (for HTD8808C, SD1)

Environmental Specifications

Temperature	Working: +0ºC to +40°C (32ºF ~ 104ºF)
	With TEMP: +10°C ~ +40°C (50ºF ~ 104ºF)
	With FHR: +5°C ~ +40°C (41ºF ~104 ºF)
Temperature	Transport and Storage: -20°C to +55°C (-4ºF ~ 131ºF)
	With TH TEMP module: -20°C ~ +50°C (-4ºF ~ 122ºF)
Humidity	Working: 15%RH to 95%RH (non-condensing)
	Transport and Storage: 15%RH to 95%RH (non-condensing)
Altitude	Working: 86 kPa to 106 kPa
	Transport and Storage: 70 kPa to 106 kPa

EDAN