

# iM3

Vital Signs Monitor

Version 1.3

# Data Sheet



## IM3 Vital Signs Monitor 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

Capacitance ≥2400 mAh

Operating Time ≥3.5 hrs

Fast Charging Time <3 hrs

Charging Time ≤14 hrs

### Display

Display screen 8 inch color TFT LCD, capacitive touch screen

Resolution 800×480

### 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 <sub>2</sub> wave, and one alarm event occurring for each 10 s.		
Round Mode	For every single patient	Round record	Up to 800 thousand sets
		SpO <sub>2</sub>	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	
Modulation	FHSS, GFSK, DPSK, DQPSK	
Interfaces and others		
USB Port	1	
Micro USB Port	1	
Network interface	1	
Nurse Call	Micro USB port	
Built-in Barcode Scanner	Optional	
NIBP		
EDAN Module		
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 270 mmHg DIA: 10 mmHg to 215 mmHg MAP: 20 mmHg to 235 mmHg
	Pediatric Mode	SYS: 40 mmHg to 230 mmHg DIA: 10 mmHg to 180 mmHg MAP: 20 mmHg to 195 mmHg
	Neonatal Mode	SYS: 40 mmHg to 135 mmHg DIA: 10 mmHg to 100 mmHg MAP: 20 mmHg to 110 mmHg
Cuff Pressure Measuring Range	0 mmHg to 300 mmHg	

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	20 s to 35 s (depend on HR/motion disturbance)	
Overpressure Protection	Adult	297 mmHg ±3 mmHg
	Pediatric	245 mmHg ±3 mmHg
	Neonatal	147 mmHg ±3 mmHg
PR		
Measuring range	40 bpm to 240 bpm	
Accuracy	±3 bpm or 3.5%, whichever is greater	
SunTech Module		
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	Adult/Pediatric  <300 mmHg	

protection	Neonate	<150 mmHg
PR		
Measuring range	30 bpm to 220 bpm	
Accuracy	±3 bpm or ±2%, whichever is greater	
SpO <sub>2</sub>		
EDAN Module		
Measuring Range	0% to 100%	
Resolution	1%	
Data update period	1 s	
Accuracy	Adult/Pediatric	±2% (70% to 100% SpO <sub>2</sub> ) Undefined (0% to 69% SpO <sub>2</sub> )
	Neonatal	±3% (70% to 100% SpO <sub>2</sub> ) Undefined (0% to 69% SpO <sub>2</sub> )
PI (Perfusion Index)		
Measuring Range	0-10	
Resolution	1	
Pulse Rate		
Measuring Range	25 bpm to 300 bpm	
Resolution	1 bpm	
Accuracy	±2 bpm	
Nellcor Module		
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 <sub>2</sub> )
	D-YS (from infant to adult), DS-100A,OXI-A/N (adult), OXI-P/I	±3% (70% ~ 100% SpO <sub>2</sub> )
	If sensor is used for neonate as recommended, the accuracy will be larger than adult by ±1.	
Pulse Rate		
Measuring Range	20 bpm to 300 bpm	
Resolution	1 bpm	
Accuracy	±3 bpm (20 bpm to 250 bpm)	
TEMP		
T2A Module (EDAN Quick 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: $\pm 0.1^{\circ}\text{C}$ ( $25^{\circ}\text{C} \sim 45^{\circ}\text{C}$ )
Response time	< 60 s
Time for predicting	< 30 s
Measuring Mode	Direct Mode/ Adjusted Mode
<b>TH Module (Infrared Ear TEMP)</b>	
Measuring range	$34^{\circ}\text{C} \sim 42.2^{\circ}\text{C}$
Resolution	$0.1^{\circ}\text{C}$
Response time	1 s
Clinical Accuracy	$\pm 0.2^{\circ}\text{C}$ ( $0.4^{\circ}\text{F}$ ) ( $35.5^{\circ}\text{C} \sim 42^{\circ}\text{C}$ ) ( $95^{\circ}\text{F} \sim 107.6^{\circ}\text{F}$ ) $\pm 0.3^{\circ}\text{C}$ ( $0.5^{\circ}\text{F}$ ) (out of the range mentioned above)
Laboratory Accuracy	$\pm 0.2^{\circ}\text{C}$
<b>F3000 Module (Covidien Quick TEMP)</b>	
Measuring range	$30^{\circ}\text{C} \sim 43^{\circ}\text{C}$
Prediction measurement range	$35^{\circ}\text{C} \sim 43^{\circ}\text{C}$
Cold mode prediction measurement range	$33^{\circ}\text{C} \sim 43^{\circ}\text{C}$
Sensor type	Oral / Axillary / Rectal
Resolution	$0.1^{\circ}\text{C}$
Accuracy	Monitoring Mode and Predictive Mode: $\pm 0.1^{\circ}\text{C}$ Quick Predictive Mode: $\pm 0.3^{\circ}\text{C}$
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
<b>8808C Module (HTD Infrared TEMP)</b>	
Measuring range	Body Mode: $34^{\circ}\text{C} \sim 43^{\circ}\text{C}$ / $93.2^{\circ}\text{F} \sim 109.4^{\circ}\text{F}$ Surface Mode: $0^{\circ}\text{C} \sim 100.0^{\circ}\text{C}$ / $32^{\circ}\text{F} \sim 212^{\circ}\text{F}$
Resolution	$0.1^{\circ}\text{C}$ or $0.1^{\circ}\text{F}$
Laboratory Accuracy	Body mode: $34.0^{\circ}\text{C} \sim 34.9^{\circ}\text{C}$ : $\pm 0.3^{\circ}\text{C}$ ( $93.2^{\circ}\text{F} \sim 94.8^{\circ}\text{F}$ : $\pm 0.5^{\circ}\text{F}$ ) $35.0^{\circ}\text{C} \sim 42.0^{\circ}\text{C}$ : $\pm 0.2^{\circ}\text{C}$ ( $95.0^{\circ}\text{F} \sim 107.6^{\circ}\text{F}$ : $\pm 0.4^{\circ}\text{F}$ ) $42.1^{\circ}\text{C} \sim 43.0^{\circ}\text{C}$ : $\pm 0.3^{\circ}\text{C}$ ( $107.8^{\circ}\text{F} \sim 109.4^{\circ}\text{F}$ : $\pm 0.5^{\circ}\text{F}$ ) Surface mode: $\pm 2^{\circ}\text{C}$ ( $\pm 3.6^{\circ}\text{F}$ )
Measuring time	$\leq 2$ 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	
Safety Specifications		
Compliant with Standards	IEC 60601-1: 2005+A1 :2012; IEC 60601-1-2: 2014; EN 60601-1: 2006+A1 :2013; EN 60601-1-2: 2015; IEC 60601-2-49: 2011	
Anti-electroshock Type	Class I equipment and internal powered equipment	
Anti-electroshock Degree	SpO <sub>2</sub> , NIBP, TEMP: BF	
Ingress Protection	IPX1	
Environmental Specifications		
Temperature	Working	+0°C to +40°C (32°F ~ 104°F) With TEMP: +10°C ~ +40°C (50°F ~ 104°F)
Temperature	Transport and Storage	-20°C to +55°C (-4°F ~ 131°F) With TH TEMP module: -20°C ~ +50°C (-4°F ~ 122°F)
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

\* Specifications are subject to change without prior notice



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