uMEC10/uMEC12/uMEC15/uMEC6/ uMEC7/uMEC15S

Patient Monitor

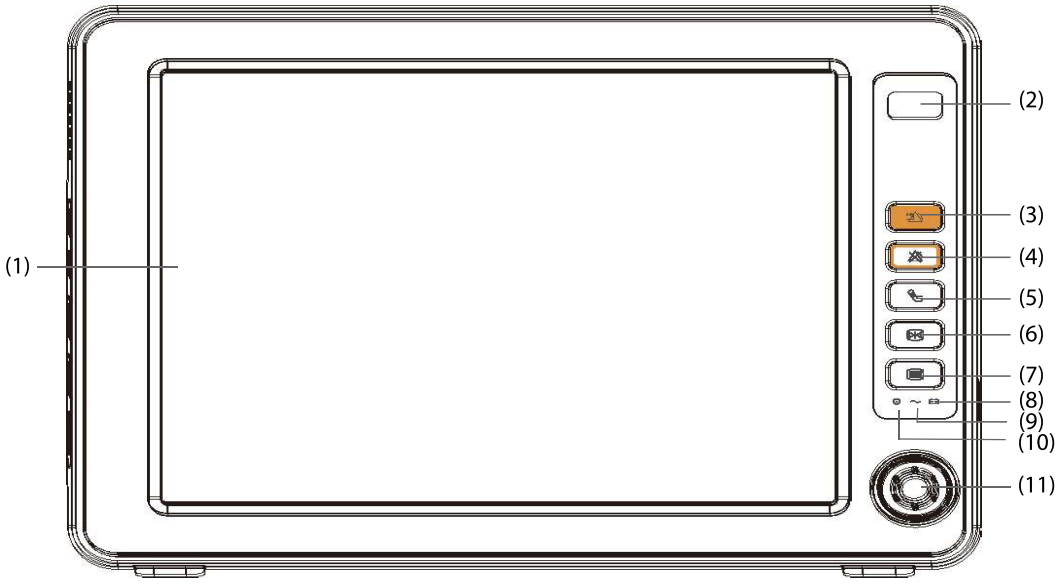
Operator's Manual

CE 0123

Release time: December, 2020

Revision: 10.0

2.2 Front View



(1) Display Screen

(2) Alarm lamp

When a physiological alarm or technical alarm occurs, this lamp will flash as defined below.

- High level alarms: the lamp quickly flashes red.
- Medium level alarms: the lamp slowly flashes yellow.
- Low level physiological alarms: the lamp lights yellow without flashing.
- Low level technical alarms: the lamp does not light.

(3) Press to reset alarms.

(4) Press to pause or restore alarms.

(5) Press to start or stop NIBP measurements.

(6) Press to freeze or unfreeze waveforms.

(7) If no menu is displayed on the screen, pressing it will enter the main menu. If there is a menu displayed on the screen, pressing it will close that menu.

(8) Battery LED

- On: when the battery is installed and the AC source is connected.
- Off: when no battery is installed or the installed battery is malfunction, or no AC source is connected when the patient monitor is power off.
- Flash: when the patient monitor operates on battery power.

(9) AC power LED

It turns on when AC power is connected.

(10) Power On/Off LED

It turns on when the patient monitor is on and turns off when the patient monitor is off.

(11) Knob

Rotate the Knob clockwise or anti-clockwise. With each click, the highlight jumps to the neighboring item. When you reach your desired item, press the Knob to select it.

5 Managing Configurations

5.1 Introduction

When performing continuous monitoring on a patient, the clinical professional often needs to adjust the monitor's settings according to the patient's condition. The collection of all these settings is called a configuration. Allowing you to configure the monitor more efficiently, the monitor offers different sets of configuration to suit different patient categories. You can change some settings from a certain set of configuration and then save the changed configuration as a user configuration.

WARNING

- **The configuration management function is password protected. The configuration management tasks must be performed by clinical professionals.**

The system configuration items can be classified as:

- Parameter configuration items

  These items relates to parameters, e.g., waveform gain, alarm switch, alarm limits..

- Conventional configuration items

  These items define how the monitor works, e.g., screen layout, record, print and alarm settings.

- User maintenance items

  These items relates to user maintenance settings, e.g., unit setup, time format and data format.

For the important configuration items and their default values and user maintenance items, see appendix ***Configuration Default Information***.

5.2 Entering the [Manage Configuration] Menu

1. Press the hardkey on the monitor's front to enter the main menu.

7.3 Alarm Indicators

When an alarm occurs, the patient monitor will indicate it to the user through visual or audible alarm indications.

- Alarm lamp
- Alarm message
- Flashing numeric
- Audible alarm tones

7.3.1 Alarm Lamp

If a technical alarm or physiological alarm occurs, the alarm lamp will flash. The flashing color and frequency match the alarm level as follows:

- High level alarms: the lamp quickly flashes red.
- Medium level alarms: the lamp slowly flashes yellow.
- Low level alarms: the lamp turns yellow without flashing.

7.3.2 Alarm Message

When an alarm occurs, an alarm message will appear in the technical or physiological alarm area. For physiological alarms, the asterisk symbols (*) before the alarm message match the alarm level as follows:

- High level alarms: ***
- Medium level alarms: **
- Low level alarms: *

Additionally, the alarm message uses different background color to match the alarm level:

- High level alarms: red
- Medium level alarms: yellow
- Low level alarms: yellow

You can view the alarm messages by selecting the physiological or technical alarm area.

7.3.3 Flashing Numeric

If an alarm triggered by an alarm limit violation occurs, the numeric of the measurement in alarm will flash every second, and the corresponding alarm limit will also flash at the same frequency indicating the high or low alarm limit is violated.

7.3.4 Audible Alarm Tones

The alarm tone is distinct from heart beat tone, keystroke tone and pulse tone in frequency. This monitor has three choices of alarm tones and patterns: ISO, Mode 1 and Mode 2. For each pattern, the alarm tones identify the alarm levels as follows:

- ISO pattern:
  - High level alarms: triple + double + triple + double beep.
  - Medium level alarms: triple beep.
  - Low level alarms: single beep.
- Mode 1:
  - High level alarms: high-pitched single beep.
  - Medium level alarms: double beep.
  - Low level alarms: low-pitched single beep.
- Mode 2:

- High level alarms: high-pitched triple beep.
- Medium level alarms: double beep.
- Low level alarms: low-pitched single beep.

NOTE

- **When multiple alarms of different levels occur simultaneously, the patient monitor will select the alarm of the highest level, light the alarm lamp and give alarm sounds accordingly, while all the alarm messages are displayed circularly on the screen.**
- **Some physiological alarms, such as asystole, are exclusive. They have identical alarm tones and alarm lights with normal high level physiological alarms, but their alarm messages are displayed exclusively. That is to say, when an exclusive physiological alarm and a normal high level physiological alarm are triggered simultaneously, only alarm message of the exclusive physiological alarm is displayed.**

7.3.5 Alarm Status Symbols

Apart from the aforementioned alarm indicators, the patient monitor still uses the following symbols telling the alarm status:

-  indicates alarms are paused.
-  indicates alarms are reset.
-  indicates the alarm sound is turned off.
-  indicates individual measurement alarms are turned off or the system is in alarm off status.

7.4 Alarm Tone Configuration

7.4.1 Setting the Minimum Alarm Volume

1. Select **[Main Menu]** → **[Maintenance >>]** → **[User Maintenance >>]** → enter the required password.
2. Select **[Alarm Setup >>]** to enter the **[Alarm Setup]** menu.
3. Select **[Minimum Alarm Volume]** and toggle between 0 and 10.

The minimum alarm volume refers to the minimum value you can set for the alarm volume, which is not affected by user or factory default configurations. The setting of minimum alarm volume remains unchanged when the patient monitor shuts down and restarts.

7.4.2 Changing the Alarm Volume

1. Select the **[Volume Setup]** QuickKey or the **[Alarm Setup]** QuickKey → **[Others]**, or **[Main Menu]** → **[Alarm Setup >>]** → **[Others]**.
2. Select the appropriate volume from **[Alm Volume]**: X-10, in which X is the minimum volume, depending on the set minimum alarm volume, and 10 the maximum volume.
3. Select **[High Alarm Volume]** to set the volume of the high priority alarm as **[Alm Volume+0]**, **[Alm Volume+1]** or **[Alm Volume+2]**.
4. Select **[Reminder Vol]** to set the volume of the reminder tone as **[High]**, **[Med]** or **[Low]**.

When alarm volume is set to 0, the alarm sound is turned off and a  symbol appears on the screen.

Lead Placement for Surgical Patients

The surgical site should be taken into consideration when placing electrodes on a surgical patient. e.g. for open-chest surgery, the chest electrodes can be placed on the lateral chest or back. To reduce artifacts and interference from electrosurgical units, you can place the limb electrodes close to the shoulders and lower abdomen and the chest electrodes on the left side of the mid-chest. Do not place the electrodes on the upper arm. Otherwise, the ECG waveform will be very small.

WARNING

- **When using electrosurgical units (ESU), patient leads should be placed in a position that is equal distance from the Electrosurgery electrotome and the grounding plate to avoid burns to the patient. Never entangle the ESU cable and the ECG cable together.**
- **When using electrosurgical units (ESU), never place ECG electrodes near to the grounding plate of the ESU, as this can cause a lot of interference on the ECG signal.**

8.3.4 Checking Paced Status

It is important to set the paced status correctly when you start monitoring ECG. The paced symbol  is displayed in the ECG waveform area when the **[Paced]** status is set to **[Yes]**. The pace pulse markers "|" are shown on the ECG wave when the patient has a paced signal. If **[Paced]** is set to **[No]** or the patient's paced status is not selected, the symbol  will be shown in the ECG waveform area.

To change the paced status, you can select either:

- the patient information area, or
- **[Main Menu]** → **[Patient Setup]** → **[Patient Demographics]**, or,
- the ECG parameter window or waveform area → **[Others >>]**,

and then, select **[Paced]** from the popup menu and toggle between **[Yes]** and **[No]**.

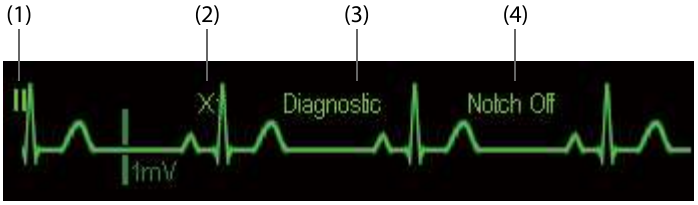
If you do not set the paced status, the patient monitor issues a prompt tone when pace pulse is detected. At the same time, the paced symbol flashes and the message **[Please confirm the pace of patient]** appears in the ECG waveform area. Then, please check and set the paced status of the patient.

WARNING

- **For paced patients, you must set [Paced] to [Yes]. If it is incorrectly set to [No], the patient monitor could mistake a pace pulse for a QRS and fail to alarm when the ECG signal is too weak. Do not rely entirely on rate meter alarms when monitoring patients with pacemakers. Always keep these patients under close surveillance.**
- **For non-paced patients, you must set [Paced] to [No].**
- **The auto pacer recognition function is not applicable to pediatric and neonatal patients.**
- **False low heart rate indicators or false Asystole calls may result with certain pacemakers because of pacemaker artifact such as electrical overshoot of the pacemaker overlapping the true QRS complexes.**

8.4 Understanding the ECG Display

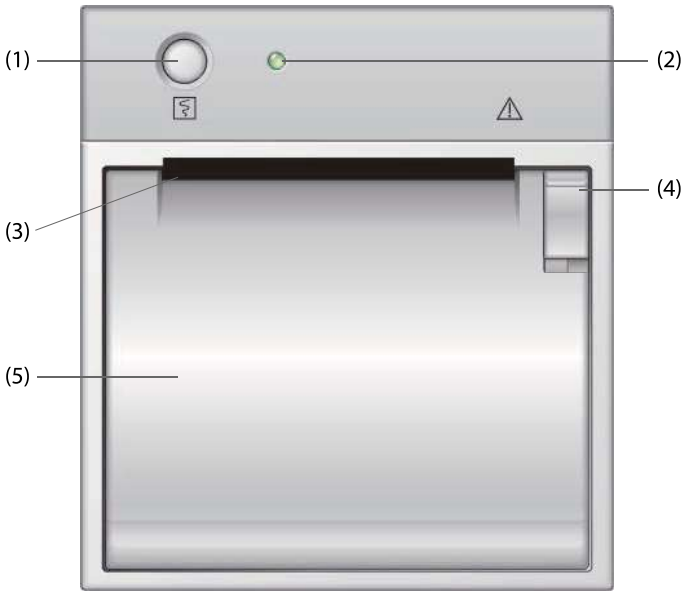
Your display may be configured to look slightly different.



21 Recording

21.1 Using a Recorder

The thermal recorder records patient information, measurement numerics, up to three waveforms, etc.



(1) Start/Stop key: press to start a recording or stop the current recording.

(2) Indicator

- On: when the recorder works correctly.
- Off: when the monitor is switched off.
- Flashes: if an error occurred to the recorder, e.g., the recorder runs out of paper.

(3) Paper outlet

(4) Latch

(5) Recorder door

21.2 Overview of Recording Types

By the way recordings are triggered, the recordings can be classified into the following categories:

- Manually-triggered realtime recordings.
- Timed recordings.
- Alarm recordings triggered by an alarm limit violation or an arrhythmia event.
- Manually-triggered, task-related recordings.

NOTE

- **For details about alarm recording, refer to *7 Alarms*.**
- **For details about task-related recordings, refer to respective sections of this manual.**

21.3 Starting and Stopping Recordings

To manually start a recording, you can either:

- Select the hardkey on the recorder module, or
- Select the **[Record]** button from the current menu or window.

Automatic recordings will be triggered in the following conditions:

- Timed recordings will start automatically at preset intervals.
- If both **[Alarm]** and **[Alm Rec]** for a measurement are set on, an alarm recording will be triggered automatically as alarms occur.

To manually stop a recording, you can either:

- Select the hardkey again, or
- Select **[Clear All Tasks]** in the **[Record Setup]** menu.

Recordings stop automatically when:

- A recording is completed.
- The recorder runs out of paper.
- When the recorder has an alarm condition.

When a recording is stopped, the following markers will be added:

- Automatically stopped recording: print two columns of '*' at the end of the report.
- Manually or abnormally stopped recording: print one column of '*' at the end of the report.

21.4 Setting Up the Recorder

21.4.1 Accessing the Record Setup Menu

By selecting **[Main Menu]** → **[Record Setup >>]**, you can access the **[Record Setup]** menu.

21.4.2 Selecting Waveforms for Recording

The recorder can record up to 3 waveforms at a time. You can select, in turn, **[Waveform 1]**, **[Waveform 2]** and **[Waveform 3]** in the **[Record Setup]** menu, and then select the waveforms you want. You can also turn off a waveform recording by selecting **[Off]**. These settings are intended for realtime and scheduled recordings.

21.4.3 Setting the Realtime Recording Length

After starting a realtime recording, the recording time depends on your monitor's settings. In the **[Record Setup]** menu, select **[Length]** and toggle between **[8 s]** and **[Continuous]**.

- **[8 s]**: record 4-second waveforms respectively before and after current moment.
- **[Continuous]**: record the waveforms from the current moment until stopped manually.

21.4.4 Setting the Interval between Timed Recordings

Timed recordings start automatically at preset intervals. Each recording lasts 8 seconds. To set the interval between timed recordings: in the **[Record Setup]** menu, select **[Interval]** and then select the appropriate setting.

21.4.5 Changing the Recording Speed

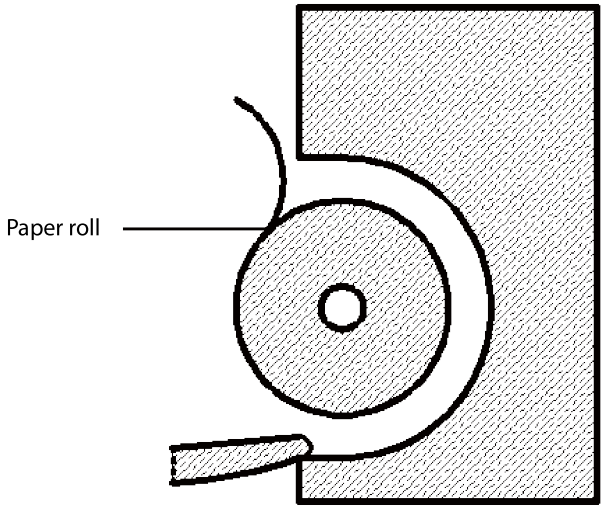
In the **[Record Setup]** menu, select **[Paper Speed]** and toggle among **[12.5 mm/s]**, **[25 mm/s]** and **[50 mm/s]**. This setting is for all recordings containing waveforms.

21.4.6 Clearing Recording Tasks

In the **[Record Setup]** menu, select **[Clear All Tasks]**. All queued recording tasks are cleared and the current recording is stopped.

21.5 Loading Paper

1. Use the latch at the upper right of the recorder door to pull the door open.
2. Insert a new roll into the compartment as shown below.
3. Close the recorder door.
4. Check if paper is loaded correctly and the paper end is feeding from the top.



CAUTION

- **Use only specified thermal paper. Otherwise, it may cause damage to the recorder's printhead, the recorder may be unable to print, or poor print quality may result.**
- **Never pull the recorder paper with force when a recording is in process. Otherwise, it may cause damage to the recorder.**
- **Do not leave the recorder door open unless you reload paper or remove troubles.**

21.6 Removing Paper Jam

If the recorder works incorrectly or produces unusual sounds, check if there is a paper jam first. If a paper jam is detected, follow this procedure to remove it:

1. Open the recorder door.
2. Take out the paper and tear off the draped part.
3. Reload the paper and close the recorder door.

21.7 Cleaning the Recorder Printhead

If the recorder has been used for a long time, deposits of paper debris may collect on the printhead compromising the print quality and shortening the lifetime of the roller. Follow this procedure to clean the printhead:

1. Take measures against the static electricity such as Disposable Wrist Strap for the work.
2. Open the recorder door and take out the paper.
3. Gently wipe around the printhead using cotton swabs dampened with alcohol.
4. After the alcohol has completely been dried, reload the paper and close the recorder door.

A.6 Wireless Network

Standards	MSD45N Wireless Module: IEEE 802.11a/b/g/n, support Wi-Fi

A.7 Measurement Specifications

The adjustable range of alarm limits is the same with the measurement range of signals unless otherwise specified.

A.7.1 ECG

ECG	
Standards	IEC60601-2-27
Lead set	3-lead: I, II, III 5-lead: I, II, III, aVR, aVL, aVF, V 12-lead: I, II, III, aVR, aVL, aVF, V1 to V6
ECG standard	AHA, IEC
Display sensitivity	1.25 mm/mV (X0.125), 2.5 mm/mV (X0.25), 5 mm/mV (X0.5), 10 mm/mV (X1), 20 mm/mV (X2), 40 mm/mV (X4), Auto Accuracy: ±5%
Sweep speed	6.25 mm/s, 12.5 mm/s, 25 mm/s, 50 mm/s Accuracy: ±5%
Bandwidth (-3dB)	Diagnostic mode: 0.05 to 150 Hz Monitor mode: 0.5 to 40 Hz Surgical mode: 1 to 20 Hz ST mode: 0.05 to 40 Hz
Common mode rejection ratio (with Notch on)	Diagnostic mode: ≥90 dB (with Notch off) Monitor mode: ≥105 dB Surgical mode: ≥105 dB ST mode: >105 dB
Notch	50/60 Hz Monitor, surgical and ST modes: Notch turns on automatically. Diagnostic mode: Notch is turned on/off manually
Differential input impedance	≥5 MΩ
Input signal range	±8 mV (peak-to-peak value)
Electrode offset potential tolerance	±500 mV
Lead-off detection current	Measuring electrode: ≤0.1 μA Drive electrode: ≤1 μA
Defibrillation Protection	Enduring 5000V (360 J) charge without data loss or corruption Baseline recovery time: <5 s (after defibrillation) Polarization recovery time: <10 s Defibrillation energy absorption: <10% (100Ω load)
Calibration signal	1mV (peak-to-peak value) Accuracy: ±5%
ESU protection	Cut mode: 300 W Coagulate mode: 100 W Recovery time: ≤10 s In compliance with the requirements in clause 202.6.2.101 of IEC 60601-2-27

Refreshing rate	10 s	
Resolution	0.01 mV	
QT/QTc Analysis		
Measurement range	QT: 200 to 800 ms QTc: 200 to 800 ms	
QT accuracy	±30 ms	
Resolution	QT: 4 ms QTc: 1 ms	
Alarn limit	Range	Step
HR High	(low limit + 2) to 300 bpm	1 bpm
HR Low	15 to (high limit - 2) bpm	
ST High	(low limit + 0.2 mV) to 2.0 mV	0.1 mV
ST Low	-2.0 mV to (high limit - 0.2 mV)	
QTc High	200 to 800 ms	10 ms
ΔQTc High	30 to 200 ms	

A.7.2 Resp

Technique	Trans-thoracic impedance	
Lead	Options are lead I and II. The default is lead II.	
Respiration excitation waveform	<300 μA RMS, 64 kHz (±10%)	
Baseline impedance range	200 to 2500Ω (using an ECG cable with 1kΩ resistance)	
Bandwidth	0.2 to 2.5 Hz (-3 dB)	
Sweep speed	3 mm/s, 6.25 mm/s, 12.5 mm/s, 25 mm/s, or 50 mm/s Accuracy: ±5%	
Respiration Rate		
Measurement range	0 to 200 rpm	
Resolution	1 rpm	
Accuracy	0 to 120 rpm: ±1 rpm 121 to 200 rpm: ±2 rpm	
Apnea alarm time	10 s, 15 s, 20 s, 25 s, 30 s, 35 s, 40 s	
Alarm limit	**Range (rpm)**	**Step (rpm)**
RR High	Adult, pediatric: (low limit + 2) to 100 Neonate: (low limit + 2) to 150	1
RR Low	0 to (high limit – 2)	

A.7.3 SpO_2

Standards	Meet standards of ISO80601-2-61		
*Measurement accuracy verification: The SpO_2 accuracy has been verified in human experiments by comparing with arterial blood sample reference measured with a CO-oximeter. Pulse oximeter measurement are statistically distributed and about two-thirds of the measurements are expected to come within the specified accuracy range compared to CO-oximeter measurements.			
SpO_2 measurement range	0 to 100%		
Resolution	1%		
Response time	< 30 s (PI > 0.3, no disturbance, SpO_2 value sudden change within 70% - 100%)		
Accuracy	70 to 100%: ±2% (adult/pediatric mode) 70 to 100%: ±3% (neonate mode) 0% to 69%: Not specified.		
*Studies were performed to validate the accuracy of Pulse Oximeter with neonatal SpO_2 sensors by contrast with a CO-Oximeter. Some neonates aged from 1 day to 30 days with a gestation age of 22 weeks to full term were involved in this study. The statistical analysis of data of this study shows the accuracy (Arms) is within the stated accuracy specification. Please see the following table.			
Sensor type	**Totally neonates**	**Data**	**Arms**
518B	97 (51 male & 46 female)	200 pairs	2.38%
520N	122 (65 male & 57 female)	200 pairs	2.88%
The Pulse Oximeter with neonatal SpO_2 sensors was also validated on adult subjects.			
Refreshing rate	≤2 s		
PI measurement range	0.05% to 20%		
Alarm limit	**Range (%)**	**Step (%)**	
SpO_2 High	(low limit + 2) to 100	1	
SpO_2 Low	Desat to (high limit – 2)		
Desat	0 to (high limit – 2)		

Information of the Test Subjects of the Clinical Study Report:

Skin color	Gender	Number	Age (years)	Health
Black	Male	1	28.2±9.19	Healthy
	Female	1		
yellow	Male	3		
	Female	9		

A.7.4 PR

Alarm limit	Range (bpm)	Step (bpm)
PR High	(low limit +2) to 300	1
PR Low	15 to (high limit-2)	

PR from SpO2 Module

Measurement range	20 to 300 bpm
Resolution	1 bpm
Response time	< 30 s (PI > 0.3, no disturbance, PR value sudden change within 25 – 240 bpm)
Accuracy	±3 bpm
Refreshing rate	≤2 s
SpO_2 averaging time	7 s (when sensitivity is set to High) 9 s (when sensitivity is set to Medium) 11 s (when sensitivity is set to Low)

PR from NIBP Module

Measurement range	30 to 300 bpm
Resolution	1 bpm
Accuracy	±3 bpm or ±3%, whichever is greater
Refreshing rate	≤2 s

PR from IBP Module

Measurement range	25 to 350 bpm
Resolution	1 bpm
Accuracy	±1 bpm or ±1%, whichever is greater
Refreshing rate	≤2 s

A.7.5 NIBP

Standards	Meet standards of IEC80601-2-30,			
Technique	Oscillometry			
Mode of operation	Manual, Auto, STAT, Sequence			
Auto mode repetition intervals	1 min, 2 min, 2.5 min, 3 min, 5 min, 10 min, 15 min, 20 min, 30 min, 1 h, 1.5 h, 2 h, 3 h, 4 h, 8 h			
STAT mode cycle time	5 min			
Max measurement time	Adult, pediatric: 120 s Neonate: 90 s			
Measurement ranges (mmHg)		Adult	Pediatric	Neonate
	Systolic:	25 to 290	25 to 240	25 to 140
	Diastolic:	10 to 250	10 to 200	10 to 115
	Mean:	15 to 260	15 to 215	15 to 125
Accuracy	Max mean error: ±5 mmHg Max standard deviation: 8 mmHg			
Resolution	1mmHg			

Initial cuff inflation pressure range (mmHg)	Adult: 80 to 280 Pediatric: 80 to 210 Neonate: 60 to 140	
Default initial cuff inflation pressure (mmHg)	Adult: 160 Pediatric: 140 Neonate: 90	
Software overpressure protection	Adult, pediatric: 297±3 mmHg Neonate: 147±3 mmHg	
Static pressure measurement range	0 mmHg to 300 mmHg	
Static pressure measurement accuracy	±3 mmHg	
Alarm limit	**Range (mmHg)**	**Step (mmHg)**
Sys High	Adult: (low limit+5) to 290 Pediatric: (low limit+5) to 240 Neonate: (low limit+5) to 140	NIBP ≤ 50: 1 NIBP > 50: 5
Sys Low	25 to (high limit-5)	
Mean High	Adult: (low limit+5) to 260 Pediatric: (low limit+5) to 215 Neonate: (low limit+5) to 125	
Mean Low	15 to (high limit-5)	
Dia High	Adult: (low limit+5) to 250 Pediatric: (low limit+5) to 200 Neonate: (low limit+5) to 115	
Dia Low	10 to (high limit-5)	

*Measurement accuracy verification: In adult and pediatric modes, the blood pressure measurements measured with this device are in compliance with the Standard for Non-invasive sphygmomanometers (ISO 81060-2) in terms of mean error and stardard deviation by comparing with intra-arterial or auscultatory measurements (depending on the configuration) in a typical patient population. For auscultatory reference, the 5th Korotkoff sound was used to determine the diastolic pressure.

In neonatal mode, the blood pressure measurements measured with this device are in compliance with the American National Standard for Non-invasive sphygmomanometers (ISO 81060-2) in terms of mean error and stardard deviation by comparing with intra-arterial measurements (depending on the configuration) in a typical patient population.

A.7.6 Temp

Standards	Meet standard of ISO 80601-2-56
Technique	Thermal resistance
Operating mode	Direct mode
Measurement range	0 to 50 °C (32 to 122 °F)
Resolution	0.1 °C
Accuracy	±0.1 °C (without probe)
Refreshing rate	≤2 s
Minimum time for accurate measurement	Body surface: <100 s Body cavity: <80 s
Transient response time	Body surface probe: <45 s Body cavity probe: <45 s

Measurement	Alarm message	L	I	Cause and solution
SpO_2	SpO_2 Sensor Off	L*	B	The SpO_2 sensor has become detached from the patient or the module, or there is a fault with the SpO_2 sensor, or an unspecified SpO_2 sensor has been used. Check the sensor application site and the sensor type, and make sure if the sensor is damaged. Reconnect the sensor or use a new sensor.
	SpO_2 Sensor Fault	L	C	
	SpO_2 No Sensor	L	B	
	SpO_2 Unknown Sensor	L	C	
	SpO_2 Sensor Incompatible	L	C	
	SpO_2 Too Much Light	L	C	There is too much light on the SpO_2 sensor. Move the sensor to a place with lower level of ambient light or cover the sensor to minimize the ambient light.
	SpO_2 Low Signal	L	C	The SpO_2 signal is too low or too weak. Check the patient's condition and change the sensor application site. If the error persists, replace the sensor.
	SpO_2 Weak Pulse	L	C	
	SpO_2 Interference	L	C	The SpO2 signal has been interfered. Check for any possible sources of signal noise around the sensor and check the patient for great motion.
	SpO_2 Board Fault	L	C	There is a problem with the SpO_2 measurement board. Do not use the module and contact your service personnel.
NIBP	NIBP Loose Cuff	L	A	The NIBP cuff is not properly connected, or there is a leak in the airway.
	NIBP Air Leak	L	A	
	NIBP Pneumatic Leak	L	A	Check the NIBP cuff and pump for leakages.
	NIBP Cuff Type Wrong	L	A	The cuff type applied mismatches the patient category. Verify the patient category and replace the cuff.
	NIBP Air Pressure Err	L	A	An error occurred to the air pressure. Verify that the monitor application site meets the environmental requirements and check if there is any source that affects the air pressure.
	NIBP Weak Signal	L	A	The patient's pulse is weak or the cuff is loose. Check the patient's condition and change the cuff application site. If the error persists, replace the cuff.
	NIBP Signal Saturated	L	A	The NIBP signal is saturated due to excess motion or other sources.
	NIBP Overrange	L	A	The measured NIBP value exceeds the module measurement range.
	NIBP Excessive Motion	L	A	Check the patient's condition and reduce the patient motion.
	NIBP Cuff Overpress.	L	A	The NIBP airway may be occluded. Check the airway and measure again.
	NIBP Equip Err	H	A	An error occurred during NIBP measurement and therefore the monitor cannot perform analysis correctly. Check the patient's condition and NIBP connections, or replace the cuff.
	NIBP Timeout	L	A	
	NIBP Measure Failed	L	A	
	NIBP Illegally Reset	L	A	An illegal reset occurred during NIBP measurement. Check if the airway is occluded.