



Training Excellence

Benevision TM80

Advanced User Guide

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Note: This Advanced User Guide is not intended as a replacement for the operating instructions. Before operating equipment, the user should also be familiar with the operator's manual contents. This document is a guide only to be used as an aid to clinical training.

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Section 1 Safety

ASSESSMENT


















PERFORMANCE CRITERIA

Safety Checks of the TM80

Verifies:

- The equipment is clean
- There are no visible signs of damage
- All appropriate patient accessory cables are present, in correct working order and operating condition

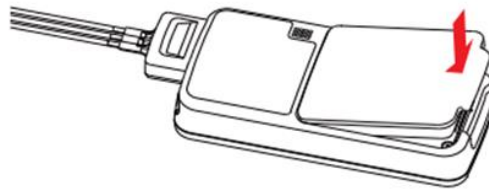
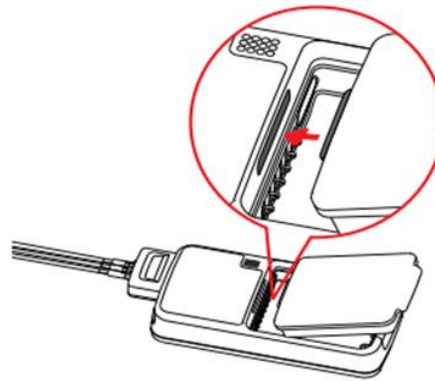
Understand the Equipment Symbols

Symbol	Description	Symbol	Description
	Power On/Off key		Main menu key
	Nurse call key		DEFIBRILLATION-PROOF TYPE CF APPLIED PART
	Standby		Serial number
	Date of manufacture		Manufacturer
IPX7	Protection against fluid ingress		Refer to instruction manual/booklet
	General warning sign		Temperature limit
	Humidity limitation		Atmospheric pressure limitation
	Authorized representative in the European Community		Non-ionizing electromagnetic radiation
	This product bears CE mark indicating its conformity with the provisions of the Council Directive 93/42/EEC concerning medical devices and fulfils the essential requirements of Annex I of this directive. Note: The product complies with the Council Directive 2011/65/EU.		
	Dispose of in accordance with the local country's requirements		

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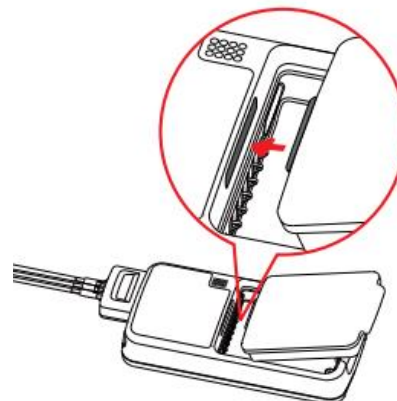
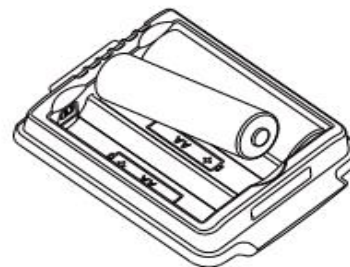
Install the rechargeable lithium-ion battery, follow this procedure:

- Open the battery compartment by lifting up on both bottom sides of the compartment door.
- Remove the AA battery tray if present.
- Align the raised tab in the upper part of the lithium-ion battery with the cutout in the base of the battery compartment, as indicated by the enlarged figure below.
- Press down the battery until it is secured, as indicated by the arrow in the following figure.



Installing the AA Batteries

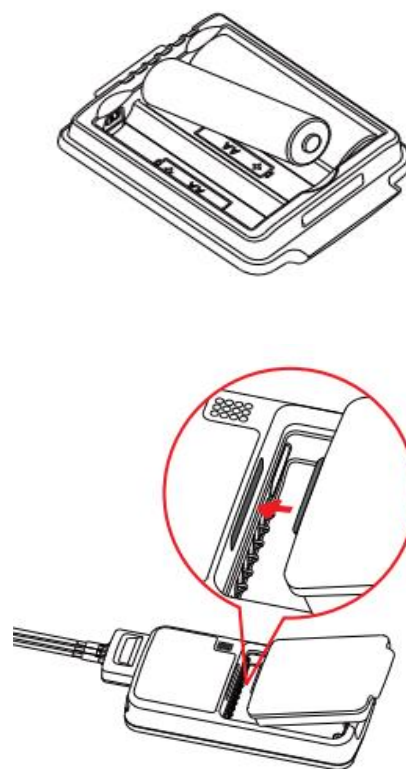
- Open the battery compartment by lifting up on both bottom sides of the compartment door.
- Insert three AA 1.5V Alkaline batteries into the AA battery tray, matching the polarity with the +indications inside the battery tray as shown.
- Insert the AA battery tray if not already present.
- Align the raised tab in the upper part of the battery tray with the cutout in the base of the battery compartment, as indicated by the enlarged part in the following figure
- Press down the battery tray until it closes firmly as indicated by the arrow in the following figure.



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Installing the AA Batteries

- Open the battery compartment by lifting up on both bottom sides of the compartment door.
- Insert three AA 1.5V Alkaline batteries into the AA battery tray, matching the polarity with the + indications inside the battery tray as shown.
- Insert the AA battery tray if not already present.
- Align the raised tab in the upper part of the battery tray with the cutout in the base of the battery compartment, as indicated by the enlarged part in the following figure
- Press down the battery tray until it closes firmly as indicated by the arrow in the following figure.



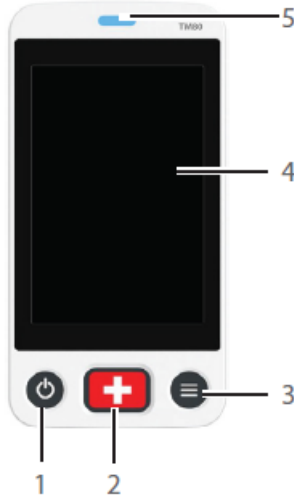







Battery Safety Information

- Keep the batteries in their original package until you are ready to use them.
- Make sure to install the lithium-ion battery or the AA battery tray and close the battery compartment during defibrillation.
- Only use recommended AA batteries or rechargeable lithium-ion battery to power the TM80. Other power supplies may cause damage to the equipment or lead to body injury.
- While installing AA batteries, do not apply reverse polarity.
- Only use recommended fresh AA batteries. Using other AA batteries can give unacceptable performance.
- Do not mix old and new AA batteries.
- Only use the specified rechargeable lithium-ion battery. Unspecified lithium-ion I unacceptable performance.
- Use caution when handling the rechargeable lithium-ion battery. Misuse or abuse may cause bodily injury or equipment damage.
- The rechargeable lithium-ion batteries should be charged in the specified central charger.
- If a battery shows signs of damage or signs of leakage, replace it immediately. Use caution in removing the battery. Avoid contact with skin. Consult qualified service personnel.
- Remove the battery before transporting the equipment or if the equipment is not in use or is being stored.
- The TM80 cannot be used for monitoring if the battery compartment is wet.
- Remove the batteries and wipe the compartment dry before continued

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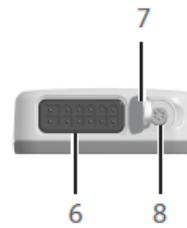
Section 2

Physical View

ASSESSMENT	PERFORMANCE CRITERIA
Front of TM80 Overview	 <ol style="list-style-type: none"> 1. Display Activation (Power On/Off) key When the TM80 is powered off Pressing this  key will turn the TM80 on. When the TM80 is powered on And the screen display is on, pressing this key  will turn the display off. And the screen display is off, pressing this  key will turn the display on. Press and hold this key for two seconds to display the power off confirmation menu. 2. Nurse Call key Nurse call key activates nurse call message at the Central Monitoring System (CMS). 3. Main Menu key Pressing this  key when on the main screen will open the main menu. Pressing this  key when a menu is open will return to the main screen. Pressing this  key when the display is off will turn the display on. Pressing this  key when the screen lock mode is configured for View Only will display the Screen Locked menu. 4. Display Touch screen display for viewing patient information and adjusting patient settings. 5. Patient alarm light indicator

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Top of TM80 Overview



6. ECG lead connector

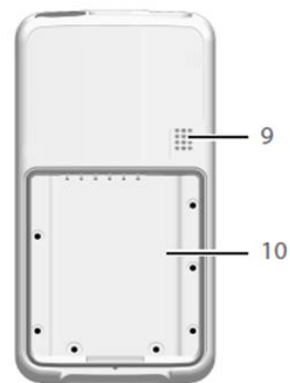
7. SpO2 cap

Covers SpO2 connector when SpO2 is not in use.

8. SpO2 connector

Connects the SpO2 module.

Back of TM80 Overview





9. Speaker

10. The battery compartment contains the lithium-ion battery pack or AA battery tray.

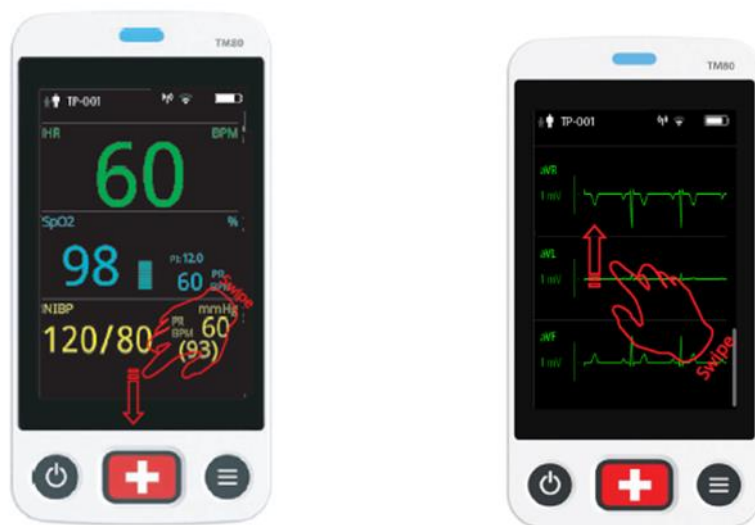
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Section 3 General Navigation

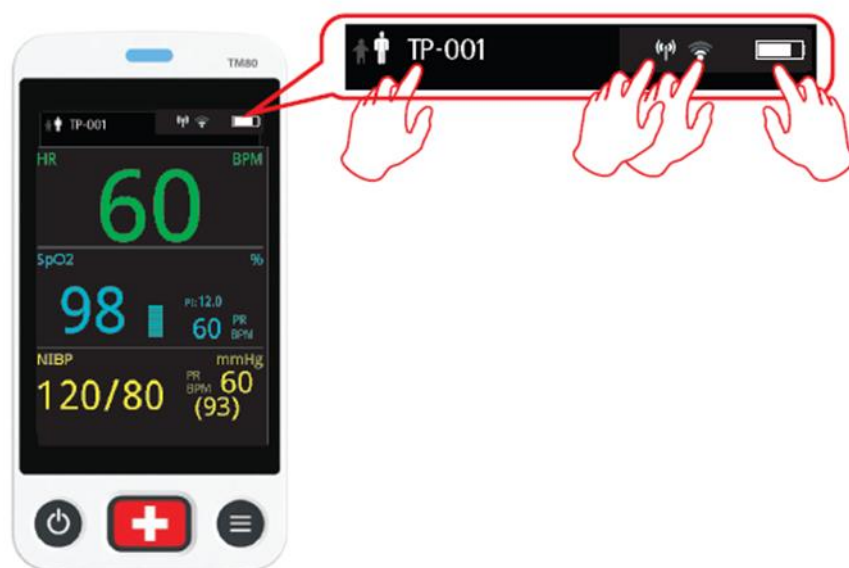
ASSESSMENT	PERFORMANCE CRITERIA
Display Screen	 <ol style="list-style-type: none"> 1. Patient Information Area 2. Alarm Indicator 3. MPAN Indicator 4. Wi-fi Symbol 5. Battery Symbol 6. System Time 7. Prompt Message 8. Patient Data
Accessing Quick Keys	

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Swipe for More Data



View More Data



Switch Orientation

Switch Orientation

1. Swipe your finger down from the top of the main screen to display the drop-down menu.
2. Tap the desired option to switch the screen display orientation.
Flip the Landscape Display
3. Swipe your finger down from the top of the main screen to display the drop-down menu.
4. Tap **Flip Display** to flip the landscape display horizontally.

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Screen Lock



The TM80 allows the clinician to adjust the parameter order on the main display. To adjust the display order:



1. Press to enter the main menu.
2. Tap Display Setup.
3. To set portrait display orientation, tap Portrait Order.
To set landscape display orientation, tap **Landscape Order**.
4. Tap a parameter or waveform
5. The parameter icon displays to the right.
6. Drag the selected parameter to the desired position and release.
7. Repeat steps 4 and 5 as needed.
8. Press to return to the main screen.




Enable the Screen Lock

After the first time the screen lock is enabled, a passcode is required.

To enable the screen lock:



1. Press  to enter the main menu.
2. Tap Maintenance.
3. Enter maintenance password
4. Tap Accept.
5. Tap Screen Lock to select a screen lock mode: Locked or View Only.
6. Enter the screen lock passcode.
The selected lock mode is displayed to the right of the Screen Lock.
7. Press  to return to the main screen.

1. If the display is off, press  or  to activate the display and access the Screen Locked menu.
2. Enter the passcode to unlock the screen.
Once the passcode is entered the screen is temporarily unlocked. If the clinician turns off the TM80 or the display times out, the passcode will need to be re-entered.

1. If the display is off, press  or  to activate the display.
2. Press  to display the Screen Locked menu.
3. Enter the passcode to unlock the screen.
Once the passcode is entered the screen is temporarily unlocked. If the clinician turns off the TM80 or the display times out, the passcode will need to be re-entered.

Adjust Volumes



The clinician can adjust alarm volumes, key volumes, and QRS volume on the TM80. To adjust the volume settings:

1. Press  to enter the main menu.
2. Tap **Audio Volume**.
3. Select the category to adjust and drag the slider to the appropriate volume.
4. Press  to return to the main screen.

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Parameter Colours

To adjust the parameter's colour at the TM80:




1. Press  to enter the main menu.
2. Tap Parameter Setup.
3. Tap the parameter.
4. Tap Colour.
5. Select the colour.
6. Press  to return to the main screen.

Note: The parameter colour configuration on the TM80 and the CMS are independent





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Section 4

Patient Management

ASSESSMENT	PERFORMANCE CRITERIA
<p>PATIENT SETUP</p> <p>Admit</p> <p>Discharge</p> <p>Adjust Patient Category</p>	<p>Turn on device, prompt Is this a New Patient? Select Yes</p> <p>After discharging the previous patient, you can admit a new patient by pressing </p> <p>Select Patient Info input following details:</p> <ol style="list-style-type: none"> 1. Patient Category >Accept 2. Paced yes/no >Accept 3. Department > Accept 4. Room number > Accept 5. Bed Number> Accept 6. Press < to return <p>Note: These details can also be entered on the Central Monitor</p> <p>Discharge:</p> <p>Discharging the patient will stop monitoring, clear patient information, and restore default (preset) settings on the TM80.</p> <p>A patient can be discharged by selecting  then the Discharge Patient menu.</p> <ol style="list-style-type: none"> 1. Tap Discharge Patient. 2. Select Yes <p>Note: Discharging the patient on the TM80 discharges the patient from the CMS and the TM80. The patient will be added to the discharged patients list at the CMS.</p> <p>To adjust the patient category:</p> <ol style="list-style-type: none"> 1. Press  to enter the main menu. 2. Tap Patient Info. 3. Tap Patient Category to select the patient category. 4. Select Yes to confirm that the patient category should be changed. <p>The selected patient category is displayed to the right of the Patient Category.</p> <p>Press  to return to the main screen.</p> <p>Note: The patient category can only be changed on the TM80.</p> <p>Note: Adjusting the patient category restores the TM80 to the default (preset) settings but does not clear patient information or data.</p> <p>Note: When the device is connected to the CMS, the patient category at the CMS is updated if the patient category is changed on the TM80.</p>



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Standby	<p>Enter Standby places a device into standby and suspends patient monitoring. Alarms are suspended. Displays Standby on the screen.</p> <p>The screen display automatically turns off after the device enters the Standby mode for 30 seconds.</p> <p>Note: When connected to the CMS, and a device enters or exits Standby mode, the CMS is also notified to enter or exit Standby mode.</p> <p>To enter Standby mode:</p> <ol style="list-style-type: none"> 1. Press  to enter the main menu. 2. Tap Standby. 3. Select Yes to confirm the device should enter Standby mode. <p>Resume Monitoring restores the patient's settings, resumes alarm notification on the TM80 and the CMS, alarm system is activated. The TM80 notifies the CMS of returning to Monitoring mode.</p> <p>To exit Standby mode:</p> <ol style="list-style-type: none"> 1. Press  to exit Standby mode. 2. Select Yes
Printing	<p>The clinician can print a strip from the TM80 to the CMS.</p> <p>To print a strip:</p> <ol style="list-style-type: none"> 1. Swipe up from the bottom of the screen to access Quick Keys 2. Select Print from the quick key area or Command section in the main menu.
Nurse Call	<p>Activate a Nurse Call (Optional)</p> <ol style="list-style-type: none"> 1. Press  to activate a nurse call request to the CMS. 2. The alarm light/indicator will flash cyan, and a "Nurse Call Initiated" message will display in the message area if the display is active. 3. Acknowledge the Nurse Call 4. The clinician can acknowledge the nurse's call on the TM80. <p>To acknowledge the nurse call alarm:</p> <ol style="list-style-type: none"> 1. Press  to enter the main menu. 2. Tap Attendant Present. 3. The "Nurse Call Cancelled" message will be displayed in the message area.

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Section 5

Parameter Settings

ASSESSMENT	PERFORMANCE CRITERIA
Resp Digital Area	<div data-bbox="778 645 1353 819"> <p>1. Parameter Name 2. Measurement Unit 3. Respiration Rate (RR) (Resolution of 1/RPM) 4. Alarm High Limit and Low Limit 5.  Symbol when alarm off</p> </div> <div data-bbox="762 1066 1359 1321"> <p>1. Resp Lead Label 2. Resp Waveform 3. Resp Waveform Gain</p> </div>
No Chest Movement (NCM) Alarm delay	<p>The TM80 allows configuring the desired time for NCM Alarm Delay. When the patient has stopped breathing for longer than the set NCM Alarm Delay time, the TM80 will trigger the "No Chest Movement" alarm.</p> <p>Note: Resp needs to be enabled in maintenance settings. To set NCM Alarm Delay: Tap the Resp digital area or Resp waveform area on the main screen to enter the Resp menu.</p> <p>OR</p> <ol style="list-style-type: none"> 1. Press  to enter the main menu. 2. Tap Parameter Setup. 3. Tap Resp. 4. Set NCM Alarm Delay. (10s,15s,20s,25s,30s,35s,40s) <p>Note: The "No Chest Movement" alarm is only displayed on the Central Monitoring System. Note: The Resp functionality for the TM80 telemetry monitor is available at the CMS, version 03.00 and above only.</p>



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ECG

Select ECG Lead wire allows the clinician to set the ECG Lead wire type being used. To configure the ECG Lead wire Type:

On the main screen, tap the HR digital area or ECG waveform area to enter the ECG menu.

Or

1. Press  to enter the main menu.
2. Tap Parameter Setup.
3. Tap ECG.
4. Select Cable Type.
5. Select the chosen lead set
6. Press  to return to the main screen.

Auto: the device automatically sets the lead wire type according to the leads connected.

ECG Screen

Note: If the lead wire type is set to 3-lead, the Smart Lead option becomes monitored Lead. The clinician can select the preferred lead from the monitored Lead.




1. ECG Lead
2. ECG Scale Bar
3. ECG Waveform
4. ECG Filter Setting
5. ECG Scale

The TM80 Lead Placement menu allows the clinician to check the ECG Lead Status and troubleshoot Lead Fault messages. To enter the Lead Placement menu:

Tap the lead off message on the main screen.

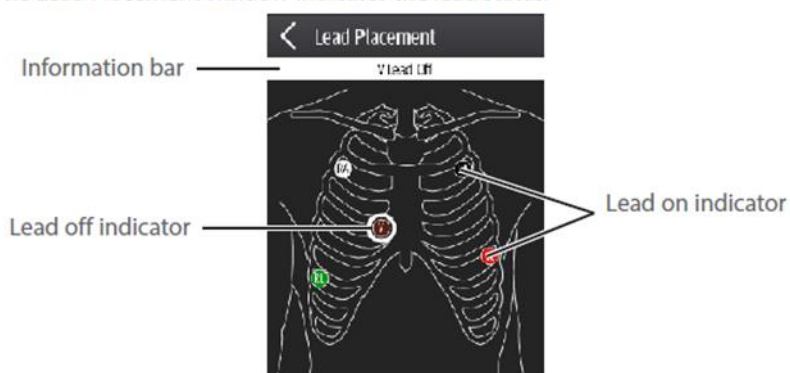
Or

Press  to enter the main menu, and then tap Lead Placement.

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Lead Placement

The Lead Placement window indicates the lead status.



Arrhythmia Monitoring

To change arrhythmia alarm settings, follow this procedure:


1. On the main screen, tap the HR digital area or ECG waveform area to enter the [ECG] menu.
2. In the [Parameter Setup] section, tap [Arrhythmia].
3. Tap [Arrhythmia Alarm Setup]. The [Arrhythmia Alarm Setup] menu is displayed.
4. In the [Setup] section, select the desired option:

[All On]: Switches on all arrhythmia alarms.

[All Off]: Switches off all arrhythmia alarms. This button becomes inactive when [Lethal Arrhy Alarms Off] is disabled in the System Setup menu of the CMS.



[Lethal Only]: Switches on all the lethal arrhythmia alarms only. Other types of arrhythmia alarms are off.

Pacer

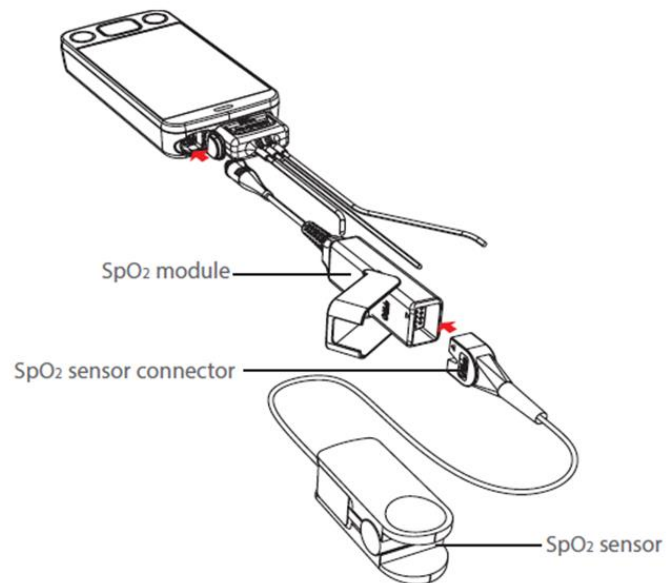
The TM80 allows the clinician to enable pacemaker detection. The  symbol is displayed in the waveform area on the CMS when the pacemaker detection is enabled. To enable the pacemaker detection on the TM80:

1. On the main screen, select the HR digital area or ECG waveform area to enter the ECG menu.

Or

1. Press  to enter the main menu.
2. Tap Patient Info.
3. Tap Paced to enable Pacer by selecting Yes.
4. Press  to return to the main screen.

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SpO₂ (Optional):Changing SpO₂ Settings

Enter the [SpO₂] menu in either of the following ways:
On the main screen, tap the SpO₂ digital area or waveform area.

Or

Press  to enter the main menu → tap **[Parameter Setup]** → tap **[SpO₂]**.

Configuring SpO₂ Settings

1. Display Perfusion Index – On/off
2. Sensitivity Select – High, Med or Low
3. Colour – select one of 16 colours.

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1. Tap the prompt message area on the main screen. The **[Alarm List]** dialog is displayed.
2. In the **[Physiological Alarms]** section, you can view the number of physiological alarms and alarm messages.
3. Tap the desired physiological alarm to enter the event review page where you can view the alarm details.
4. In the **[Technical Alarms]** section, you can view the technical alarms and alarm messages.


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Changing Alarm Settings

To change alarm properties, follow this procedure:

Enter the **[Alarm Limit]** menu in either of the following ways:

Press  to enter the main menu → tap **[Alarms]** → tap **[Alarm Limits]**.
Tap the desired digital area or waveform area to enter the corresponding parameter setup menu → from the **[Alarms]** section, select the alarm setup option.


1. In the **[Alarm Limits]** section, switch on or off a parameter alarm.
2. Tap the desired parameter to enter its alarm setup menu.
3. In the **[Limits]** section, tap the alarm limit you want to change.
4. Enter the new alarm limit.
5. Tap  to return to the parameter alarm setup menu.
6. Set the desired alarm priority in the **[Priority]** section.

Note: Any changes to the alarm properties on the TM80 will change the alarms on the CMS and vice versa if configured.

Alarm Reset

Alarm Reset

To silence an alarm for the duration of the alarm on the TM80 and the CMS:

1. Press  to enter the main menu.
2. Tap Alarm Reset from the Commands section.

Or

When Alarm Reset is configured as a Quick key, you can

1. Swipe up your finger at the bottom of the main screen to display the quick keys area.
2. Tap the Alarm Reset quick key.

After the alarm system is reset, depending upon the system configuration, the alarm system responds as follows:

For the technical alarm:

The alarm sound will be silenced.

The alarm light will continue to indicate the alarm.

A ✓ will appear before the alarm message.

The  symbol appears on the top of the main screen.


Technical alarm

For the technical alarm, the alarm sound will be silenced and the alarm light will continue to indicate the alarm. The alarm will be changed to the prompt message.

When alarm reset is pressed for the technical alarm the alarm will be cleared and no alarm indications will be visible.

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Section 7 Cleaning and Disinfecting

ASSESSMENT	PERFORMANCE CRITERIA
Clean the TM80	<p>Clean your equipment on a regular basis. Before cleaning, consult your hospital's regulations for cleaning the equipment.</p> <p>Caution: Never immerse the lithium-ion battery pack, AA battery tray and AA batteries in any fluids.</p> <p>Before cleaning your TM80, make the following preparation:</p> <ol style="list-style-type: none"> 1. Install the battery pack or battery tray and firmly close to seal the battery compartment. 2. Insert the SpO2 cover in the SpO2 connector when SpO2 is not in use. 3. Insert the ECG lead wire plug into the ECG connector.  <p>Note: For equipment with the above symbol, all the listed cleaning and disinfecting agents are available for Use (refer to manual for list). For equipment without the symbol, only the cleaning and disinfecting agents marked with "*" are available for use.</p> <p>To clean the equipment:</p> <ol style="list-style-type: none"> 1. Shut down the device. 2. Clean the display screen with wipes or a soft cloth moistened with one of the cleaning agents listed in the table below. 3. Clean the exterior surface of the telemetry monitor main unit and lithium-ion battery pack with wipes or a soft cloth moistened with one of the cleaning agents listed in the table above. 4. Wipe off all the residue with a dry cloth. 5. Dry your equipment in a ventilated, cool place. <p>Disinfect your equipment as required in your hospital's servicing schedule using one of the disinfecting agents listed in the manual. Cleaning the equipment before disinfecting is recommended.</p>
Cleaning Accessories and SpO2 Module	<p>Refer to the cleaning procedure described in the ECG Cable and Lead Set Instructions for Use and SpO2 Sensor Instructions for Use to clean the reusable ECG lead wires and SpO2 sensor.</p>

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