BeneVision

Multi Patient Viewer

Operator's Manual

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WARNING

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■ The product is used in accordance with the instructions for use.

WARNING

- **This equipment must be operated by skilled/trained clinical professionals.**

- **It is important for the hospital or organization that employs this equipment to carry out a reasonable service/maintenance plan. Neglect of this may result in machine breakdown or personal injury.**

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Preface

Manual Purpose

This manual contains the instructions necessary to operate the product safely and in accordance with its function and intended use. Observance of this manual is a prerequisite for proper product performance and correct operation and ensures patient and operator safety.

This manual is based on the maximum configuration and therefore some contents may not apply to your product. If you have any question, please contact Mindray.

This manual is an integral part of the product. It should always be kept close to the equipment so that it can be obtained conveniently when needed.

Intended Audience

This manual is geared for clinical professionals who are expected to have a working knowledge of medical procedures, practices and terminology as required for monitoring of critically ill patients.

Illustrations

All illustrations in this manual serve as examples only.They may not necessarily reflect the setup or data displayed on your Multi Patient Viewer.

Conventions

- *Italic text* is used in this manual to quote the referenced manuals, chapters, sections and formulas.

- **Bold text** is used to indicate the screen texts and names of hard keys.

- → is used to indicate operational procedures.

Contents

1 General Product Description

The Multi Patient Viewer is used to view multiple patients or a single patient connected to the target CentralStation. It is independent of the BeneVision Central Monitoring System (hereinafter referred to as the CMS) and shall be installed separately. The Multi Patient Viewer is for remote browsing only and cannot be used to set or control the target CentralStation or the monitoring devices at the target CentralStation.

NOTE

- **The Multi Patient Viewer supports a maximum of 36 monitoring devices.**

- **Do not install the Multi Patient Viewer and the CMS system software on the same PC.**

- **The Multi Patient Viewer does not provide alarm sound.**

- **The system time of the Multi Patient Viewer shall be consistent with the system time of the CentralStation.**

- **In this manual, the functions are presented according to the maximum product configuration.**

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2 Getting Started

2.1 Overview

This chapter describes preparation before using the Multi Patient Viewer and gives an overview of the Multi Patient Viewer.

2.2 Starting the Viewer

To start the Multi Patient viewer, follow this procedure:

1. Turn on the host to start the operating system and displays.
2. Click the shortcut [icon] and the Multi Patient Viewer will perform a series of self-tests.
   ◆ If the self-tests pass, the Multi Patient Viewer will enter the multibed screen immediately.
   ◆ If the self-tests fail, an error message is displayed. In this case, consult the manual provided with the computer for assistance or contact Mindray.

CAUTION

- **To prevent damaging the system from a sudden power failure, it is recommended that the host of your Multi Patient Viewer is equipped with a UPS.**

2.3 Symbols on the Multibed Screen

The following table lists the symbols displayed on the multibed screen. The same symbol might display on other screens.

2.3.1 Patient Category Symbols

Symbol	Description	Symbol	Description
[icon]	Adult, male	[icon]	Adult, female
[icon]	Pediatric, male	[icon]	Pediatric, female
[icon]	Neonate, male	[icon]	Neonate, female

NOTE
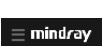
- **Grey patient category symbol indicates that the gender of the patient is not specified.**

2.3.2 Alarm Symbols

Symbol	Description	Symbol	Description
	All the alarms are paused.		Alarms for some parameter are turned off or the bedside device is in the alarm off state.
	Audible alarms are paused.		Audible alarms are turned off.
	Alarms are reset.		The system is silenced.

2.3.3 Operation Symbols

Symbol	Description	Symbol	Description
	Selecting this symbol displays clinical response to current EWS score.	☰ mindray	System menu area symbol, selecting this symbol opens the system menu.

2.3.4 Battery Status Symbols

Symbol	Description	Symbol	Description
	The battery of the device has sufficient power.		The battery of the device has low charge and needs to be charged or changed.
	The battery of the device has critically low charge and needs to be charged or changed immediately. Otherwise, the device will shut down.		No battery is installed into the device.

NOTE

- **When a battery symbol listed in the table above is displayed, see appropriate bedside device's operator's manuals for details about the battery time and alarms.**

2.3.5 Other Symbols

Symbol	Description	Symbol	Description
	A patient's pacing status is set to **Yes**. The pace pulse markers "|" are shown on the ECG wave when a pacer pulse is detected.		A patient's pacing status is set to **No**. or **Unspecified**.
	Indicate current EWS score is higher than the previous.		Indicate current EWS score is lower than the previous.
	Indicate current patient sector is idle and can admit a bedside device.		Contain more than one alarm messages.

Symbol	Description	Symbol	Description
+	Indicate that the followed parameter is from an external device connected to the monitor.	(nurse call symbol)	This is the nurse call symbol. After the nurse call button is pressed on a bedside device, this symbol will continuously flash in the waveform area. Selecting this symbol clears this symbol. The nurse call will be stored on the event review page.
(privacy symbol)	This device is in privacy mode.	(night mode symbol)	This device is in night mode.
(Wi-Fi symbol)	Indicate the Wi-Fi signal strength after a bedside device is connected to an AP. More white arcs indicate a stronger Wi-Fi signal strength.	(signal strength symbol)	Indicate the received signal strength of telemetry devices. The color of the symbol changes to indicate received signal strength changes. White: indicates the received signal strength is normal. Yellow: indicates the received signal strength is weak. Red: indicates no signal is received.
(patient list symbol)	Patient list symbol, selecting this symbol opens patient list.		

2.4 Viewing System Information

To view system information, follow this procedure:

1. Select the system menu area in the upper left corner of the screen.

2. From the drop-down list, select **System Information**.

2.5 Exiting the Viewer

It is important to properly exit the Multi Patient viewer. To exit the viewer, follow this procedure:

1. Select the system menu area in the upper left corner of the main screen.

2. From the drop-down list, select **Exit**. The viewer checks if any patients are being monitored:

   ◆ If no patients are being monitored, go to the Step 3.

   ◆ If patients are still being monitored, the message **N patients are being monitored. Are you sure you want to exit program?** (where **N** stands for the number of patients) is displayed. Select **OK**.

3. Enter the exit password in the **Exit** dialog and select **OK**. The password is the same as that for accessing system setup tabs.Then, the viewer will automatically close.

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3 Device Management

The Multi Patient Viewer can admit, discharge or bind devices.

3.1 Admitting Devices

If you need to monitor the patient on the Multi Patient Viewer you should admit the devices from the CentralStation on the Multi Patient Viewer.

NOTE

- **The Multi Patient Viewer must be connected to the host CentralStation and have bed authorization before it admits a device from the host CentralStation.**

3.1.1 Automatically Admitting Devices

To monitor patients on the Multi Patient Viewer, you need to admit devices from a CentralStation first.

If the devices are collectively distributed within certain CentralStations or certain departments, you can set the Multi Patient Viewer to automatically admit devices. To do so, follow this procedure:

1. Select the Multi Patient Viewer's system menu area in the upper left corner of the screen → select **System Setup** to access the **System Setup** menu.
2. Select the **Device Management** tab → enter the required password → select the **OK** button to access the device management screen.
3. Select the **Auto Admit Bed** tab.
4. Select the **Detail** button at the end of the desired CentralStation.
5. Set the desired conditions for auto assignment.

    ◆ If you need to assign all the bedside devices from the host CentralStation, select **Auto Admit all beds in this CentralStation**.

    ◆ If you need to assign some bedside devices from the host CentralStation, do not select **Auto Admit all beds in this CentralStation**. Instead, enter the desired numbers under **Department, Room No** and **Bed No**, and then select the **Add** button on the right of **List of Beds Admitted Automatically**.
6. If you need to admit devices from more CentralStations or more departments, repeat step 4 and step 5.

Once the eligible devices are detected, they will be automatically assigned to idle patient sectors on the multibed screen of the Multi Patient Viewer in the order of left to right and from top to bottom.

A bedside device automatically assigned is not bound with a patient sector on the multibed screen. After discharging a patient, the patient sector is in idle status. If you need to bind the device and the patient sector, refer to *3.3 Binding or Unbinding the Device and the Patient Sector*.

NOTE

- **When you need to assign some bedside devices from the host CentralStation, do not select Auto Admit all beds in this CentralStation, otherwise, all the devices in this CentralStation will be admitted.**

3.1.2 Manually Admitting Devices

If you need to monitor certain devices, you can manually admit the devices.

3.1.2.1 Entering the Device Assignment Menu

Enter the device assignment menu in either of the following ways:

■ Select the system menu area in the upper left corner of the screen → select **System Setup** to access the **System Setup** menu → select the **Device Management** tab → enter the required password → select the **OK** button.

■ Select the system menu area in the upper left corner of the main screen→ from the drop-down list select the **Device Management** tab → select **Device Assignment** tab.

■ On the Multibed screen, select the patient sector with the ▪+ symbol.

If you enter the device assignment menu in the first way, the admitted device and the patient sector will be bound, while in the second and third ways, the admitted device and the patient sector will not be bound. For details on binding the device and the patient sector, refer to *3.3 Binding or Unbinding the Device and the Patient Sector*.

After entering the device assignment menu, you may see the following symbols:

■ (i) : select this symbol to see device information such as IP address, admitting status etc.

■ ▲▼ : select this symbol to sort the devices.

■ ↻ : select this symbol to refresh the device list.

■ ⚠ : this symbol indicates that this device cannot be admitted by the current CentralStation as it has been admitted by another CentralStation. Select this symbol to see the device information such as IP address, admitting status etc.

3.1.2.2   Starting Manually Admitting Devices

To start manually admit devices, follow this procedure:

1. Enter device assignment menu. For how to enter device assignment menu, refer to *3.1.2.1 Entering the Device Assignment Menu*.

2. If you have multiple screens, select the desired screen to admit devices. You can select **Identify** to verify the numbering of the screen.

3. Click [▾] button and select the department where the devices are located.

4. If you need to specify a patient sector for the device, select one. Without specifying a patient sector, the devices will be assigned to idle patient sectors on the multibed screen in the order of left to right and from top to bottom.

5. Select the ✚ symbol on the right side of the desired device to admit this device.

3.2   Testing Devices Connection

If the device is not connected with the Multi Patient Viewer properly, you can test to find the reason. To test the connection between the device and the system, follow this procedure:

1. Select the system menu area in the upper left corner of the screen → select **System Setup** to access the **System Setup** menu → select the **Device Management** tab → enter the required password → select the **OK** button.

2. Select the **Device Assignment** tab to access the device assignment screen.

3. On the right side of the screen, select **Network Test**.

3.3   Binding or Unbinding the Device and the Patient Sector

If you need to monitor a device for a long period of time, bind the device and the patient sector, then you will be able to monitor this device on this specific patient sector.

If you need to temporarily monitor a device, unbind the device and the patient sector, then the patient sector can admit a new device when a patient is discharged from the device.

To bind or unbind the device and the patient sector, follow this procedure:

1. Select the system menu area in the upper left corner of the screen → select **System Setup** to access the **System Setup** menu → select the **Device Management** tab → enter the required password → select the **OK** button.

2. Select the **Device Assignment** tab to access the device assignment screen.

3. Select the device symbol on the desired patient sector to bind or unbind the device and the patient sector:

◆ 🔒 : this symbol indicates that the device and the patient are bound. When the patient is discharged, the device is still admitted and taking up this patient sector. After readmitting a patient, you can continue monitoring this device on this patient sector.

◆ 🔓 : this symbol indicates that the device and the patient sector are not bound. Once the patient is discharged, the device is discharged and the patient sector can admit a new device.

3.4 Checking the Pairing of a Telemetry Device and a Patient Monitor

You can connect a TM80 or TM70 telemetry monitor (hereinafter called the telemetry) with the N series monitor (hereinafter called the monitor) to measure the ECG, Resp, SpO_2, and NIBP of ambulatory adult and pediatric patients. The process of connecting the telemetry and the monitor is called "pairing". The process of connecting the telemetry and the monitor is called "pairing". For details on how to pair the telemetry and the monitor, refer to the operator manuals of the telemetry and the monitor.

You can check whether the telemetry and the monitor are paired or not on the Multi Patient Viewer.

Follow this procedure:

1. Select the parameter area or waveform area in the desired patient sector on the multibed screen to access the ViewBed screen.

2. Access the Bedside Devices window in either of the following ways:

   ◆ Select the bedside devices hot key at the bottom of the ViewBed screen.

   ◆ At the bottom of the ViewBed screen, select **Main Menu** quick key from the quick key area → from the **Bedside Devices** column select **Bedside Devices.**

If the telemetry is displayed in the Bedside Device window, it indicates the telemetry is paired with the monitor; if not, then the telemetry is not paired with the monitor.

3.5 Checking the Device List

The device list displays the information of all the devices connected to the system.

To check the device list, follow this procedure:

1. Select the system menu area in the upper left corner of the screen → select **Device Management** .

2. Select the **Device List** tab. The device list window displays device type, device name and device status etc.

3. You can perform the following operations in the device list window:

   ◆ Enter key words in the search bar to select the desired devices.

   ◆ Select the refresh symbol 🔄 to manually refresh the device list.

   ◆ Select a field in the first row of the device list. The list will sorts by this field. For example, selecting the **Device Type** field makes the device list sorted by the device type.

NOTE

- **You can check the device list only when the system is connected with a master server.**

3.6 Discharging Devices

To discharge devices, follow this procedure:

1. Select the system menu area in the upper left corner of the screen → select **System Setup** to access the **System Setup** menu → select the **Device Management** tab → enter the required password → select the **OK** button.

2. Select the **Device Assignment** tab to access the device assignment screen.

3. Discharge the device in either of the following ways:

   ◆ Select the desired screen → select the ✕ button on the patient sector.

   ◆ Click [▾] button and select the department where the devices are located → select the ▬ button to discharge the device.

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4   Patient Management

4.1   Discharged Patients Management

On the discharged patients management screen, you can perform operations such as viewing the demographic information and historical data for discharged patients.

4.1.1   Accessing the Discharged Patients Management Screen

To access the discharged patients management screen, follow this procedure:

1. Select the system menu area in the upper left corner of the screen.
2. From the drop-down list, select **Discharged Patients**.

4.1.2   Viewing Discharged Patient Information

To view discharged patient information, follow this procedure:

1. Select the target CentralStation from the [▾] button in the upper left corner of the discharged patients management screen.
   - ◆ **Local Central Station:** view discharged patients in current station.
   - ◆ Name of other central stations: view discharged patients in other central stations.
2. Input query criteria. If you need to specify more criteria, select the **Filter** button and input more criteria.
3. Select the **Search** button.
4. Select the **Detail** button in the desired patient information.After selecting this button, you can view the patient information and historical data in the **Patient Management** tab and **Review** tab respectively. For details on patient information review, see *8 Review*.

4.1.3   Printing Historical Data of Discharged Patients

After entering the review screen of discharged patients, you can print historical data of discharged patients.

For details on how to enter the review screen of discharged patients, see Section *8.2.2 Entering the Review Screen for Discharged Patients*.

For details on how to print historical data of discharged patients, see Chapter *8 Review*.

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5 Multibed Screen

Once started, the Multi Patient Viewer displays the multibed screen where multiple patients are monitored collectively.

5.1 Example Multibed Screen

The following figure shows the regular multibed screen:
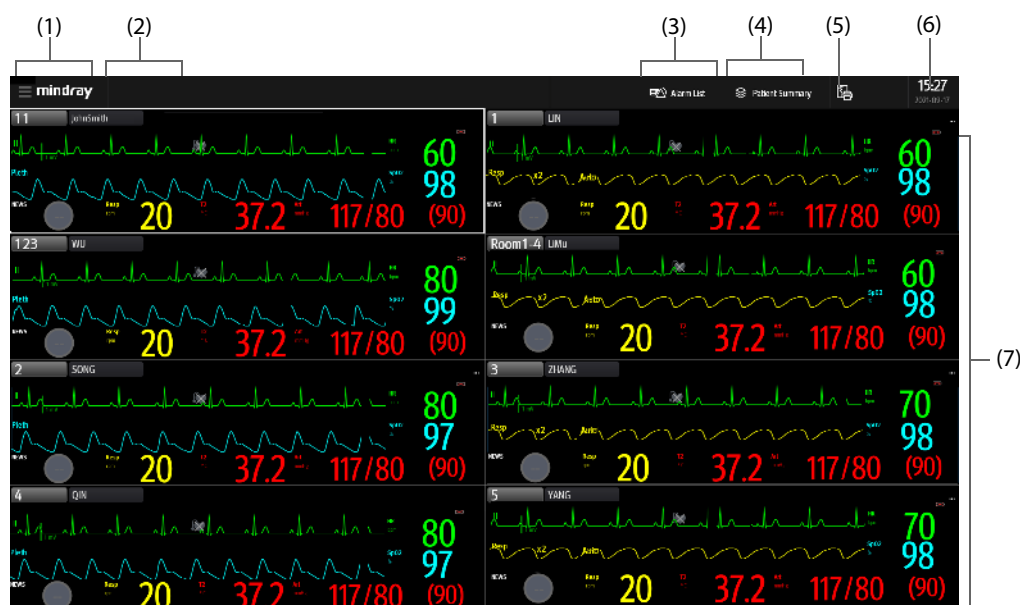
(1)   System menu area: selecting this area opens the drop-down list where you can select different functions.

(2)   Hospital information area/system alarm area: when system level alarms are not triggered, this area displays the hospital name and department where the Multi Patient Viewer is located. If you need to change the hospital name or department, see Section *10.9.7 Setting A Device Location*.

When system level alarms are triggered, this area displays the highest priority alarm message. Selecting this area opens the list of currently triggered system alarm messages. You can also review the system alarm messages in the alarm list area.

(3)   Alarm list area: selecting this area opens the alarm list that includes physiological and technical alarms within one hour for all the beds being monitored by the Multi Patient Viewer.

(4)   Patient Summary: selecting this area opens the **Patient Summary** window where you can view and select patients that requires special attention. For more information on this window, see Section *5.3 Patient Summary*.

(5)   Print button: selecting this button displays print menus. For more information on these menus, see Chapter *9 Printing*.

(6)   System time area. To change system time, see *10.9.4 Setting Time*.

(7)   Patient sector: displays real-time monitoring data. One patient sector displays data from one patient only. For more information, see *5.2.5 Patient Sector Status*.

5.2 Patient Sector

When a patient is being monitored, the patient sector displays real-time patient data from the bedside device, as shown below.
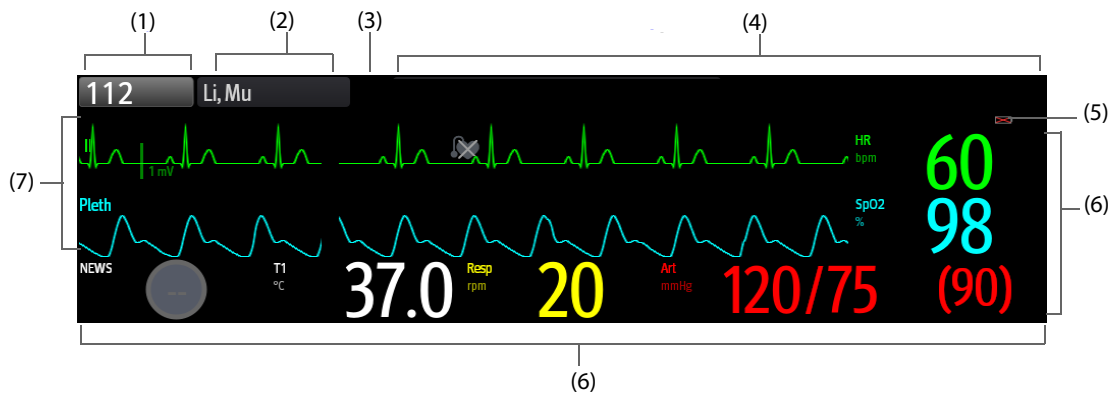
(1) Bed number and room number area: displays the bed number and room number. The background color of the area changes according to the care group the bed is assigned to. Default dark gray indicates the bed is not assigned to any care group. For more information, see Section *5.2.1 Bed Number and Room Number Area*.

(2) Patient information area: it can be set to display patient name or patient ID or visit number. The triangle symbol on the upper-right corner indicates the patient group the bed is assigned to. No triangle symbol indicates the bed is not assigned to any patient group.

(3) Alarm status symbol: indicates current alarm status. For more information, see *2.3 Symbols on the Multibed Screen*.

(4) Alarm information area: displays the highest priority alarms. The ellipsis symbol "..." indicates that there are more than one alarm message. For more information, see Section *5.2.2 Alarm Information Area*.

(5) Parameter area: displays parameters of the monitoring devices . Selecting this area enters the ViewBed screen. Blue background indicates unhandled alarms or reminds EWS measuring.

(6) Waveform area: displays waveforms transmitted from a bedside device. When one or all lethal arrhythmia alarms are set to off, a corresponding message is displayed under the first ECG waveform. When the nurse call and/or event function of a telemetry device is switched off, a corresponding message is displayed under the first ECG waveform. Selecting this area enters the ViewBed screen. Blue background indicates unhandled alarms or reminds EWS measuring.

(7) Status information area: displays information such as notes, device signal, device name, device location, operating mode, and battery power. For description of symbols, see Section *2.3 Symbols on the Multibed Screen*.

NOTE

- **Contents displayed in a patient sector are subject to the number of patient sectors. The less the number of patient sectors, the more contents displayed in a patient sector. For details on how to set the number of patient sectors, see Section *10.2.3.2 Setting the Number of Patient Sectors*.**

5.2.1 Bed Number and Room Number Area

Selecting this area opens the drop-down list where you can perform a series of operations. Only items that may need special remarks are described here.

Menu Item	Description
Move Position to	Move a patient sector from the source patient sector to the target patient sector on the multibed screen. The source patient sector and the target patient sector swap positions.For locked patient sectors, whether this option is displayed is dependent on the system setup. For more details about system setup, see Section *10.2.4 Setting Sectors*.
Clear Overview Bed	Clear the patient sector. This function is used for clearing a patient sector where a bedside device from a remote CentralStation is displayed.

5.2.2 Alarm Information Area

You can view all the alarm messages for a bed by selecting the alarm information area.

This area displays alarms and prompts from a bedside device or from the Multi Patient Viewer.

For details on the alarm information, see the operator's manual of the BeneVision Central Monitoring.

5.2.3 Changing Screen Setup of the Patient Sector

To change screen Setup of the patient sector, follow this procedure:

1. Select the bed number and room number area in the upper left corner of the desired patient sector on the multibed screen.

2. From the drop-down list, select **Screen Setup**.

3. Set the desired screen. **Normal Screen** is most frequently used for patient monitoring. **Big Numerics** displays parameter numerics in big font size.

NOTE

- **Changing the screen settings affects the patient sector only and does not affect the screen settings for the ViewBed screen.**

- **Changes to the screen settings are only a temporary change. Once a patient is discharged from this patient sector, the screen settings configured will be cleared and the default department configurations will be automatically loaded to the patient sector.**

5.2.4 Changing the Tile Layout of the Patient Sector

To change tile layout of the patient sector, follow this procedure:

1. Select the bed number and room number area in the upper left corner of the desired patient sector on the multibed screen.

2. From the drop-down list, select **Screen Setup**.

3. Select the **Tile Layout** tab.

4. Select a parameter area or waveform area, and then from the drop-down list select an element you want to display in this area. The parameters and waveforms selected are displayed in the patient sector.

NOTE

- **The list of parameters/waveforms under the drop-down list in the Tile Layout tab is the super set, not depending on a bedside device. If a parameter/waveform is not supported by the bedside device, it is not displayed in the patient sector.**

- **Changing the screen settings affects the patient sector only and does not affect the screen settings for the ViewBed screen.**

- **Changes to the screen settings are only a temporary change. Once a patient is discharged from this patient sector, the screen settings configured will be cleared and the default department configurations will be automatically loaded to the patient sector.**

5.2.5 Patient Sector Status

Except displaying transmitted data from the bedside devices normally, the patient sector may stay in one of the following operating states:

■ Offline: indicates that this patient sector has a patient admitted but its corresponding bedside device may be turned off or disconnected from the CentralStation.

■ Standby: indicates that the bedside device is in standby mode.

■ Discharged: indicates that the patient has been discharged from the bedside device or from the Multi Patient Viewer.

■ Idle: indicates that no bedside device has been associated with this patient sector. The patient sector is available for admitting a new bedside device. For details on how to admit bedside devices, see Chapter *3 Device Management*.

5.2.6 Sorting Patient Sectors

Patient sectors can be either manually or automatically sorted according to the criteria configured in the **System Setup** menu.

To manually sort patient sectors, follow this procedures:

1. Select the system menu area in the upper left corner of the main screen.

2. From the drop-down list, select **Sector Sorting**.

3. In the **Sector Sorting** dialog, select **OK**.

For information regarding sorting criteria and automatic sorting, see Section *10.2.4 Setting Sectors*.

NOTE

- **The Sector Sorting option is available only when Sort Type is set to Manual in the System Setup Menu.**

5.3 Patient Summary

In the **Patient Summary** window, you can view the trend data and alarm statistics of selected patients.

Select ⊗**Patient Summary** at the top of the screen to access the **Patient Summary** window.

5.3.1 Example Patient Summary Window

The **Patient Summary** window displays overview information of four patients. You can view the information of more patients by moving the cursor or the touchscreen.

This figure takes overview information of a single patient for example.

(1)	Trend data area: displays the trend data of HR, SpO$_2$/SpO$_2$b, RR, and NIBP/IBP within the selected **Zoom** option. When a patient monitor supports Early Warning Scores (EWS), the trend data of EWS scores is also displayed.
	Selecting the trend data area enters the graphic trends review page. For more information about this review page, see Section *8.7 Graphics Trends Review Page*.
(2)	Alarm statistics area: displays physiological alarm information such as alarm trigger time, times of alarms, or alarm duration within the selected **Zoom** option.

5.3.2 Filtering Patient Data

You can filter the desired patient data by bed number, patient group, or care group.

To filter patient data, follow this procedure:

1. In the **Patient Summary** window, select the desired filter criterion: **Bed No**, **Patient Group**, or **Care Group**. The background color of the selected criterion changes green.

2. In the **Filter** window that pops up, select the desired beds. If you wish to view data of all beds, select **Select All**.

3. Select the ✕ button in the upper right corner of the **Filter** window.

5.3.3 Changing the Time Length of Trends

To change the time length of trend data displayed in the **Patient Summary** window, follow this procedure:

1. Select **Zoom** in the upper right corner of the **Patient Summary** window.

2. Select the desired option. The default is **8 hrs**.

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6 ViewBed Screen

You can have a more detailed view of a single patient's information, waveforms, and parameter numerics on the ViewBed screen.

6.1 Accessing the ViewBed Screen

To access the ViewBed screen, select the parameter area or waveform area in the desired patient sector on the multibed screen.

6.2 Example ViewBed Screen

The ViewBed screen displays monitoring information from the monitoring device.

The ViewBed screen is as shown below.
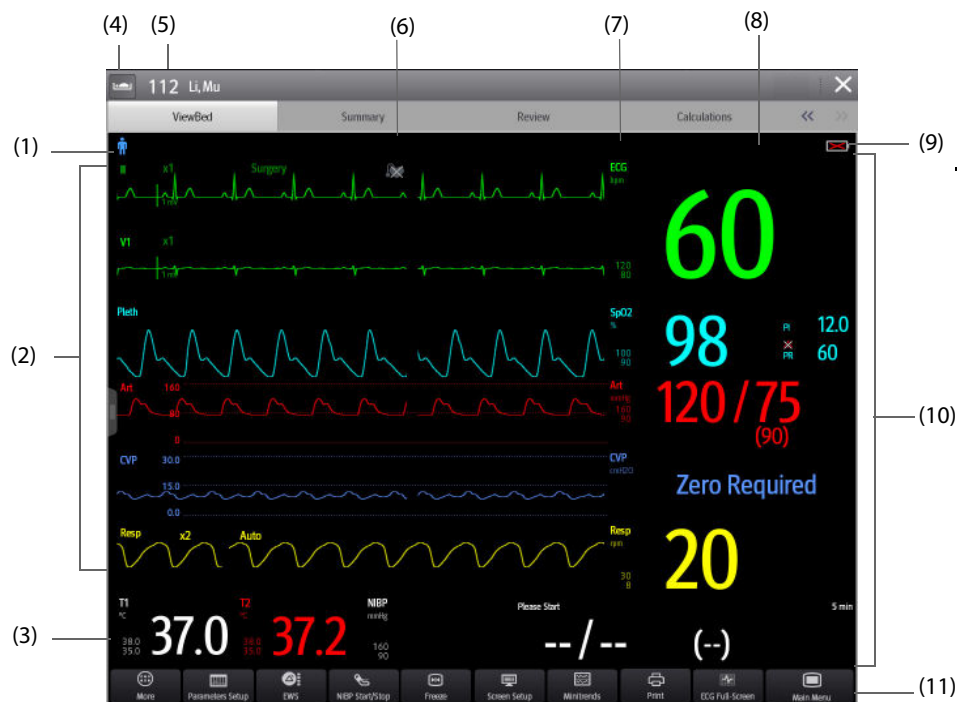
(1)   Patient information area: displays patient category, notes etc. For more information on patient category, see *2.3 Symbols on the Multibed Screen*.

(2)   Waveform area: displays parameter waveforms. Selecting a waveform enters corresponding parameter menu.

(3)   Parameter numerics/waveform area: displays parameter values and waveforms.

(4)   Patient list symbol: selecting this symbol opens the patient list. For more information on this symbol, see *6.7 Viewing Other Patients*.

(5)   Patient location information area: displays the bed number, room number and patient name.

(6)   Technical alarm information area: displays the highest priority technical alarm. Selecting this area displays more technical alarm information.

(7)   Physiological alarm information area: displays the highest priority physiological alarm. Selecting this area displays more physiological alarm information.

(8)   Alarm status area: indicates current alarm status. For more information, see Section *2.3 Symbols on the Multibed Screen*.

(9)   Device status area: displays the battery capacity, network signal strength and privacy mode.

(10)   Parameter area: displays items such as parameter values, alarm limits, alarm status, and parameter list.

■   Selecting a parameter numeric block enters corresponding parameter menu. For more information on the parameters, see the operator's manual of the corresponding device.

■   Selecting the parameter list enters tabular trends review page. For information regarding the parameter list, refer to Section *6.4.2 Displaying the Parameter List*.

■   When a parameter alarm is turned off, the 🔔 symbol is displayed in corresponding parameter area.

■   If the function of outline font for suspected values is enabled in the **System Setup** menu, when unreliable measurement values of HR, SpO_2, or BIS are detected, these numerics are displayed in outline font.

(11)   Quick key area: displays quick keys to access commonly used functions (keys are configurable).

NOTE

- **The display layout of the Multi Patient Viewer may not match that of a bedside device. But the parameters/waveforms displayed on the Multi Patient Viewer are consistent with that on the bedside device.**

- **If you change the display layout of parameters/waveforms on the bedside device, the display layout of parameters/waveforms on the Multi Patient Viewer will not change automatically and vice versa.**

- **When a module of a bedside device is turned off, the waveform and numeric data for this module will be no longer displayed at the Multi Patient Viewer .**

- **The ViewBed screen is similar to the main screen of the monitoring device. For more details on the ViewBed screen, see the operator's manual of the corresponding monitoring device.**

- **When a parameter is no longer being monitored, the waveform and numeric data for this parameter will be no longer displayed at the Multi Patient Viewer .**

6.3   Quick Keys

The ViewBed screen provides quick keys for you to quickly access some functions. The **More** key is permanently located at the left bottom. Selecting the **More** quick key shows more quick keys. The quick keys displayed on the screen are configurable. When a function is not supported by a bedside device, its quick key is inactive.

6.3.1   Available Quick Keys

The following table shows available quick keys.

Symbol	Label	Function	Symbol	Label	Function
	More	Show more quick keys		Screen Setup	Enter the **Screen Setup** menu
	Minitrends	Enter the Minitrends window		Alarm Setup	Enter the alarm setup menu
	ECG Full-Screen	Enter the ECG full screen		Freeze	Freeze waveforms
	Print	Start printing a real-time report		Print Setup	Enter the **Print Setup** menu

Symbol	Label	Function	Symbol	Label	Function
	EWS	Enter the **EWS** window		Main Screen	Return to the multibed screen
	Bedside Devices	Enter bedside devices pairing window		aEEG	Enter the aEEG screen.
	Main Menu	Enter the main menu		Parameters Setup	Enter the **Parameters Setup** menu
	SepsisSight	Enter the **SepsisSight** menu			

6.3.2   Configuring Quick Keys

To configure the desired quick keys displayed on the Viewbed screen, follow this procedure:

1.   Access the quick keys setup menu in either of the following ways:

◆   On the ViewBed screen select the **Screen Setup** quick key from the quick key area →select the **Quick Keys** tab.

◆   Select the bed number and room number area in the upper left corner of the desired patient sector on the multibed screen → from the drop-down list select **Screen Setup** → select the **Quick Keys** tab.

◆   On the ViewBed screen, select the **Main Menu** quick key from the quick key area → from the **Display** column select **Quick Keys**.

2.   Select the **Current** tab to configure the desired quick keys.

◆   Add a quick key: on the top of **Quick Keys** tab, first select a key which you want to configure for a specific quick key function, next select the quick key function from the list of functions. For example, if you want to show the **Screen Setup** quick key in the first key, select the first key, and then select **Screen Setup** from the function list.

◆   Clear a quick key: select the quick key to be cleared from the quick key and then select **(Blank)** from the function list.

3.   Select the **More** tab to configure the quick keys to be displayed when the **More** quick key is selected.

6.4   General Operations

6.4.1   Changing Tile Layout of the ViewBed Screen

To change tile layout of the ViewBed screen, follow this procedure:

1.   Access the tile layout menu in either of the following ways:

◆   On the ViewBed screen, select the **Screen Setup** quick key from the quick key area → select **Tile Layout**.

◆   Select the bed number and room number area in the upper left corner of the desired patient sector on the multibed screen → from the drop-down list select **Screen Setup**→ select the **ViewBed** tab → select **Tile Layout**.

◆   On the ViewBed screen, select the **Main Menu** quick key from the quick key area → from the **Display** column select **Tile Layout**.

2.   Select a parameter area or waveform area, and then from the drop-down list select an element you want to display in this area. The selected parameters and waveforms are displayed on the ViewBed screen. The symbol indicates that this area can be set to display waveforms. Selecting this area changes this symbol to , indicating that this area can be set to display parameters.

NOTE

- **The list of parameters/waveforms under the drop-down list in the Tile Layout tab is the super set, not depending on a bedside device. If a parameter/waveform is not supported by the bedside device, it is not displayed on the ViewBed screen.**

- **Changing the ViewBed screen settings affects the ViewBed screen only and does not affect the screen settings for the patient sector.**

- **Changes to the screen settings are only a temporary change. Once a patient is discharged, the screen settings configured will be cleared and the default department configurations will be automatically loaded to the ViewBed screen.**

6.4.2 Displaying the Parameter List

You can display trends of HR, SpO_2, RR, and NIBP/IBP in the parameter numerics area on the ViewBed screen.

To display the parameter list, follow this procedure:

1. Access the tile layout menu in either of the following ways:

   ◆ On the ViewBed screen, select the **Screen Setup** quick key from the quick key area→ select **Tile Layout**.

   ◆ Select the bed number and room number area ▤ in the upper left corner of the desired patient sector on the multibed screen → from the drop-down list select **Screen Setup** → select the **ViewBed** tab→ select **Tile Layout**.

   ◆ On the ViewBed screen, select the **Main Menu** quick key from the quick key area → from the **Display** column select **Tile Layout**.

2. Select a parameter area where you wish to display the parameter list.

3. From the drop-down list, select **Parameter List**.

6.4.3 SpO₂ Statistics

Statistic data of each SpO_2 section within a specific time can be displayed in the SpO_2 statistics area on the ViewBed screen. The target SpO_2 section is displayed in green.

6.4.3.1 Displaying the SpO₂ Statistics Area

To display the SpO_2 statistics area, follow this procedure:

1. Access the tile layout menu in either of the following ways:

   ◆ On the ViewBed screen, select the **Screen Setup** quick key from the quick key area→ select **Tile Layout**.

   ◆ Select the bed number and room number area ▤ in the upper left corner of the desired patient sector on the multibed screen → from the drop-down list select **Screen Setup** → select the**ViewBed** tab → select **Tile Layout**.

   ◆ On the ViewBed screen, select the **Main Menu** quick key from the quick key area → from the **Display** column select **Tile Layout**.

2. Select a parameter area where you wish to display the SpO_2 statistics area.

3. From the drop-down list, select **SpO2**.

4. From the drop-down list, select **SpO2 Statistics**.

6.4.3.2 Configuring SpO₂ Statistics

To configure SpO_2 statistics, follow this procedure:

1. In the upper right corner of the SpO_2 statistics area, select the time area, i.e. **1 h**.

2. Select the desired option.

3. Access the **SpO2 Statistics** menu in either of the following ways:

   ◆ Select the SpO_2 statistics area.

◆ On the ViewBed screen, select the SpO$_2$ parameter or waveform area → select the **SpO2 Statistics** tab.

4. In the **From** and **To** columns, select the starting and ending SpO$_2$ values for each section.

5. In the **Target** column, select the target section.

6. If you wish to use the default values, select **Defaults**.

NOTE

- **The values for sections should be continuous. When the section value reaches 100, you cannot configure remaining sections.**

6.4.4   Freezing/Unfreezing Waveforms

During patient monitoring, you can freeze waveforms on the ViewBed screen to allow a closer review of the waveform data.

6.4.4.1   Freezing Waveforms

To freeze waveforms, follow this procedure:

1. On the ViewBed screen, select the **Freeze** quick key.

2. In the **Freeze** window, select the left or right arrow to move the waveforms backward or forward one second, to display the desired time.

Freezing waveforms does not affect:

■ Waveforms displayed in the minitrends window,EWS window and parameter numerics on the ViewBed screen.

■ Waveforms displayed on the multibed screen

6.4.4.2   Unfreezing Waveforms

To unfreeze waveforms, select the ✕ button in the upper right corner of the **Freeze** window.

6.4.4.3   Printing Frozen Waveforms

Selecting the 🖶 button in the upper left corner of the **Freeze** window prints frozen waveforms.

6.4.5   Viewing Device Location

If the AP information has been imported into the CentralStation, you can view device location information for the WiFi devices. For details on how to import AP information, see *BeneVision Central Monitoring System Operator's Manual*.

To view device location, follow this procedure:

1. Select the 📍 symbol on the ViewBed screen or the patient sector. The **Device Location** menu is displayed.

2. View the AP switch time in the Time column and the current location of devices in the **Location** column.

3. If you wish to locate a telemetry device, select the **Find Device** button.The telemetry device will generate a continuous audible tone until it is acknowledged at the telemetry device.

6.5   User Screens

To facilitate patient monitoring in different departments and clinical applications, different user screens are provided on the Viewbed screen as follows :

■ Normal Screen

■ Minitrends

■ Integrated Devices

■ ECG Full-Screen

■   12-Lead

NOTE

- **A user screen is provided only when the corresponding monitoring device support this screen.**

6.5.1   Minitrends Window

You can split the normal screen so that the left hand side of the screen shows the minitrends window. The Minitrends screen shows the recent graphic trends of parameters.

Choose one of the following methods to enter the Minitrends window:

■   On the ViewBed screen, select the **Minitrends** quick key.

■   On the ViewBed screen, select the **Screen Setup** quick key →select **Choose Screen** →select **Minitrends**.

■   On the ViewBed screen, select the **Main Menu** quick key from the quick key area → from the **Display** column select **Minitrends**.

■   Select the ▍ button at the leftmost screen if normal screen is displayed currently.

■   Swipe right on the touchscreen with one finger if normal screen is displayed currently.

■   For a non-touchscreen, place the mouse at anywhere on the normal screen, and drag the mouse to right while holding the mouse right or left button.

NOTE

- **For details on the Minitrends window, see the operator's manual of the corresponding devices.**

6.5.2   Integrated Devices Window

You can view the information of the external devices that are integrated with the monitor in the integrated devices window.

Choose one of the following methods to enter the Integrated Devices window:

■   On the ViewBed screen, select the **Screen Setup** quick key →select **Choose Screen** →select **Integrated Devices**.

■   On the ViewBed screen, select the **Main Menu** quick key from the quick key area → from the **Display** column select **Choose Screen** →select **Integrated Devices**.

NOTE

- **For details on the integrated devices window, see the operator's manual of the corresponding devices.**

6.5.3   ECG Full-Screen

You can choose ECG Full-Screen when performing 5-lead, 6-lead or 12-lead monitoring. Only ECG waveforms are displayed in the waveform area of the ECG Full-Screen.

Choose one of the following methods to enter the ECG Full-Screen:

■   On the ViewBed screen, select the **ECG Full-Screen** quick key.

■   On the ViewBed screen, select the **Screen Setup** quick key →select **Choose Screen** →select **ECG Full-Screen**.

■   On the ViewBed screen, select the **Main Menu** quick key from the quick key area → from the **Display** column select **Choose Screen** →select **ECG Full-Screen**.

NOTE

- **For details on the ECG full-screen, see the operator's manual of the corresponding devices.**

6.5.4 ECG 12-lead Screen

You can choose ECG 12-lead screen when performing 12-lead monitoring. Only 12-lead ECG waveforms are displayed in the waveform area of the ECG 12-lead screen.

Choose one of the following methods to enter the ECG 12-lead screen:

■ On the ViewBed screen, select the **12-Lead** quick key.

■ On the ViewBed screen, select the **Screen Setup** quick key →select **Choose Screen** →select **12-Lead**.

> **NOTE**
>
> • **For details on the ECG 12-lead screen, see the operator's manual of the corresponding devices.**

6.6 Clinical Assistive Applications (CAA)

The Clinical Assistive Applications (CAA) function integrates some commonly used clinical guidelines and tools into the monitor. It puts the currently monitoring parameter measurements together and provides comprehensive analysis results.

CAA is not intended to replace the competent judgment of a clinician. It must be used in conjunction with observation of clinical signs and symptoms.

The following CAA is provided:

■ EWS(Early Warning Score)

■ SepsisSight

> **NOTE**
>
> • **The system supports the CAA only when the corresponding monitoring device support the CAA.**

6.6.1 Early Warning Score (EWS)

The Early Warning Scores (EWS) can help you recognize the early sign of deterioration in patients based on vital signs and clinical observations.

6.6.1.1 Displaying the EWS Parameter Area

To display the EWS parameter area, follow this procedure:

1. Access the tile layout menu in either of the following ways:

    ◆ On the ViewBed screen, select the **Screen Setup** quick key from the quick key area → select **Tile Layout**.

    ◆ Select the bed number and room number area 🔳 in the upper left corner of the desired patient sector on the multibed screen → from the drop-down list select **Screen Setup**→ select the **ViewBed** tab → select **Tile Layout**.

    ◆ On the ViewBed screen, select the **Main Menu** quick key from the quick key area → from the **Display** column select **Tile Layout**.

2. Select a parameter area where you wish to display EWS scores.

3. From the drop-down list, select **EWS**.

> **NOTE**
>
> • **For details on the EWS, see the operator's manual of the CMS.**
>
> • **The EWS parameter area can be also displayed in a patient sector on the multibed screen. For how to display EWS parameter area, see Section *6.4.1 Changing Tile Layout of the ViewBed Screen*.**

6.6.1.2 Entering the EWS Window

Choose one of the following methods to enter the EWS window:

■   On the ViewBed screen, select the EWS parameter area.

■   On the ViewBed screen, select the **EWS** quick key.

■   On the ViewBed screen, select the **Screen Setup** quick key →select **Choose Screen** →select **EWS**.

■   On the ViewBed screen, select the **Main Menu** quick key from the quick key area → from the **CAA** column select **EWS**.

6.6.2   SepsisSight^{TM}

The SepsisSight^{TM} function is based on Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3) and Surviving Sepsis Campaign: International Guidelines for Management of Sepsis and Septic Shock: 2016 (SSC Guidelines 2012 and 2016)..

SepsisSight^{TM} is intended for adult patients suffering from sepsis or suspicious of sepsis.

Choose one of the following methods to enter the SepsisSight menu:

■   On the ViewBed screen, select the **SepsisSight** quick key.

■   On the ViewBed screen, select the **Main Menu** quick key from the quick key area → from the **CAA** column select **SepsisSight**.

You can set the goal for first resuscitation and bundles treatments for the patient in the **SepsisSight** menu.For details, see *15.13.5 Setting SepsisSight*.

NOTE

- **SepsisSight is not a tool for Sepsis diagnosis and treatment. It cannot replace the physician's judgment.**

- **For details on the SepsisSight screen, see the operator's manual of the corresponding devices.**

6.7   Viewing Other Patients

You can switch to view other patients in the same department or in a different department on the ViewBed screen. Follow this procedure to do so:

1.   Select the parameter area or waveform area in the desired patient sector on the multibed screen to access the ViewBed screen,

2.   Select the patient list icon.

3.   Select [▾] and select the department of the desired patient.

4.   Select the desired patient.

7 Summary

You can view summary data for online patients on the summary screen. The summary screen provides several tabs to display summary data from different aspects.

NOTE

- **The summary function is intended for online patients. It is not intended for discharged patients.**

- **Data displayed on the summary screen is not recalculated.**

- **To avoid confusion, waveforms of alarm events without typical alarm characteristics are excluded in the typical ECG strips.**

- **To avoid confusion, the following parameter values are excluded in the graphic trends: 1) invalid parameter values 2) parameter values that are calculated on the basis of physiological signal segments with obvious noise.**

7.1 Accessing the Summary Screen

To enter the summary screen, select the **Summary** tab beside the ViewBed screen and the review screen.

7.2 Symbols on Summary Pages

The following table lists the symbols on summary pages.

Symbol	Description
⚙	Setup button: select it to set up parameters.
🖶	Print button: select it to output patient information and data through the printer.

7.3 Common Operations on Summary Pages

This section describes common operations on summary pages.

7.3.1 Setting the Summary Statistical Duration

On the summary page, select **Zoom** to set summary statistical duration and the corresponding statistical duration displays.

7.3.2 Printing the Summary Report

On the summary pages, select the print button to print corresponding summary reports.

7.4 Vital Sign Summary

The vital sign summary provides the parameter trend of the patient's vital sign and the alarm events statistics.

7.4.1 Entering the Vital Sign Summary Page

To enter the vital sign summary page, select the ▼ button in the upper left corner of the summary screen → from the drop-down list, select **Vital Sign Summary**.

7.4.2 The Display of Vital Sign Summary

The following figure is an example of the Vital Sign Summary page:

(1) Graphic trends: show the trends of mean parameter value or maximum/minimum parameter value. Up arrow and down arrow indicate the maximum and minimum parameter value in the statistical duration respectively.

(2) GCS score indicator area: indicates the time, total score and subscores of all the GCS. No indicator displays if no GCS score is performed in the statistical duration.

(3) • For adults and pediatrics, this area shows alarm statistics.
  • For neonates, this area shows alarm statistics, SpO_2 statistics.

An up arrow indicates a increase in the current statistical duration compared to the previous one, while a down arrow indicates a decrease.

7.4.3 Setting Trend Parameters for the Vital Sign Summary

Select the setup button to set trend parameters to be displayed in the summary. One trend parameter one row. When parameters are overlapped, all the overlapped parameters are displayed in one row. A maximum of ten rows of parameters are displayed on the graphic trend area.

7.4.4 Setting theTrend Type for the Vital Sign Summary

Select **Trends** to set whether the trend of maximum/minimum values or the trend of mean values is displayed.

7.4.5 Viewing the Parameter Value at a Specific Time

In the graphic trends area, selecting any spot displays a cursor on the page and you can view the corresponding time and the parameter values of this specific time.

7.4.6 Accessing the Corresponding Review

You can access the corresponding review from the vital sign summary page:

■ Selecting the area of the alarm statistics can access the events review.

■ Selecting **Full Disclosure** can access the full disclosure review.

7.5 ECG Summary

The ECG Summary provides ECG statistics of the patient. It also displays the patient's typical ECG strips.

NOTE

- **Pacer statistics is intended for paced patients. Pacer statistics is available only when the Paced setting is Yes.**
- **ST statistics is available only when ST analysis is switched on.**
- **QT statistics is available only when QT analysis is switched on.**

7.5.1 Entering the ECG Summary Page

To enter the ECG summary page, select the ▼ button in the upper left corner of the summary screen → from the drop-down list, select **ECG Summary**.

7.5.2 The Display of ECG Summary

The following figure is an example of the ECG Summary page:
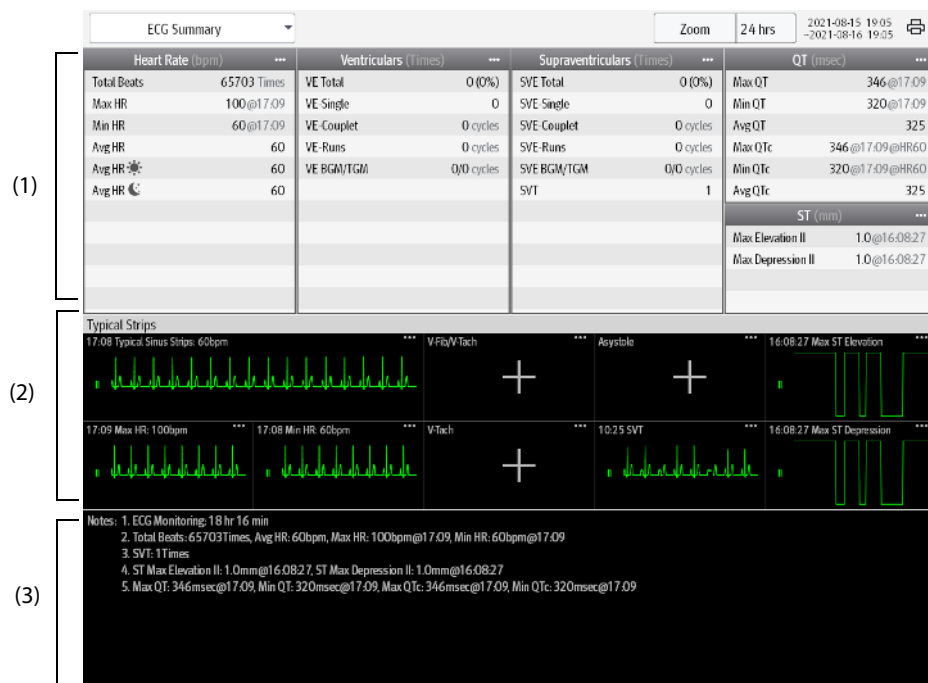
(1) ECG statistics, including the following items:
- Statistics of heart rates
- Statistics of ventricular beats and ventricular arrhythmia events
- Statistics of supraventricular beats and supraventricular arrhythmia events
- Statistics of QT/QTc measurements
- Statistics of maximum ST elevations and depressions
- Statistics of pace

(2) Typical ECG strips

(3) Notes: include additional information on the ECG summary

7.5.3 Selecting Typical ECG Strips

Taking V-Tach as an example, to select typical V-Tach waveform, select the currently displayed V-Tach waveform, from the popup list select the desired waveform as typical V-Tach waveform.

If no V-Tach occurs to the patient in the statistical duration, an add symbol ▦ is displayed in the V-Tach area. You can select the add symbol to display a typical ECG waveform of other arrhythmia event in this area.

7.5.4 Reviewing the ECG Summary

Selecting any of the statistic area can access corresponding trends and events review. For more information, see *8 Review*.

7.5.5 Setting the Night Time for Average HR Statistic

You can set the night time for average heart rate statistics, and the rest of the 24 hours is the daytime for average heart rate statistics. For more information on how to set the night time, see *10.9.4.2 Defining the Night Time*.

8 Review

8.1 Overview

You can review historical data for online patients and discharged patients on the review screen. The review screen provides several tabs to display historical data from different aspects. The review tabs for the online patients and discharged patients are the same.

NOTE

- **Review tabs are dependent on the patient category and patient sector settings. For details on how to select the review tabs in the patient sector, see Section *10.2.5 Setting Patient Window*.**

8.2 Accessing the Review Screen

Methods for accessing the review screen for online patients and discharged patients are different.

8.2.1 Entering the Review Screen for Online Patients

To enter the review screen for online patients, select the **Review** tab beside the ViewBed screen, the patient management screen, or the calculation screen.

8.2.2 Entering the Review Screen for Discharged Patients

To enter the review screen for discharged patients, follow this procedure:

1. Select the system menu area in the upper left corner of the screen.
2. From the drop-down list, select **Discharged Patients**.
3. From the discharged patients list, select the **Detail** button at the end of the discharged patient.
4. Select the **Review** tab.

8.3 Example Review Page Structure

Select the ▼ button in the upper left corner of the review screen to enter appropriate review pages. The graphic trends review page is an example to introduce the items that may also be displayed on other review pages. The following shows an example of the graphic trends page:

(1)	Current review tab
(2)	Event type indicator: different color blocks match different types of events: ■ Red: high priority alarm event ■ Yellow: medium priority alarm event ■ Cyan: low priority alarm event ■ Green: manual event ■ White: operation-related event
(3)	Waveform area: displays trend curves. The color of trend curves is consistent with the color of parameter labels.
(4)	Event area/current cursor time area: after you select an event from the event list, this event is displayed in this area. Selecting this area goes to the **Events** review page. If an event is not selected, this area displays current cursor time.
(5)	Scroll bar: indicates the position of currently displayed trend data in all the trend data.
(6)	Cursor: shows your current position in the trend page. When the cursor is moved across the timeline, the values measured at the cursor time are shown in the right column.
(7)	Parameter area: displays numeric values where the cursor stops. The color of numeric values is consistent with the color of parameter labels. The background color of numeric values matches the alarm priority.
(8)	Timeline: indicates the entire time length. ■ : indicates the time length of reviewable trend data. ⬭ can be moved within this time length. ■ : indicates no patient monitoring. ⬭ cannot be moved within this time length. ■ Different color blocks at the timeline indicate events of different types. See the color definition for the event type indicator.

8.4   Symbols on Review Pages

The following table lists the symbols on review pages.

Symbol	Description
⬭	Slider: indicates the position of current window time in the entire time length. Dragging the slider left or right enables you to locate the trend data at a specific time and also refreshes trend data in current window accordingly.
•← / →•	Go to the previous or next event.
≡Q	Event list: displays events in a chronological order. The most recent event is displayed at the top.The number of exclamation marks before an event matches different alarm priorities.
⊟	This symbol is displayed in the upper right corner of a review page for a landscape display greater than 19-inch. Selecting this symbol displays two review pages simultaneously.
🖶	Print button: select it to output patient information and data through the printer.
⊘	Indicates that parameter numerics are unreliable.
+	Indicates that the followed parameter is from an external device connected to the monitoring device.

8.5   Common Operations on Review Pages

This section describes common operations on review pages.

8.5.1   Browsing Trend Data

Browse trend data in one of the following ways:

■   Move ⬭.

■   Move the cursor.

■   Move the scroll bar.

8.5.2   Viewing Events

You can view the following types of events:

■   Manually triggered events

■   Parameter-related operation events and alarm-related events, such as starting C.O. measurement

■   Operation events not related to parameters

To view these events, follow this procedure:

1.   Select the ▼ button in the upper left corner of the review screen.

2.   From the drop-down list, select the desired review page.

3.   View events in either of the following ways:

◆   Select ≡Q and select the desired event.

◆   Select •← or →• to locate the previous or next event.

Events are displayed in a chronological order. The most recent event is displayed at the top. The number of exclamation marks before an event matches the following alarm priority:

■   !!!: high priority alarm

■   !: medium priority alarm

■   !: low priority alarm

8.5.3 Displaying Two Review Pages Simultaneously

To display two review pages simultaneously, follow this procedure:

1. Select the ▼ button in the upper left corner of the review screen.

2. From the drop-down list, select the desired review page.

3. Select the ▤ symbol located at the top right of the screen. A new review page will be displayed below the desired review page.

You can browse trend data, view events, select other review tabs on the two review pages. If you refresh the trend data by moving the cursor or ▭ on one review page, the trend data on the other review page will be updated accordingly.

8.6 Tabular Trends Review Page

The tabular trends review page displays trend data in a tabular form.

8.6.1 Entering the Tabular Trends Review Page

Enter the tabular trends review page in either of the following ways:

■ Select the ▼ button in the upper left corner of the review screen → from the drop-down list, select **Tabular Trends.**

■ Select the parameter list area on the ViewBed screen.

8.6.2 Configuring Trends

To configure tabular trends, follow this procedure:

1. Enter the tabular trends review page.

2. Set **Trend Group** and select the desired option. For information on trend group settings, see Section *10.5.2.2 Selecting Trend Groups to Be Displayed*.

3. Set **Interval**. Select parameters, such as NIBP, Temp, to view the tabular trends when parameter measurements are acquired. Select **Manually Saved** to view the tabular trends when spot check data is acquired.

NOTE

- **The options for Interval are dependent on the functions of a bedside monitor.**

- **The parameters displayed for Trend Group are dependent on the parameters configured at a bedside monitor.**

8.6.3 Printing a Tabular Trends Report

To print a tabular trends report, follow this procedure:

1. Enter the tabular trends review page.

2. Select the 🖶 button in the upper right corner of this page. The **Print Setup** menu is displayed.

3. Set the desired options. Only items that may need special remarks are described here.

Menu Item	Description	Options
Period	Select the period during which a tabular trends report will be printed.	30 min, 1 hr, 2 hrs, 4 hrs, 8 hrs, 12 hrs, 24 hrs, 48 hrs, 72 hrs, 96 hrs, Auto, All **Auto**: prints one page of a tabular trends before the current time. **All**: prints all stored tabular trends at the selected Interval. Note: **Auto** only limits the number of rows or columns for time on a report. The report may have multiple pages to accommodate the number of parameters. To limit the parameters, change the trend group on the review page.
Interval	Select the resolution of the tabular trends printed on a report.	5 sec, 30 sec, 1 min, 5 min, 10 min, 15 min, 30 min, 1 hr, 2 hrs, 3 hrs, NIBP, EWS, GCS, TempIF, C.O., Manually Saved**,**Auto Parameters, such as **NIBP**,**Temp**: prints a tabular trends report when parameter measurements are acquired. **Manually Saved**: prints a tabular trends report when spot check data is acquired. **Auto**: prints a tabular trends report at the interval set in the **Interval** option in the upper right corner of the **Tabular Trends** review page.
Report Format	Select the printing principle.	**Parameter Oriented**: prints a report with parameters listed by row and time listed by column. **Time Oriented**: prints a report with time listed by row and parameter listed by column.

4.   Select the desired options.

◆   **Print Preview**: previews the printout. Upon completion of preview, if you wish to start printing, select **Print**.

◆   **Print (All)**: prints a tabular trends report per **Trend Group** and **Interval** settings on the tabular trends review page.

◆   **Print**: prints a tabular trends report per settings in the **Print Setup** menu

8.7   Graphics Trends Review Page

The graphic trends review page displays trend data in a graphic form.

8.7.1   Entering the Graphic Trends Review Page

To enter the graphic trends review page, follow this procedure:

1.   Select the ▼ button in the upper left corner of the review screen.

2.   From the drop-down list, select **Graphic Trends**.

8.7.2   Setting Graphic Trends

To set graphic trends, follow this procedure:

1.   Enter the graphic trends review page.

2.   Set **Trend Group** and select the desired option. For information on trend group settings, see *10.5.2.2 Selecting Trend Groups to Be Displayed*.

3.   Set **Zoom**. Select the desired length of trend data to view the most recent 240-hour data.

4.   Select the desired number of **Trends**.

8.7.3 Printing a Graphic Trends Report

To print a graphic trends report, follow this procedure:

1. Enter the graphic trends review page.
2. Select the ⎙ button in the upper right corner of this page. The **Print Setup** menu is displayed.
3. Set the desired options.
4. If you wish to preview the printout, select **Print Preview**.
5. Select **Print**.

8.8 Full Disclosure Review Page

On the full disclosure review page, you can view the compressed waveforms and detail waveforms for each patient.

8.8.1 Entering the Full Disclosure Review Page

To enter the full disclosure review page, follow this procedure:

1. Select the ▼ button in the upper left corner of the review screen.
2. From the drop-down list, select **Full Disclosure**.

8.8.2 Selecting Waveforms

If you wish to review waveforms other than the default waveform on the full disclosure review page, you need to select the desired waveforms.

To do so, follow this procedure:

1. Enter the full disclosure review page.
2. Select **Setup**. The **Select Waveform** menu is displayed.
3. Select the **Storage** tab.
4. Configure the desired waveforms.
5. Select the **Display(Maximum: 3)** tab.
6. Enable the desired waveforms to be displayed on the review page.

In case of alarms, the background of compressed waveform block at the alarm time is marked with a special color:

■ Red: high alarm priority

■ Yellow: medium alarm priority

■ Cyan: low alarm priority

8.8.3 Compressed Waveform

The full disclosure review page displays the compressed waveform.

8.8.3.1 Setting the Scale of Compressed Waveform

To set the size of the compressed waveform, follow this procedure:

1. Enter the full disclosure review page.
2. Set the waveform scale in either of the following ways:

    ◆ Select the **Scale** button and then select the desired option.

    ◆ Select the waveform label on the left side of the review page to enter the **Scale** menu. Then select the desired option.

8.8.3.2 Setting the Duration of Compressed Waveform

To set the length of the compressed waveform, follow this procedure:

1. Enter the full disclosure review page.

2. Select **Duration**.

3. Configure the desired **Duration** time.

8.8.3.3 Marking Arrhythmia

In the compressed waveform area, the background of compressed waveform segments at the arrhythmia alarm trigger time is marked with a specific color automatically to indicate the arrhythmia category. For details on how to set the arrhythmia mark color, see Section *10.5.3 Setting Arrhythmia Mark Colors*.

8.8.3.4 Selecting Compressed Waveform Segments

You can select one or more compressed waveform segments and print these segments. For details on how to print these segments, see Section *8.8.5 Printing Compressed Waveforms or Detail Waveforms*.

To select compressed waveform segments, follow this procedure:

1. Enter the full disclosure review page.

2. Select compressed waveform segments in either of the following ways:

    ◆ Using a mouse: In the compressed waveform area, hold down the right mouse button and drag the mouse to select the desired waveform segment. If you wish to select multiple waveform segments, release the right mouse button and then select the desired waveform segments. You can move the screen up and down to select more waveform segments.

    ◆ Using a touch screen: Press the **Select** button and then touch the waveform. Hold and drag your finger to select the desired waveform segment. If you wish to move the screen up and down, you need to re-select the **Select** button to exit the selected status.

If you wish to cancel current selection, select the ✕ button in the upper right corner of the waveform segment selection window.

8.8.4 Detail Waveform Window

In the detail waveform window, you can view the full size waveforms and parameter numerics.

Access the detail waveform window in either of the following ways:

■ Select the **Detail** button in the compressed waveform window.

■ Double click the desired compressed waveform.

In the detail waveform window:

■ Timeline and waveforms are displayed in the upper part of the window.

■ Numeric values are displayed in the lower part of the window. The background color of parameters indicate whether an alarm is triggered.

    ◆ No color: no alarm is triggered.

    ◆ Red: a high priority alarm is triggered.

    ◆ Yellow: a medium priority alarm is triggered.

    ◆ Cyan: a low priority alarm is triggered.

If you wish to close the detail waveform window, select the ✕ button in the upper right corner of the detail waveform window.

8.8.4.1 Setting ECG Gain

To set the ECG gain, follow this procedure:

1. Enter the detail waveform window.

2. Select the **ECG Gain** button.

3. Configure the desired ECG gain.

8.8.4.2 Setting Waveform Sweep Speed

To set the waveform sweep speed, follow this procedure:

1. Enter the detail waveform window.

2. Select the **Speed** button.

3. Configure the desired speed. The speed is applicable to all the ECG waveforms.

8.8.4.3 Caliper Measurement Overview

When full disclosure data is collected and stored in the CMS, horizontal calipers can be used to measure the PR, QRS, QT, and R-R waveform intervals, and vertical calipers can be used to measure the ST waveform amplitude in the detail waveform window.

Horizontal caliper and vertical caliper are shown as follows:

Horizontal Caliper   Vertical Caliper
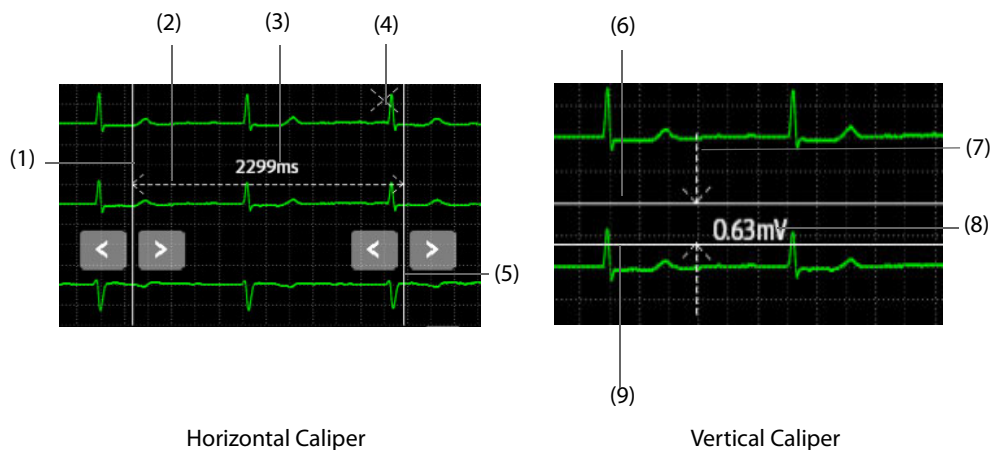
(1)	Left caliper arm
(2), (7)	Measurement line
(4)	Close button: closes the caliper window without saving the measured value.
(5)	Right caliper arm
(3), (8)	Realtime measurement
(6)	Upper caliper arm
(9)	Lower caliper arm

Performing Measurements Using a Horizontal Caliper

Choose either of the following ways to perform measurements using a horizontal caliper:

Option 1:

1. Enter the detail waveform window.

2. Select **Caliper**. The **Caliper** menu is displayed.

3. Display a horizontal caliper in either of the following ways.

   ◆ Using a mouse: left or right click the mouse at a place in the desired waveform area and then drag the cursor horizontally until your desired location is reached.

   ◆ Using a touch screen: select a place in the desired waveform area and then drag your finger on the screen surface horizontally without losing the contact until the desired location is reached. If you need to adjust the caliper, slightly touch the left or right caliper arm and select the appropriate touchscreen control.

4. After finishing measurements, select **PR**, **QRS**, **RR**, and **QT** from the **Caliper** menu to obtain the measured values. The QTc value is calculated after RR and QT value have been acquired.

5. Select the desired option to **Reset** measured values.

Option 2:

1. Enter the detail waveform window.

2. Right click the mouse at a place in the desired waveform area and then drag the cursor horizontally until your desired location is reached. Measured values are displayed in real-time.

NOTE

- **Measured values obtained by Option 2 cannot be saved.**

Performing Measurements Using a Vertical Caliper

To perform measurements using a vertical caliper, follow this procedure:

1. Enter the detail waveform window.

2. Select **Caliper**. The **Caliper** menu is displayed.

3. Select **ST**.

4. Display a vertical caliper in either of the following ways.

    ◆   Using a mouse: left click the mouse at a place in the desired waveform area and then drag the cursor vertically until your desired location is reached.

    ◆   Using a touch screen: select a place in the desired waveform area and then drag your finger on the screen surface vertically without losing the contact until the desired location is reached. If you need to adjust the caliper, slightly touch the left or right caliper arm and select the appropriate touchscreen control.

5. After finishing measurements, select **ST** from the **Caliper** menu to obtain the measured value.

6. Select the desired option to **Reset** measured values.

Moving the Caliper

After displaying a caliper, you can also move calipers as shown below to measure the time difference between any two points:

■   When the cursor is in the shape of ▨ , you can move the caliper horizontally.

■   When the cursor is in the shape of ▧ , you can move the caliper vertically.

■   When the cursor is in the shape of ✛ inside the caliper, you can move the entire caliper window.

■   Select the ⟨ button or the ⟩ button in the horizontal caliper measurement area.

■   Select the ∧ button or the ∨ button in the vertical caliper measurement area.

Canceling Caliper Measurements

During caliper measurement, you can cancel a caliper measurement in either of the following ways:

■   Select the **Caliper** button.

■   Select anywhere in the waveform area.

■   Select the ✕ button in the caliper window.

8.8.4.4   Setting Beat Annotation

When a bedside monitor and a telemetry device support the beat annotation functionality, you can enable or disable **Beat Anno:** to display or hide white beat labels above the first ECG waveform in the detail waveform window. The white beat labels indicate how the monitor or the telemetry device is classifying beats and may explain suspected, missed, or false arrhythmia calls.

■   N = Normal

■   V = Ventricular Ectopic

■   S = Supraventricular Premature

■   P= Paced

■   L= Learning

■   ?= Insufficient information to classify beats

■   I= Inoperative (for example, Lead Off)

■   M= Missed beat

When beat labels are displayed above the ECG waveform, they can be printed. If you enable or disable **Beat Anno:** in the detail waveform window, these beat labels will also be displayed or hidden in the event detail window, and vise versa.

CAUTION

- **Ensure that you have selected the optimal leads with the best waveform amplitude and the highest signal-to-noise ratio. Selecting the optimal leads is important for beat detection, beat classification, and V-Fib detection.**

8.8.5   Printing Compressed Waveforms or Detail Waveforms

To print the compressed waveform or detailed waveform, follow this procedure:

1. Enter the full disclosure review page.

2. Select the 🖶 button in the upper right corner of this page. The **Print Setup** menu is displayed.

3. Select the desired options. Only items that may need special remarks are described here.

   ◆ **Print Waveform Overview**: prints the compressed waveform displayed on the full disclosure review page.

   ◆ **Print Overview of Selected Waveforms**: prints the selected compressed waveform segments. For details on how to select compressed waveform segments, see Section *8.8.3.4 Selecting Compressed Waveform Segments*.

   ◆ **Print Details of Selected Waveforms**: prints the detail waveform for the selected compressed waveform segments according to the time period where selected waveform segments are located.

   ◆ **Print Displayed Detailed Waveforms**: prints the detail waveform for the entire compressed waveform.

   ◆ **Print Selected Detailed Waveforms**: prints the detail waveform for the selected waveform segments according to waveforms. If you select this option, you can further select **Select Waveform** to customize the number and sequence of waveforms which are output on a printout. After performing the desired settings, select the ▧ button in the upper right corner of the **Select Waveform** menu.

4. If you wish to preview the printout, select **Print Preview**.

5. Select **Print**.

NOTE

- **Print Displayed Waveform Detail and Print Selected Waveform Detail are selectable in the detail waveform window only. For information regarding accessing the detail waveform window, see Section *8.8.4 Detail Waveform Window*.**

8.8.6   Resting 12-Lead ECG Analysis

When it is impossible or inconvenient to do a real-time resting 12-lead ECG analysis on the bedside monitor, the Multi Patient Viewer can be used to analyze the historical 12-lead ECG waveforms sent by the bedside monitor on the full disclosure review page.The Multi Patient Viewer supports only Glasgow 12-lead ECG analysis algorithm. For more information on the Glasgow algorithm, refer to *12-Lead ECG Interpretive Program Physician's Guide (PN: 046-004817-00)*.

NOTE

- **Compatible monitors supporting this function include BeneVision N series, Passport series and ePM series monitors.**

- **It's required that the waveforms selected to analyze are obtained using standard 12-lead electrode placement while the patient remains still and relaxed. Otherwise, the analysis result might not be correct.**

- **Resting 12-lead ECG analysis is intended for online patients. It is not intended for discharged patients.**

- **The offline waveform data sent after a reconnection is not intended for 12-lead ECG analysis.**

WARNING

- **The result of the resting 12-lead ECG analysis should be confirmed by the physician.**

8.8.6.1   Editing Patient Information

Some patient information may directly affect ECG analysis. Complete and correct patient information is helpful for accurate diagnosis and treatment of the patient. Enter patient information before taking an ECG measurement.

To enter patient information, follow this procedure:

1. Enter the full disclosure review page.

2. Select desired compressed waveform.

3. Double click the selected compressed waveform or select the **Detail** button to access the detail waveform window.

4. Select **Setup** to enter the **12-Lead Setup** menu.

5. On the **Patient Demographics** page, input or edit patient information.

6. Select **Save**.

NOTE

- **Modifying patient information in the 12-lead setup menu will synchronize to the monitor.**

8.8.6.2   Setting Other Information for Resting 12-Lead ECG Analysis

1. To set other information for reseting 12-lead analysis, follow this procedure:

2. Enter the full disclosure review page.

3. Select desired compressed waveform.

4. Double click the selected compressed waveform or select the **Detail** button to access the detail waveform window.

5. Select **Setup** to enter the **12-Lead Setup** menu.

6. On the **12-Lead Setup** menu, Select **Setup** tab.

7. Set **High Freq Cut-off**: the high frequency filter attenuates muscle artifact by restricting the included frequencies. The setting of the high frequency filter is 35 Hz by default. The high frequency filter is a low-pass filter. That is to say signal that exceeds the set frequency is filtered out. For example, if you set **High Freq Cut-off** to **35 Hz**, only signal at 35 Hz or less displays. Signal exceeding 35 Hz is attenuated.

8. Set **Baseline Drift Removal**: the baseline drift removal (BDR) suppresses most baseline drift interference and also is able to preserve the fidelity of the ST-segment level. BDR is switched on by default.If BDR is switched off, the 0.05 Hz high pass filter is used.

9. Set **Tachy** and **Brady**.

8.8.6.3   Initiating Resting 12-Lead ECG Analysis

To initiate 12-Lead ECG analysis, follow this procedure:

1. Enter the full disclosure review page.

2. Select desired compressed waveform.

3. Double click the selected compressed waveform or select the **Detail** button to access the detail waveform window.

4. In the detail waveform window, move the cursor to the desired time.

5. In the detail waveform window, select **Analyze**. The system selects 10 seconds of waveforms following the cursor to start analyzing automatically.

At the completion of the resting12-lead ECG analysis, the report preview displays on the page.

NOTE

- **Ensure that the waveform following the cursor is not less than 10 seconds; otherwise the analysis will not start.**

8.8.6.4 Saving the 12-Lead Interpretation Report

At the completion of the 12-lead ECG interpretation, Select **Save** to save the report.

8.8.6.5 Printing the 12-Lead Interpretation Report

At the completion of the12-lead ECG interpretation, Select **Print** to output the report.

8.9 Events Review Page

On the events review page, you can view physiological alarm events, manual events, and operational events.

8.9.1 Entering the Events Review Page

To enter the events review page, follow this procedure:

1. Select the ▼ button in the upper left corner of the review screen.
2. From the drop-down list, select **Events**.

8.9.2 Event List

In the event list:

- Events are displayed in descending chronological order. The most recent event is displayed at the top. The number of exclamation marks before an event matches different alarm priorities.
    - ◆ !!!: high priority alarm
    - ◆ !!: medium priority alarm
    - ◆ !: low priority alarm
- Event lock status, trigger time, alarm priority, and event remarks if available are displayed for each event.
- Different color blocks are displayed on the left of each event to indicate different event types.
    - ◆ Red: high priority alarm event
    - ◆ Yellow: medium priority alarm event
    - ◆ Cyan: low priority alarm event
    - ◆ Green: manual event
    - ◆ White: operation-related event

8.9.2.1 Setting Filters

You can filter events by time, alarm priority, alarm category, and parameter group.

To filter events, follow this procedure:

1. Enter the event review page.
2. Select **Filter**. From the drop-down list, select the desired item.

You can customize two criteria. To do so, follow this procedure:

1. From the **Filter** drop-down list, select **Custom 1** or **Custom 2** to enter the **Filter Setup** menu.
2. Select the **Name** field to edit the name of the custom criterion.
3. Select desired items.

If you want to review events happened around certain time, select the [button → set the time → select **OK**. Then the cursor jumps to the event happened closest to the defined time.

8.9.2.2 Other Operations in the Event List

To perform other event-related operations, follow this procedure:

1. Enter the event review page.
2. Select the desired event from the event list.
3. Select the ⋮ button.
4. Select **Show Disabled Arrhythmia Alarms** to display turned-off arrhythmia alarms in the event list.

8.9.3 Event Detail Window

Enter the event detail window in either of the following ways:

■ Double click or tap the desired event from the event list.

■ Select the **Detail** button on the event review page.

In the event detail window:

■ The upper half of the window displays:

◆ Event name: displays in the upper left corner.

◆ Event triggered time: displays in red font.

◆ Waveform: 16 seconds of waveforms before and after the event triggered time.

■ Numeric values are displayed in the lower part of the window. The background color of parameters indicate whether an alarm is triggered.

◆ No color: no alarm is triggered.

◆ Red: a high priority alarm is triggered.

◆ Yellow: a medium priority alarm is triggered.

◆ Cyan: a low priority alarm is triggered.

If you wish to close the event detail window, select the ☒ button.

8.9.3.1 Configuring ECG Gain

To configure the ECG gain, follow this procedure:

1. Enter the event detail window.
2. Select **ECG Gain**.
3. Select the desired gain.

8.9.3.2 Configuring Waveform Sweep Speed

To configure the waveform sweep speed, follow this procedure:

1. Enter the event detail window.
2. Select the **Speed** button.
3. Configured the desired speed. The speed is applicable to all the ECG waveforms.

8.9.3.3 Caliper Measurement

For details on how to perform caliper measurement, see Section *8.8.4.3 Caliper Measurement Overview*.

8.9.3.4 Setting Beat Annotation

For details on how to set beat annotation, see Section *8.8.4.4 Setting Beat Annotation*.

8.9.4 Printing Events

To print the desired event list or event details, follow this procedure:

1. Enter the event review page.

2.   Select the desired events from the event list.

3.   Select the ⎙ button in the upper right corner of this page. The **Print Setup** menu is displayed.

4.   Select the desired options.

◆   **Print All Event List**: print the entire event list.

◆   **Print List of Selected Events**: print the selected events list.

◆   **Print Overview of Selected Events**: when multiple events are selected from the event list, selecting this option prints these events on the same page and outputs an event overview report.

◆   **Print Detail of Selected Events**: print the details of selected events.

◆   **Print Displayed Event Detail**: print the details of the selected event. If you wish to select this option, you need to open the event detail window first. If waveform data is available for the selected event, 16 seconds of waveforms before and after the alarm trigger time are printed by default. The actual waveform data printed depends on the option selected for **Printing Duration On Alarm**. For details on how to set **Printing Duration On Alarm**, see Section *10.7.8 Setting Other Print-Related Items*.

5.   If you wish to preview the printout, select **Print Preview**.

6.   Select **Print**.

> **NOTE**
> ---
> •   **Print preview is not applicable for Print Detail of Selected Events.**

8.10   12-Lead ECG Review Page

You can review 12-lead analysis reports on the 12-lead ECG review page, including parameter measurements, diagnosis results and ECG waveforms. You can also reanalyze the report.

8.10.1   Entering the 12-Lead Review Page

To enter the 12-lead ECG review page, follow this procedure:

1.   Select the ▼ button in the upper left corner of the review screen.

2.   From the drop-down list, select **12-Lead ECG**.

8.10.2   Median Complex Window (For Glasgow Algorithm Only)

On the 12-lead ECG review page, selecting **Median Complex** enters the median complex window of current report.

In the median complex window, the median complex template marks the start and end position of P-wave and QRS-wave and the end position of T-wave.

Selecting **Waveform** returns to the 12-lead ECG waveform review page.

8.10.3   Configuring 12-Lead ECG Waveforms

To configure 12-lead ECG waveforms on the review page, follow this procedure:

1.   Enter the 12-lead ECG review page.

2.   Configure **Speed** and **Gain**.

3.   Configure **Layout**.

◆   **12×1:** displays 12-lead ECG waveforms on one page in one column.

◆   **6×2**: displays 12-lead ECG waveforms on one page in two columns, with 6 lines in each column.

◆   **6×2+1**: displays 12-lead ECG waveforms on one page in two columns, with 6 lines in each column, and one rhythm lead waveform at the bottom.

◆   **3×4+1**: displays 12-lead ECG waveforms on one page in 4 columns, with 3 lines in each column, and one rhythm lead waveform at the bottom.

◆   **3×4+3**: displays 12-lead ECG waveforms on one page in 4 columns, with 3 lines in each column, and three rhythm lead waveforms at the bottom.

8.10.4 Caliper Measurement

Horizontal calipers can be used to measure the PR, QRS, QT, and R-R waveform intervals, and vertical calipers can be used to measure the ST waveform amplitude in the median complex window.

To perform measurements using a horizontal or vertical caliper, follow this procedure:

1. Enter the 12-lead ECG review page.

2. Select the **Caliper** button.

3. From the drop-down list, select the desired option:

   ◆ **Caliper**: perform measurement using a horizontal caliper.

   ◆ **ST Caliper**: perform measurement using a vertical caliper.

4. Display a caliper.

5. Obtain measured values.

For details on how to display a horizontal or vertical caliper, how to obtain measured values, and how to move a caliper, see Section *8.8.4.3 Caliper Measurement Overview*.

NOTE

- **The measured caliper values on the 12-lead analysis review page are not saved on the event review page.**

8.10.5 Resting 12-Lead ECG Reanalysis

When the results of a resting 12-lead ECG analysis performed on the bedside monitor are in question due to incomplete or inaccurate patient demographics or configuration etc., the Multi Patient Viewer can be used to reanalyze the original report waveform data sent by the bedside monitor. On the 12-lead ECG review page, fill in correct patient information and perform the reanalysis.For more information on the Glasgow algorithm, refer to *12-Lead ECG Interpretive Program Physician's Guide (PN: 046-004817-00)*.

NOTE

- **Compatible monitors supporting this function include BeneVision N series, Passport series and ePM series monitors.**

- **Resting 12-lead ECG reanalysis is intended for online patients. It is not intended for discharged patients.**

- **The offline waveform data sent after a reconnection is not intended for 12-lead ECG reanalysis.**

WARNING

- **The result of the resting 12-lead ECG reanalysis should be confirmed by the physician.**

8.10.5.1 Editing Patient Information

Some patient information may directly affect ECG analysis. Complete and correct patient information is helpful for accurate diagnosis and treatment of the patient. Enter patient information before taking an ECG measurement.

Select the patient information area or follow the procedure below to enter patient information:

1. Enter the 12-lead ECG review page.

2. Select **Setup** to enter the **12-Lead Setup** menu.

3. On the **Patient Demographics** page, input or edit patient information.

4. Select **Save**.

NOTE

- **Modifying patient information in the 12-lead setup menu will synchronize to the monitor.**

8.10.5.2 Setting Other Information for Resting 12-Lead ECG Reanalysis

To set other information for reseting 12-lead reanalysis, follow this procedure:

1. Enter the 12-lead ECG review page.

2. Select **Setup** to enter the **12-Lead Setup** menu.

3. On the **12-Lead Setup** menu, Select **Setup** tab. For more information on the setup options, see *8.8.6.2 Setting Other Information for Resting 12-Lead ECG Analysis*.

8.10.5.3 Initiating Resting 12-Lead ECG Renalysis

To initiate 12-Lead ECG reanalysis, follow this procedure:

1. Enter the 12-lead ECG review page.

2. Select ▤Q symbol to set desired report.

3. Select **ReAnalyze**.

At the completion of the reanalysis, the result displays on the page.

8.10.6 Printing 12-Lead Analysis Reports

To print a12-lead ECG analysis report, follow this procedure:

1. Enter the 12-lead ECG review page.

2. Select the 🖶 button in the upper right corner of this page. The **Print Setup** menu is displayed.

3. Set the desired options.

4. Select **Print**.

8.11 ST Review Page

You can review ST segments and values on the ST review page.

8.11.1 Entering the ST Review Page

To enter the ST review page, follow this procedure:

1. Select the ▼ button in the upper left corner of the review screen.

2. From the drop-down list, select **ST.**

8.11.2 Displaying/Hiding ST Reference Templates

On the ST review page, select **Display Reference** or **Hide Reference**.

■ **Display Reference**: the ST template storage time is displayed on the right of current segment and ST values are also displayed on the reference template.

■ **Hide Reference**: hide the ST reference template.

8.11.3 Displaying/Hiding Markers

On the ST review page, select **Display Marker** or **Hide Marker**.

■ **Display Marker**: a white vertical bar appears above each waveform, marking the positions of ISO, J point, and ST point.

■ **Hide Marker**: the positions of ISO, J point, and ST point are not displayed.

8.11.4 Printing ST Segment Waveforms

To print ST segment waveforms, follow this procedure:

1. Enter the ST review page.

2. Select the 🖶 button in the upper right corner of this page. The **Print Setup** menu is displayed.

3. Set the desired options.

4. Select **Print**.

8.12 Arrhythmia Statistics Page

On the arrhythmia statistics page, you can view the statistics about the HR value and the number of each arrhythmia category within a specific time period. Arrythmia statistics can be displayed in a tabular or graphic format.

8.12.1 Entering the Arrhythmia Statistics Page

To enter the arrhythmia statistics page, follow this procedure:

1. Select the ▼ button in the upper left corner of the review screen.

2. From the drop-down list, select **Arrhy Statistics.**

8.12.2 Viewing Arrhythmia Statistics

To view arrhythmia statistics, follow this procedure:

1. Enter the arrhythmia statistics page.

2. If you wish to view arrhythmia statistics in a tabular format, select **Tabular** in the upper right corner of this page.

3. Select **Zoom** to view arrhythmia events within a specific time period. The default for **Zoom** is **24 hrs**.

4. If you wish to view arrhythmia statistics in a graphic format, select **Graphic**.

On the graphic arrhythmia statistics page:

■ The left side displays the name, times of occurrence, and duration of arrhythmias. The right side displays the arrhythmia occurrence time and colored block which matches different alarm priorities.

◆ Red: high alarm priority

◆ Yellow: medium alarm priority

◆ Cyan: low alarm priority

■ Selecting the desired arrhythmia on the left displays the waveform area on the right side. After selecting the waveform area, you can view more details about this arrhythmia.

8.12.3 Setting the Display of Arrhythmia Events

8.12.3.1 Displaying Disabled Arrhythmia Alarms

To display arrhythmia events that have alarms turned off in the review, follow this procedure:

1. Enter the arrhythmia statistics page.

2. select **Graphic**.

3. select the ⋮ button.

4. Select **Show Disabled Arrhythmia Alarms**: this option is disabled by default. Enabling it, arrhythmia events that have alarms turned off displays are displayed in the review.

8.12.3.2 Displaying High Quality Arrhythmia Alarms Only

To exclude arrhythmia events with obvious noise or arrhythmia events without typical alarm characteristics in the review, follow this procedure:

1. Enter the arrhythmia statistics page.

2. select **Graphic**.

3. select the ⋮ button.

4. Select **High Quality Arrhythmia Alarms Only**: this option is disabled by default. Enabling it, events with obvious noise or events without typical alarm characteristics are excluded in the review.

8.12.4   Printing Arrhythmia Statistics Results

To print arrhythmia statistics results, follow this procedure:

1.   Enter the arrhythmia statistics page.
2.   Select the 🖶 button in the upper right corner of this page. The **Print Setup** menu is displayed.
3.   Set the desired options.
4.   Select **Print**.

8.13   aEEG Review Page

aEEG review page displays historical aEEG monitoring data.

8.13.1   Entering the aEEG Review Page

Enter the aEEG review page in either of the following ways:

■   Select the ▼ button in the upper left corner of the review screen → from the drop-down list, select **aEEG Review**.

■   Select the **aEEG** quick key on the ViewBed screen→ select the aEEG window area→ in the aEEG setup menu, select **aEEG Review**.

■   Select the **Screen Setup** quick key on the ViewBed screen→ select the **Choose Screen** tab → select **aEEG**→select the aEEG window area→ in the aEEG setup menu, select **aEEG Review**.

■   Select the **Main Menu** quick key on the ViewBed screen→ from the **Display** column select **Choose Screen** → select **aEEG**→ select the aEEG window area→ in the aEEG setup menu, select **aEEG Review**.

8.13.2   Setting the aEEG Review Display

You can set different aEEG review displays:

■   **aEEG with EEG**: default option, displays up to four aEEG waveforms and up to four EEG waveforms in the first half and second half of the page respectively. And you can set the scale and speed for the aEEG and EEG waveforms.

■   **aEEG with DSA**: displays up to four aEEG waveforms and DSA trends of up to four EEG channels in the first half and second half of the page respectively. And you can set the scale and speed for the aEEG waveforms, and power scale for the DSA trend.

■   **aEEG with Trend**: displays up to four aEEG waveforms and HR/SpO2 trends in the first half and second half of the page respectively. And you can set the scale and speed for the aEEG waveforms.

8.13.3   Printing an aEEG Report

To print an aEEG report, follow this procedure:

1.   Enter the aEEG review page.
2.   Select the 🖶 button in the upper right corner of this page. The **Print Setup** menu is displayed.
3.   Set the desired options.
4.   Select **Print**.

9 Printing

9.1 Supported Printers

The Multi Patient Viewer can be connected to a printer to output reports on A4 or Letter paper. The printer has a separate power supply. The Multi Patient Viewer supports the following printers:

- HP LaserJet 401n
- HP LaserJet M602
- HP LaserJet M605n
- HP LaserJet M608
- PDF printer

NOTE

- **For more details about the printer, see the document accompanying the printer. With product upgrades, the Multi Patient Viewer may support more printers and no prior notice will be given. If you have any doubt about the printer you have purchased, contact Mindray.**
- **PDF reports can be output by PDFCreator only.**

9.2 Starting Printing

You can start a printing task manually or set the printer to start a printing task automatically.

9.2.1 Manually Starting Printing

You can manually start printing reports such as summary information, trends data, and calculation results.

9.2.1.1 Printing Summary Reports

When bedside devices are being monitored by the Multi Patient Viewer, you can print their summary reports which includes information such as patient information, realtime data, and alarm data.

To print a summary report, follow this procedure.

1. Select the ![icon] button in the upper right corner of the main screen.
2. Select **Print Summary**.

9.2.1.2 Printing All Realtime Reports

You can print realtimereports for all the online beds. Reports for beds in standby mode or beds where patients have been discharged cannot be printed.

To print reports for all patients, follow this procedure.

1. Select the ![icon] button in the upper right corner of the main screen.
2. Select **Print All Realtime Reports.** The **Print All Realtime Reports** dialog box is displayed.
3. Select **OK**.

9.2.1.3 Printing Review Data

For details on how to print tabular trends, graphic trends, waveform review, waveform segment, event review, 12-lead analysis review, ST segment, and arrhythmia statistics result, see Chapter *8 Review*.

9.2.1.4 Printing Realtime Waveforms

To print realtime waveforms for a single bedside device, choose one of the following ways:

- Select the bed number and room number area in the upper left corner of the desired patient sector on the multibed screen and then select the **Print** button from the drop-down list.

- On the ViewBed screen, select the **Print** quick key.

- Select the **Print** button in the **Realtime Report** menu on the ViewBed screen. For details on how to access the **Realtime Report** menu, see Section *9.5.2.1 Setting Realtime Reports in the Report Setup Tab*.

- Select the **Main Menu** quick key from the quick key area on the ViewBed screen→ from the **Report** column select **Print**.

9.2.1.5   Printing ECG Reports

When ECG monitoring with lead sets other than 3-lead is being performed, you can print corresponding ECG reports by following the procedure below.

1. Select the parameter area or waveform area in the desired patient sector on the multibed screen to access the ViewBed screen.

2. Access the ECG full screen in one of the following ways:

    ◆   On the ViewBed screen, select the **ECG Full-Screen** quick key.

    ◆   On the ViewBed screen, select the **Screen Setup** quick key → select the **ViewBed** tab → select the **Choose Screen** tab → select **ECG Full-Screen**. If you are performing 12-lead ECG monitoring, select the **Choose Screen** tab → select **ECG 12-Lead**.

    ◆   Select the ECG parameter area or waveform area to access the ECG menu → select the **Full-Screen** button in the lower left corner of the menu. If you are performing 12-lead ECG monitoring, select the 12-Lead.

    ◆   Select the **Main Menu** quick key from the quick key area on the ViewBed screen→ from the **Display** column select **ECG 12-Lead**.

3. Select the print button in either of the following ways:

    ◆   On the ViewBed screen, select the **Print** quick key.

    ◆   Select **Print** in the lower right corner of the **ECG Report** menu. For details on how to access this menu, see Section *9.5.2.2 Setting ECG Reports in the Report Setup Tab*.

    ◆   Select the **Main Menu** quick key from the quick key area on the ViewBed screen→ from the **Report** column select **Print**.

4. Select the bed number and room number area in the upper left corner of the desired patient sector on the multibed screen and then select the **Print** button from the drop-down list.

> **NOTE**
>
> - **For details on how to set the ECG reports, see Section *9.5.2.2 Setting ECG Reports in the Report Setup Tab*.**

9.2.1.6   Printing EEG Reports (BIS Module)

To print EEG reports, follow this procedure:

1. Select the parameter area or waveform area in the desired patient sector on the multibed screen to access the ViewBed screen.

2. Access the BIS menu in either of the following ways:

    ◆   Select a BIS waveform or parameter area.

    ◆   Select the **Parameters Setup** quick key → select **BIS**.

3. Select the **BIS Expand** button at the bottom of the menu.

4. Select the **EEG** tab.

5. After selecting desired settings, select the button in the upper left corner. The **Print Setup** menu is displayed.

6. After selecting desired settings, select **Print**.

9.2.1.7   Printing CCO-Related Hemodynamic Parameters

To print CCO-related hemodynamic parameters, follow this procedure:

1. Select the parameter area or waveform area in the desired patient sector on the multibed screen to access the ViewBed screen.

2. Access the CCO menu in either of the following ways:

    ◆   Select the CCO parameter area.

    ◆   Select the **Parameters Setup** quick key at the bottom of the screen → select **CCO**.

3. Select the **HemoSight** button at the bottom of the menu.

4. Select the **Diagnosis** tab.

5. Select the 🖶 button in the upper left corner. The **Print Setup** menu is displayed.

6. After selecting desired settings, select **Print**.

9.2.1.8   Printing ICG-Related Hemodynamic Parameters

To print ICG-related hemodynamic parameters, follow this procedure:

1. Select the parameter area or waveform area in the desired patient sector on the multibed screen to access the ViewBed screen.

2. Access the ICG menu in either of the following ways:

    ◆   Select the ICG waveform or parameter area.

    ◆   Select the **Parameters Setup** quick key at the bottom of the screen → select **ICG**.

3. After selecting desired settings, select the **Hemodynamic Parameters** button at the bottom of the menu.

4. Select the 🖶 button in the upper left corner. The **Print Setup** menu is displayed.

5. After selecting desired settings, select **Print**.

9.2.1.9   Printing SvO$_2$/ScvO$_2$-Related Hemodynamic Parameters

To print SvO$_2$/ScvO$_2$-related hemodynamic parameters, follow this procedure:

1. Select the parameter area or waveform area in the desired patient sector on the multibed screen to access the ViewBed screen.

2. Access the SvO$_2$ or ScvO$_2$ menu in either of the following ways:

    ◆   Select the SvO$_2$ or ScvO$_2$ parameter area.

    ◆   Select the **Parameters Setup** quick key at the bottom of the screen → select **ScvO2/SvO2**.

3. Select the **HemoSight** button at the bottom of the menu.

4. Select the **Diagnosis** tab.

5. Select the 🖶 button in the upper left corner. The **Print Setup** menu is displayed.

6. After selecting desired settings, select **Print**.

9.2.1.10   Printing QT Reports

You can print QT reports at the Multi Patient Viewer under the following conditions:

■   When a bedside monitor supports printing QT reports via the Multi Patient Viewer and is performing QT analysis.

■   When a telemetry device is performing QT analysis at the Multi Patient Viewer.

To print a QT report, follow this procedure:

1. Select the parameter area or waveform area in the desired patient sector on the multibed screen to access the ViewBed screen.

2. Access **QT View** in one of the following ways:

    ◆   Select the QT parameter area to access the QT menu→ select the **QT View** button at the bottom of the menu.

    ◆   Select the ECG waveform or parameter area to access the **ECG** menu → select the **QT** tab → select the **QT View** button at the bottom of the menu.

    ◆   Select the **Parameters Setup** quick key at the bottom of the screen → select **ECG**→ select the **QT** tab → select the **QT View** button at the bottom of the menu.

3.   Select the 🖶 button in the upper left corner. The **Print Setup** menu is displayed.

4.   After selecting desired settings, select **Print**.

9.2.1.11   Printing ST View

The ST View shows a complete QRS segment for each ST lead. To print ST View, follow this procedure:

1.   Select the parameter area or waveform area in the desired patient sector on the multibed screen to access the ViewBed screen.

2.   Access **ST View** in one of the following ways:

◆   Select ST segment waveform area.

◆   Select the ST parameter area to access the **ST** menu → select the **ST View** button at the bottom of the menu.

◆   Select the ECG waveform or parameter area to access the **ECG** menu → select the **ST** tab → select the **ST View** button at the bottom of the menu.

3.   Select the 🖶 button in the upper left corner. The **Print Setup** menu is displayed.

4.   After selecting desired settings, select **Print**.

9.2.1.12   Printing Frozen Waveforms

For details on how to print frozen waveforms, see Section *6.4.4.3 Printing Frozen Waveforms*.

9.2.1.13   Printing Alarm Setup

To print alarm setup, follow this procedure:

1.   Select the parameter area or waveform area in the desired patient sector on the multibed screen to access the ViewBed screen.

2.   Select the **Alarm Setup** quick key at the bottom of the screen.

3.   After selecting the desired settings, select the 🖶 button in the upper left corner. The **Print Setup** menu is displayed.

4.   After selecting desired settings, select **Print**.

9.2.2   Automatically Starting Printing

You can set a printer to start printing reports automatically.

9.2.2.1   Setting Scheduled Printing

You can set scheduled printing of reports. For details, see Section *9.5.3 Setting End Case Reports* and *10.7.3 Setting Scheduled Reports*.

9.2.2.2   Enabling Print on Alarm

When a parameter alarm switch is set to on and an alarm is triggered for this parameter, you can set a printer to start alarm printing automatically.

To enable automatic printing via the printer when an alarm is triggered, make sure that **Print on Alarm** is set to **Printer**. For detail, refer to *10.7.8 Setting Other Print-Related Items*.

To enable the printer to automatically start printing on alarm, follow this procedure:

1.   Access alarm setup related tabs in one of the following ways:

◆   Select the **Alarm Setup** quick key at the bottom of the screen.

◆   Select the parameter or waveform area of the desired parameter → select an alarm related tab.

◆   Select the **Parameters Setup** quick key at the bottom of the screen → select the desired parameter → select an alarm related tab.

2.   Set Alarm Outputs for a parameter to **Print** or **All**.

◆   **Print**: prints the configured length of waveform data for the parameter automatically.

◆ **All**: prints the configured length of waveform data for the parameter automatically.

9.3 Stopping Printing

To stop a printing task, follow this procedure:

1. Select the ![icon] button in the upper right corner of the Multi Patient Viewer main screen.

2. Select **Print Queue**.

3. Select one printing task and then select **Delete** to stop this printing task; select all the printing tasks and then select **Delete All** to stop all the printing tasks.

9.4 Viewing Printer Statuses

You can view the status of the most recent printing tasks in the **Print Queue** window. To view the status of printing tasks, follow this procedure:

1. Select the ![icon] button in the upper right corner of the Multi Patient Viewer main screen.

2. Select **Print Queue**.

9.5 Configuring Reports

You can configure report related contents such as patient information items on a report. For details, see Section *10.7 Print Settings*. This section only describes how to set realtime reports, ECG report, and end case reports for a single bedside device in the **Print Setup** menu.

9.5.1 Accessing the Print Setup Menu

To access the **Print Setup** menu, follow this procedure:

1. Select the parameter area or waveform area in the desired patient sector on the multibed screen to access the ViewBed screen.

2. Access **Print Setup** menu in either of the following ways:

   ◆ Select the **Print Setup** quick key at the bottom of the screen to enter the **Print Setup** menu. If this quick key is not available, configure it by following steps in *6.3.2 Configuring Quick Keys*.

   ◆ Select the **Main Menu** quick key at the bottom of the screen→ from the **Report** column select **Print Setup**.

9.5.2 Setting Realtime Reports and ECG Reports

In the **Report Setup** tab, you can set realtime reports and ECG reports.

9.5.2.1 Setting Realtime Reports in the Report Setup Tab

To set realtime reports, follow this procedure:

1. In the **Print Setup** menu, select the **Report Setup** tab.

2. Select the **Realtime Report** tab.

3. Set **Speed**.

4. Select waveforms to be printed.

   ◆ **Current Waveforms**: print the realtime report for current waveforms.

   ◆ **Selected Waveforms**: print the realtime report for the selected waveforms. If you wish to select this option, you need to further select **Select Waveform** and select the desired waveforms in the **Select Waveform** menu.

9.5.2.2 Setting ECG Reports in the Report Setup Tab

When ECG monitoring with lead sets other than 3-lead is being performed, you can set ECG reports.

To do so, follow this procedure:

1. In the **Print Setup** menu, select the **Report Setup** tab.
2. Select the **ECG Report** tab.
3. Set the desired options. Only items that may need special remarks are described here.

Menu item	Description	Options	Default
Auto Interval	Defines the spacing between the ECG waveforms on a printout	**On:** automatically adjusts the space between waveforms to avoid overlapping. **Off**: each waveform area has the same size on a printout.	Off
	Note: This setting is only relevant when **12×1** is selected for **12-Lead Format**.		
12-Lead Format	Select the format of 12-lead ECG waveforms on a printout.	**12×1**: displays 12-lead ECG waveforms on one page in one column. **6×2**: displays 12-lead ECG waveforms on one page in two columns, with 6 lines in each column. **6×2+1**: displays 12-lead ECG waveforms on one page in two columns, with 6 lines in each column, and one rhythm lead waveform at the bottom. **3×4+1**: displays 12-lead ECG waveforms on one page in 4 columns, with 3 lines in each column, and one rhythm lead waveform at the bottom. **3×4+3**: displays 12-lead ECG waveforms on one page in 4 columns, with 3 lines in each column, and three rhythm lead waveforms at the bottom.	3×4+1
Rhythm Lead 1 Rhythm Lead 2 Rhythm Lead 3	Select the lead that will be used as Rhythm Lead 1, 2, or 3.	I, II, III, aVR, aVL, aVF, V1, V2, V3, V4, V5, V6	Rhythm Lead 1: II Rhythm Lead 2: V2 Rhythm Lead 3: V5,
	Note: This setting is only relevant when **6×2+1**,**3×4+1**, or **3×4+3** is selected for **12-Lead Format**.		
Format Sequence	Select the recording method of ECG report generated by auto measurement	**Sequential**: 12-lead ECG data are recorded sequentially and displayed in 3 lines and 4 columns with 2.5 seconds of ECG data for each column. **Simultaneous**: Record simultaneous 12-lead ECG data.	Sequential

9.5.3 Setting End Case Reports

When you discharge a patient, if you select **Print End Case Report**, the selected end case reports in the **System Setup** menu will be printed automatically. But the report contents for each bed are configured in the **End Case Report** tab.

For more information regarding the system setup menu, see Section *10.7.4 Setting End Case Reports*.

9.5.3.1 Setting Tabular Trends Reports in the End Case Report Tab

To set tabular trends reports as end case reports, follow this procedure:

1. In the **Print Setup** menu, select the **End Case Report** tab.
2. Select the **Tabular Trends Report** tab.
3. Set the desired options. Only items that may need special remarks are described here.

Menu Item	Description	Options	Default
Interval	Select the resolution of the tabular trends printed on a report.	1 min, 5 min, 10 min, 15 min, 30 min, 1 hr, 2 hrs, 3 hrs, NIBP, TempIF, C.O. Parameters, such as **NIBP**,**Temp**: prints a tabular trends report when parameter measurements are acquired.	30 min
Report Format	Select the printing principle.	**Parameter Oriented**: prints a report with parameters listed by row and time listed by column. **Time Oriented**: prints a report with time listed by row and parameter listed by column.	Parameter Oriented
Trend Group	Select the trend option whose data you wish to be displayed on a printout.	All, Standard, Hemo, Cardiac, Pulmonary, RM, Neuro, Gases, Custom 1, Custom 2	Standard

9.5.3.2 Setting Graphic Trends Reports in the End Case Report Tab

To set graphic trends reports as end case reports, follow this procedure:

1. In the **Print Setup** menu, select the **End Case Report** tab.

2. Select the **Graphic Trends Report** tab.

3. Set **Trend Group**.

9.5.3.3 Setting Event Reports in the End Case Report Tab

To set event reports as end case reports, follow this procedure:

1. In the **Print Setup** menu, select the **End Case Report** tab.

2. Select the **Event Report** tab.

3. Select the desired event type.

9.5.3.4 Setting 12-Lead Interpretation Reports in the End Case Report Tab

To set 12-lead interpretation report as end case reports, follow this procedure:

1. In the **Print Setup** menu, select the **End Case Report** tab.

2. Select the **12-Lead Interpretation** tab.

3. Set the desired options. For details on how to set the options, see Step 3 of Section *9.5.2.2 Setting ECG Reports in the Report Setup Tab*.

9.5.3.5 Setting Realtime Reports in the End Case Report Tab

To set realtime reports as end case reports, follow this procedure:

1. In the **Print Setup** menu, select the **End Case Report** tab.

2. Select the **Realtime Report** tab.

3. Set the desired options. For details on how to set the options, see Step 3 and Step 4 of Section *9.5.2.1 Setting Realtime Reports in the Report Setup Tab*.

9.5.3.6 Setting ECG Reports in the End Case Report Tab

To set ECG reports as end case reports, follow this procedure:

1. In the **Print Setup** menu, select the **End Case Report** tab.

2. Select the **ECG Report** tab.

3. Set the desired options. For details on how to set the options, see Step 3 of Section *9.5.2.2 Setting ECG Reports in the Report Setup Tab*.

9.5.4 Setting Scheduled Reports

You set scheduled printing of reports in the **Print Setup** menu only when **Scheduled Report Switch** is enabled in the **System Setup** menu.

In the **Scheduled Report** tab, you can configure report contents for each bed.

To set scheduled printing of reports, follow this procedure:

1. In the **Print Setup** menu, select the **Scheduled Report** tab.

2. Select the desired report tab.

3. Configure the report options.

    ◆ For description of options in the **Tabular Trends Report** tab, see Section *9.5.3.1 Setting Tabular Trends Reports in the End Case Report Tab*.

    ◆ For description of options in the **Graphic Trends Report** tab, see Section *9.5.3.2 Setting Graphic Trends Reports in the End Case Report Tab*.

    ◆ In the **Event Report** tab, select the desired event type.

    ◆ For description of options in the **12-Lead Interpretation** tab, see Section *9.5.2.2 Setting ECG Reports in the Report Setup Tab*.

    ◆ For description of options in the **Realtime Report** tab, see Section *9.5.2.1 Setting Realtime Reports in the Report Setup Tab*.

NOTE

*   **Up to 11 pages of event reports can be printed.**

9.6 Printer Out of Paper

When the printer runs out of paper, the print request will not be acknowledged. If there are too many print jobs that are not acknowledged a printer error may occur. In this case, install paper and then re-send the print request. Restart the printer if necessary.

To avoid a printer error condition, ensure that there is enough paper in the printer before sending a print request.

10 System Setup

10.1 System Setup Overview

The Multi Patient Viewer comes with factory defaults. You can make changes to the configuration items to accommodate the needs of your unit.

WARNING

- **Changing configuration items may alter the way the Multi Patient Viewer performs when monitoring patients. Do not change anything unless you are aware of the possible consequences, especially if you are monitoring a patient while in clinical settings.**

NOTE

- **Many settings in the Multi Patient Viewer are password protected. It is recommended to change the default passwords and keep the passwords safe. Passwords should only be changed by authorized personnel. Contact your department manager or biomedical engineering department for the passwords used at your facility.**

10.2 Display Settings

10.2.1 Accessing the Display Setup Page

To access the display setup page, follow this procedure:

1. Select the system menu area in the upper left corner of the screen → select **System Setup** to access the **System Setup** menu.
2. Select the **Display** tab → enter the required password → select the **OK** button.

10.2.2 Setting Parameter Colors

Parameter-related information such as realtime waveforms and parameter numerics are displayed in the same color on the Multi Patient Viewer screen.

To set the desired parameter colors, follow this procedure:

1. On the display setup page, select the **Parameter Color** tab.
2. Select the color box on the right side of the desired parameter.
3. From the drop-down list, select the desired color.

10.2.3 Screen Setup

10.2.3.1 Setting Screen Size

To set the screen size, follow this procedure:

1. On the display setup page, select the **Screen** tab.
2. Select **Screen Size** and then select the desired option. If your screen size is not available, select **Others** and select the ➕ or ➖ button on the rulers to adjust the screen size.
3. Select **OK**.

NOTE

- **Restart the system after making a change in the screen size.**

10.2.3.2 Setting the Number of Patient Sectors

You can set the desired number of patient sectors on the multibed screen.

To do so, follow this procedure:

1. On the display setup page, select the **Screen** tab.

2. Set **Patient Sector Number**. When you select **customize**, you need to select the desired number of columns and rows. Setting **Patient Sector Number** as **1**, the Multi Patient Viewer has only the Viewbed with no mulitbed, and you can pay close attention to the patient's condition. You can switch to view other patients on the Viewbed, for more information, see *6.7 Viewing Other Patients*.

10.2.3.3 Enabling Auto Close ViewBed Screen

To enable closing the Viewbed screen automatically and set the desired closing time, follow this procedure:

1. On the display setup page, select the **Screen** tab.

2. Set **Auto Close ViewBed Screen**：

   ◆ Select **Never**: disable closing the Viewbed screen automatically.

   ◆ Select a specific time: if you do not perform any operation after accessing the ViewBed screen within the configured time, the Multi Patient Viewer automatically closes the ViewBed screen and accesses the multibed screen.

10.2.4 Setting Sectors

To set sectors, follow this procedure:

1. On the display setup page, select the **Sector** tab.

2. Set **Sort Type**.

   ◆ **Manual**: allows manual sorting of sectors according to sorting criteria. When this option is selected, **Sector Sorting** is displayed in the drop-down list of system menu. Select **Sector Sorting**, the Multi Patient Viewer sorts the sectors.

   ◆ **Auto**: sectors are automatically sorted according to sorting criteria.

3. Set sorting criteria: **Sort By** and **Sort Orientation**.

4. Set **Spot Check Beds Sort Type.**

5. Enable or disable **Support Switching Locked Sector**.This option is disabled by default. When it is enabled, the option **Move Position to** is displayed in the drop-down list after selecting the bed number and room number area of locked sectors.

6. Enable or disable **Clear Unlocked Overview Sector After Discharging The Patient**. This option is disabled by default.When it is enabled, if a patient is discharged, the overview bed will be automatically cleared at the Multi Patient Viewer.

7. Set **Hide Unused Sectors**:

   ◆ **Off**: No sector is hidden.

   ◆ **Entire Row**: The entire row of unused sectors are hidden.

   ◆ **By Single Sector**: All the unused sectors are hidden.

NOTE

- **The Clear Unlocked Overview Sector After Discharging The Patient option takes effect only when the patient sector where the overview bed is located is not locked at the current Multi Patient Viewer.**

10.2.5 Setting Patient Window

You can select the desired items displayed on the review screens in the patient window.To do so, follow this procedure:

1. On the display setup page, select the **Patient Window** tab.

2. Select the desired items.

10.2.6   Setting Other Display Items

Follow this procedure to set other display items:

1. On the display setup page, select the **Other** tab.

2. Set **ECG Lead Sequence**. After changing the ECG lead sequence, the waveform sequence will be updated in the ECG waveform area, ST parameter area, ST View on the ViewBed screen, ECG waveforms on review pages, and printouts.

    ◆ **Normal**: I, II, III, aVR, aVL, aVF, V1, V2, V3, V4, V5, V6

    ◆ **Cabrera**: aVL, I, -aVR, II, aVF, III, V1, V2, V3, V4, V5, V6

3. Enable or disable Soft Keyboard. When this option is enabled, a soft keyboard displays when a field that requires manual input is selected.

10.3   Patient Management Settings

10.3.1   Accessing the Patient Management Page

To access the patient management setup page, follow this procedure:

1. Select the system menu area in the upper left corner of the screen → select **System Setup** to access the **System Setup** menu.

2. Select the **Patient Management** tab → enter the required password → select the **OK** button.

10.3.2   Configuring Patient Fields

In the **Field** tab, you can set which patient fields can be displayed on the patient management screen.

To configure patient fields, follow this procedure:

1. On the patient management setup page**,** select the **Field** tab.

2. Select the desired items.

3. If necessary, select the customized fields and input names for these fields.

10.3.3   Setting Patient Finding Criteria

In the **Find Patient** tab, you can select the criteria for finding patient.

To set the finding patient criteria, follow this procedure:

1. On the patient management setup page**,** select the **Find Patient** tab.

2. Select the desired **ADT Query** criteria.

10.3.4   Setting Other Patient Information Items

To set the items, follow this procedure:

1. On the patient management setup page**,** select the **Other** tab.

2. Set **Display Information in Patient Sector.** The selected items will display in the patient information area of the patient sector; **None** indicates nothing displayed in the patient information area of the patient sector.

3. Set the desired **Patient Name Display Hotkey**. This option applies only when the **Display Information in Patient Sector** is set as **None**. In this case, press the set hotkey, patient name is displayed in the patient information area of the patient sector; press the set hotkey again, nothing displays in the patient information area of the patient sector.

10.4   Device Management Settings

To access the device management screen, follow this procedure:

1. Select the system menu area in the upper left corner of the screen → select **System Setup** to access the **System Setup** menu.

2.   Select the **Device Management** tab → enter the required password → select the **OK** button.

In the **Device Management** tab, you can set Multi Patient Viewer to admit or discharge bedside devices from a host CentralStation. For details, refer to *3.1 Admitting Devices*.

10.5   Review Settings

10.5.1   Accessing the Review Setup Page

To access the review setup page, follow this procedure:

1.   Select the system menu area in the upper left corner of the screen → select **System Setup** to access the **System Setup** menu.

2.   Select the **Review** tab → enter the required password → select the **OK** button.

10.5.2   Setting Trend Groups

In the **Trends** tab, you can set a trend group. A trend group defines the trend displayed on the trend review page and printed in trend reports and recordings.

> **NOTE**
>
> • **In the Group Setup menu, HR is always displayed in the first row. It cannot be deleted or moved.**

10.5.2.1   Setting Trend Parameters

To add, delete, overlap, unoverlap, or move a parameter, follow this procedure:

1.   On the review setup page, select the **Trends** tab.

2.   Select the **Group Setup** button to enter the **Group Setup** screen.

3.   Select the desired tab and then the desired parameter.

4.   Select the desired buttons.

10.5.2.2   Selecting Trend Groups to Be Displayed

You can set what trend groups to be displayed in the Trend Group option in the tabular trends and graphic trends reviews. To do so, follow this procedure:

1.   On the review setup page, select the **Trends** tab.

2.   Select desired options in the **Display Default Trend Group** area.

10.5.3   Setting Arrhythmia Mark Colors

In the **Arrhy Mark** tab, you can set colors for arrhythmia marks that display in the compressed waveform.

To do so, follow this procedure:

1.   On the review setup page, select the **Arrhy Mark** tab.

2.   Select the desired arrhythmia category.

3.   Select the color box on the right side of the arrhythmia category.

4.   From the drop-down list, select the desired color.

10.6   Network Settings

In the **Network** tab, you can set communication conditions between a Multi Patient Viewer and the external system such as CMS or master server.

10.6.1   Accessing the Network Setup Page

To access the network setup page, follow this procedure:

1. Select the system menu area in the upper left corner of the screen → select **System Setup** to access the **System Setup** menu.

2. Select the **Network** tab → enter the required password → select the **OK** button.

10.6.2 Setting General Communication Conditions

In the **General** tab, you can set central monitoring network and encryption connection type.

To configure the settings, follow this procedure:

1. On the network setup page, select the **General** tab.

2. Set **Central Monitoring Network Setup**:

   ◆ **Local IP address**: from the drop-down list, select the IP address of Multi Patient Viewer. This IP address is used for communication between the Multi Patient Viewer and external systems such as CentralStation and master server.

   ◆ **CMS/eGW Address**: enable this option and enter the IP address of the CentralStation which is used for direct communication between the CentralStation and the Multi Patient Viewer. After enabling this option, the Multi Patient Viewer does not communicate with the CentralStation via the master server.

3. In the **Information Security** section, set **Encryption Connection Type** when connecting devices:

   ◆ **Only Private Encryption**: Mindray private encryption is used to encrypt the transmitted data. You cannot connect devices supporting SSL (secure sockets layer) encryption.

   ◆ **SSL Encryption Priority**: for devices supporting SSL encryption, SSL encryption is used when connecting the devices. For devices not supporting SSL encryption, private encryption is used when connecting the devices.

NOTE

- **The Multicast Address needs to be in the [224.0.2.0 - 238.255.255.255] segment.**
- **Restart the system after making a change in the General tab.**

10.6.3 Setting the Master Server

In the **Master Server** tab. you can set the master server address and log on to the master server.

To set the master server, follow this procedure:

1. On the network setup page, select the **Master Server** tab.

2. Set the options.

   ◆ **Master Server Address**: enter the IP address or name of the master server. There can only be one master in the network.

   ◆ **Master Server IP Address**: it is automatically acquired after **Master Server Address** is entered.

   Upon completion of connection, the status of connection between the Multi Patient Viewer and the master server is displayed on the right side of **Connection Status**.

To test whether the Multi Patient Viewer is properly connected with the Master Server, follow this procedure:

1. On the network setup page, select the **Master Server** tab.

2. Select **Network Test**.

10.6.4 Setting CentralStation Connection

In the **Central Station Connection** tab, you can connect your Multi Patient Viewer to the desired CentralStation.

To connect the desired CentralStation, follow this procedure:

1. On the network setup page, select the **Central Station Connection** tab.

2. Select the desired CentralStation from the list of CentralStations.

3. Select the **Connect** button. If password protection is enabled for the chosen CentralStation, you need to enter a password.

If you need to disconnect from a CentralStation, select the desired station, and select the **Disconnect** button.

To test whether the Multi Patient Viewer is properly connected with the desired CentralStation, follow this procedure:

1. On the network setup page, select the **Central Station Connection** tab.

2. Select **Network Test**.

10.6.5   MLDAP

MLDAP refers to Mindray LDAP (Lightweight Directory Access Protocol). It is an independent process which can be installed on eGateway or other application server (Windows). MLDAP provides user identity and authentication.

The MLDAP server is connected with the hospital LDAP server. All bedside devices are connected to the MLDAP server to implement identity and authentication for the following operations.

10.6.5.1   Setting MLDAP

To access the MLDAP server, follow this procedure:

1. On the network setup page, select the **MLDAP** tab.

2. In the **Server Address** text box, enter the IP address or name of the MLDAP server. **IP Address** is automatically acquired from **Server Address**.

3. Set the port of the MLDAP server.

10.6.5.2   Testing MLDAP Server Connection

To test whether the Multi Patient Viewer is properly connected with the MLDAP server, follow this procedure:

1. On the network setup page, select the **MLDAP** tab.

2. Select **Network Test**.

10.7   Print Settings

In the **Print** tab, you can set items related to a printer or reports.

10.7.1   Accessing the Print Setup Page

To access the print setup page, follow this procedure:

1. Select the system menu area in the upper left corner of the screen → select **System Setup** to access the **System Setup** menu.

2. Select the **Print** tab → enter the required password → select the **OK** button.

10.7.2   Setting a Printer

In the **Printer** tab, you can set printer-related items.

To set a printer, follow this procedure:

1. On the print setup page, select the **Printer** tab.

2. Set **Printer**.

3. Select the desired report type.

4. Set desired print-related properties.

NOTE

- **Only the following reports support color printing currently: vital sign summary report, ECG summary report.**

- **PDF reports can be output by PDFCreator only.**

10.7.3 Setting Scheduled Reports

In the **Scheduled Report** tab, you can set whether to enable scheduled printing of reports.

To enable scheduled printing for all the beds on the multibed screen, follow this procedure:

1. On the print setup page, select the **Scheduled Report** tab.

2. Enable **Scheduled Report Switch**.

3. Set **Time**. Select the time to start printing automatically.

4. Under **Scheduled Report Interval**, select the desired printing interval.

    ◆ For tabular trends reports, graphic trends reports, event reports, and 12-lead interpretation reports, data within the selected scheduled report interval before the printing start time will be printed. For example, when **Scheduled Report Interval** is set to **2 hrs**, 2-hour data before the printing start time will be printed.

    ◆ For arrhythmia statistics reports, when **Scheduled Report Interval** is set to **24 hrs** or **12 hrs**, data within the recent 24 hours or 12 hours before the printing start time will be printed. When it is set to **8 hrs**, **4 hrs**, **2 hrs**, or **1 hr**, data within the recent 8 hours before the printing start time will be printed.

    ◆ For alarm limits reports: alarm limits at the printing start time will be printed.

    ◆ For realtime reports: realtime data at the printing start time. will be printed.

5. Select the desired report type. Only the selected reports can be printed at the scheduled report interval.

6. Select **Print Now** if you wish to start printing immediately regardless of the configured printing start time.

NOTE

- **Contents in the reports can be customized for each bed. For more information, see Section *9.5.4 Setting Scheduled Reports*.**

10.7.4 Setting End Case Reports

To set end case reports for all the beds on the multibed screen, follow this procedure:

1. On the print setup page, select the **End Case Report** tab.

2. Set **Period**. This option is applicable for tabular trends report, graphic trends report, event report, 12-lead interpretation report, and arrhythmia statistics report.

3. Select the desired report types.

NOTE

- **Contents in the reports can be customized for each bed. For more information, see Section *9.5.4 Setting Scheduled Reports*.**

10.7.5 Setting Report Layout

In the **Report Layout** tab, you can set the patient information displayed on the reports.

To set the report layout, follow this procedure:

1. On the print setup page, select the **Report Layout** tab.

2. Select the desired items under **Report Name**. **N/A** indicates that this item is not displayed on a report.

NOTE

- **Above settings does not apply to ECG reports. For details on how to set ECG reports layout, refer to *10.7.6 Setting ECG Reports*.**

10.7.6 Setting ECG Reports

In the **ECG Report** tab, you can set the patient information displayed on ECG reports.

To set ECG reports, follow this procedure:

1. On the print setup page, select the **ECG Report** tab.

2.   Select the desired items.

10.7.7   Setting PDF File Name

To set PDF file name, follow this procedure:

1.   On the print setup page, select the **PDF File Name** tab.

2.   Select the desired items under **PDF File Name**.

3.   In the **File Path** text box, enter the directory where PDF files are saved.

4.   In the **User Name** text box and the **Password** text box, enter the user name and password to access the directory where PDF files are saved.

5.   Select **Confirm**.

> **NOTE**
> - **The directory must be consistent with the file saving directory configured in the PDFCreator.**

10.7.8   Setting Other Print-Related Items

To set other print-related items, follow this procedure:

1.   On the print setup page, select the **Other** tab.

2.   Set the desired option.

   ◆   **Print on Alarm**: select the output device when an alarm is triggered. When an alarm is triggered for a parameter and **Alarm Outputs** is enabled, the Multi Patient Viewer can start a printing task automatically.

   ◆   **Printing Duration On Alarm**: sets the desired length of waveforms that will be printed automatically when **Alarm Outputs** for a parameter is enabled and an alarm is triggered. 10 sec, 20 sec, and 30 sec means printing the waveforms 5 seconds, 10 seconds, and 15 seconds before and after the alarm triggered time respectively.

   ◆   **Monitor Remote Print**: if you enable this option, the Multi Patient Viewer automatically starts a printing task after the printing task is started at the patient monitor.

   ◆   **Second Mark (Printer)**: if you enable this option, second marks will be displayed on the report printout.

10.8   Configuration Settings

10.8.1   Accessing the Configuration Setup Page

To access the configuration setup page, follow this procedure:

1.   Select the system menu area in the upper left corner of the screen → select **System Setup** to access the **System Setup** menu.

2.   Select the **Configuration** tab → enter the required password → select the **OK** button.

10.8.2   Setting Department Configurations

In the **Department Configuration** tab, you can use the display, print, and history settings of the selected bed as configuration items. These configuration items can be loaded for bedside monitors automatically when the monitors are newly admitted by the Multi Patient Viewer.

To set department configurations, follow this procedure:

1.   On the configuration setup page, select the **Department Configuration** tab.

2.   Select the desired bed for **Select Bed**.

3.   Select the**Save Department Configuration** button. The **Save Department Configuration** dialog box is displayed.

4.   Select whether to save the configuration as the department's default configuration.

5. If you need to load the department configurations for all beds, select **Load Department Configuration for All Beds**.

10.8.3 Printing, Backing Up, and Restoring All Settings

To print, back up, and restore all settings, follow this procedure:

1. On the configuration setup page, select the **Archive/Back Up** tab.
2. Select the desired item.
   - ◆ **Print All Settings**: prints all settings such as telemetry configurations and department configurations.
   - ◆ **Back Up All Settings**: after selecting this option, you need to select the directory where settings are saved and then select **OK**.
   - ◆ **Restore All Settings**: after selecting this option, you need to select the directory where back-up settings are located and then select **OK**.

10.8.4 Exporting and Importing Configuration

To export all the settings from current Multi Patient Viewer for another Multi Patient Viewer or the other way around, follow this procedure:

1. On the configuration setup page, select the **Archive/Back Up** tab.
2. Select the desired item.
   - ◆ **Export All Settings**: after selecting this option, you need to select the directory where settings are exported and then select **OK**.
   - ◆ **Import All Settings**: after selecting this option, you need to select the directory where settings are imported and then select **OK**. **Are you sure you want to import the settings?** would prompt and click **OK** again.

10.9 Other Settings

10.9.1 Accessing the Other Setup Page

To access the other setup page, follow this procedure:

1. Select the system menu area in the upper left corner of the screen → select **System Setup** to access the **System Setup** menu.
2. Select the **Other** tab → enter the required password → select the **OK** button.

10.9.2 Setting Units

To set units, follow this procedure:

1. On the other setup page, select the **Unit** tab.
2. Set the desired units.

10.9.3 Configuring Module

To set the module, follow this procedure:

1. On the other setup page, select the **Module** tab.
2. Set **QTc Formula**. The Multi Patient Viewer uses the Hodges correction formula by default to correct the QT interval for heart rate.
   - ◆ Hodges: $QTc = QT + 1.75 \times (HearRate - 60)$

   - ◆ Bazett: $QTc = QT \times \left(\dfrac{HearRate}{60}\right)^{\frac{1}{2}}$

   - ◆ Fridericia: $QTc = QT \times \left(\dfrac{HeartRate}{60}\right)^{\frac{1}{3}}$

◆ Framingham: $QTc = QT + 154 \times \left(1 - \dfrac{60}{HeartRate}\right)$

3. Set **ECG Standard**.

10.9.4 Setting Time

WARNING

- **When the Multi Patient Viewer software is running, do not change the operating system time. If the operating system time must be changed, do not change the operating system time directly. Instead, change the Multi Patient Viewer system time according to instructions in this section.**

10.9.4.1 Changing Time

To change time manually or automatically at the Multi Patient Viewer, follow this procedure:

1. On the other setup page, select the **Time** tab.

2. Set **Time Synchronization**.

   ◆ **Master Server**: synchronizes time with the master server.

   ◆ **NTP Server**: synchronizes time with the NTP server. You need to set **Time Server Address** and **Interval**. **Connection Status** displays the status of connection between the Multi Patient Viewer and the NTP server.

   ◆ **Manual**: sets the time manually. You need to set **Date**, **Time**, **Date Format**, and **24-Hour Time**. in the **Set System Time** section. When **24-Hour Time** is enabled, the 24-hour clock system is used. When **24-Hour Time** is disabled, the 12-hour clock system is used.

To test whether the Multi Patient Viewer is properly connected with the NTP Server, follow this procedure:

1. On the other setup page, select the **Time** tab.

2. Select **Network Test**.

10.9.4.2 Defining the Night Time

You can define the night time for heart rate statistics of ECG summary at the Multi Patient Viewer. To do so, follow this procedure:

1. On the other setup page, select the **Time** tab.

2. On the nighttime area, select **From** and **To** to define the beginning and end of the night time.

10.9.5 Setting Authorization

10.9.5.1 Selecting Password for User Authentication

You can select what password is used when accessing the **System Setup** menu. To do so, follow this procedure:

1. On the other setup page, select the **Authorization Setup** tab.

2. Set **User Maintenance**.

   ◆ **Local Password**: the password to access the **System Setup** menu at the Multi Patient Viewer is required.

   ◆ **User Password**: the user name and password saved in the MLDAP server are required.

10.9.5.2 Changing the Local Password for Accessing System Setup

To change the password required to access the system setup tabs other than the **Factory Maintenance** tab, follow this procedure:

1. On the other setup page, select the **Authorization Setup** tab.

2. Select **Modify Local Password** and respectively enter the old password and new password.

3.   Select the **Save** button.

> **NOTE**
>
> • **It is recommended that the password be set by authorized personnel.**

10.9.6   Setting Language

When the Multi Patient Viewer starts, it is displayed in the language selected at the time of installation.

To change a language, follow this procedure:

1.   On the other setup page, select the **Language** tab.

2.   Select the desired language. It is recommended to select the language supported by the operating system.

3.   Restart the system.

> **NOTE**
>
> • **If the language you selected is inconsistent with that of the operating system, unrecognizable characters may appear on the Multi Patient Viewer. If this occurs, change the operating system language and region settings by following the operating system operator's manual.**

10.9.7   Setting A Device Location

To set the device information, follow this procedure:

1.   On the other setup page, select the **Device Location** tab.

2.   Set **Facility Name**. The facility name should be no more than 128 characters.

3.   Set **Department**. Department is where the Multi Patient Viewer is located.The department name should be no more than 8 characters.

4.   Set **Device Name**. The device name should be no more than 32 characters.

5.   Set **Main Screen Display**.

10.9.8   Exporting Logs

In the **Log** tab, you can export the following items:

■   Logs and parameter data collected by the current system or the remote CentralStation

■   Logs and patient data in the patient monitors connected to the current system or the remote CentralStation

To export logs, follow this procedure:

1.   On the other setup page, select the **Log** tab.

2.   On the right of **Device Name**, select the source where data is to be exported.

   ◆   **Local**: exports data in this system.

   ◆   Department where a remote CentralStation is located: exports data from a remote CentralStation.

3.   Select **Export**. The **Log Export Tool** page is displayed.

4.   Select **Setup**. After finishing configurations, select **OK**.

5.   Select the desired device from the device list on the **Log Export Tool** page. If the desired device is not in the device list, select **Add Device Manually**. Then add the device info.

6.   Select the desired export items: **Export Log** or **Export Clinical Data**

7.   Upon completion of export, select **Quit**.

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11 Default Settings

11.1 Overview

This chapter only describes default settings in the **System Setup** menu. For the default settings of bedside devices monitored at the Multi Patient Viewer, see appropriate operator's manuals for these devices. For details on how to access the **System Setup** menu, see Chapter *10 System Setup*.

"/" in the following tables indicates that this item is not configurable.

11.2 Display Tab

Subtab	Item	Default
Screen	Patient Sector Number	16
	Auto Close ViewBed Screen	Never
Sector	Sort Type	Manual
	Sort By	Bed No
	Sort Orientation	Landscape
	Support Switching Locked Sector	Off
	Clear Unlocked Overview Sector After Discharging The Patient	
	Spot Check Beds Sort Type	with Continuous Monitoring Beds
	Hide Unused Sectors	Off
Patient Window	12-Lead ECG	Selected
	ST	
	Arrhy Statistics	
	Drug Calculation	
	Hemo Calculation	
	Oxygenation Calculation	
	Ventilation Calculation	
	aEEG	
	Renal Calculation	
Other	ECG Lead Sequence	Normal
	Soft Keyboard	Off

11.3   Patient Management Tab

Subtab	Item	Default
Field	Visit Number	Unselected
	Room No	
	Middle Name	
	Race	
	Age	
	Facility	
	Department	
	Patient Group	
	Custom Field 1 to Custom Field 4	
	Admit Date	
	Patient ID	Selected
Find Patient	Facility	Unselected
	Department	
	Room No	
	Bed No	
	Visit Number	
	Patient ID	
	Patient Name	Selected
Other	Display Information in Patient Sector	Patient Name
	Patient Name Display Hotkey	F9

11.4   Review

Subtab	Item	Default
Display Default Trend Group	All	Selected
	Standard	
	Hemo	
	Cardiac	
	Pulmonary	
	RM	
	RM-Pressure	Unselected
	RM-Volume	
	RM-Time	
	Neuro	Selected
	Gases	
	Pump	
	Custom 1	
	Custom 2	

Subtab	Item	Default
Arrhy Mark	Asystole	Selected
	V-Fib	
	V-Fib/V-Tach	
	V-Tach	
	Vent Brady	
	Extreme Tachy	
	Extreme Brady	
	PVCs/min High	
	Vent Rhythm	
	R on T	
	Multiform PVC	
	Pauses/min High	
	Run PVCs	
	Couplet	
	PVC	
	Bigeminy	
	Trigeminy	
	Tachy	
	Brady	
	Pacer Not Capture	
	Pacer Not Pacing	
	Missed beats	
	Nonsus V-Tach	
	Pause	
	A-Fib	
	Irr Rhythm	
	Supraventricular tachycardia	
	SVCs/min High	

11.5   Network Tab

Subtab	Item	Default
	CMS/eGW Address	Off
General	Encryption Connection Type	Only Private Encryption

11.6   Print Tab

Subtab	Item	Default
Printer	Paper Size	A4
	For General Report, End Case Report, Print on Alarm Report, and Scheduled Report:	
	Printer	Blank
	Printer Resolution	300 dpi
	PDF Resolution	600 dpi
	Print Action	Paper
	Color Mode	Color
Scheduled Report	Scheduled Report Switch	Off
	Time	08:00
	Scheduled Report Interval	8 hrs
	Tabular Trends Report	Selected
End Case Report	Period	4 hrs
	Tabular Trends Report	Selected
Report Layout	Patient Name	Displayed
	Patient Category	
	DOB	
	Gender	
	Patient ID	
	Bed No	
	Height/Weight	
	Paced	
	Department	
ECG Report	Patient ID	Selected
	Patient Name	
	Age	
	Gender	
PDF File Name	Patient ID	Displayed
	Title	
	Printing Time	
Other	Print on Alarm	Printer
	Printing Duration On Alarm	20 sec
	Monitor Remote Print	Enabled
	Second Mark (Printer)	Enabled

11.7   Other Tab

Subtab	Item	Default	
Unit	Height Unit	cm	
	Weight Unit	kg	
	ST Unit	mV	
	Hb Unit	g/dl	
	CVP Unit	cmH2O	
	ICP Unit	mmHg	
	CO2 Unit		
	O2 Unit	%	
	Temp Unit	°C	
	Pressure Unit	mmHg	
	SVR Unit	DS/cm^5	
	Caliper Unit	msec	
Module	QTc Formula	Hodges	
	ECG Standard	AHA	
Time	Time Synchronization	Master Server	
	Interval	1h	
	Date Format	yyyy-mm-dd	
	24-Hour Time	On	
	Nighttime	From	22:00
		To	06:00
Authorization SetupAuthorization Setup	User MaintenanceUser Maintenance	Local PasswordLocal Password	
Device Location	Main Screen Display	Facility Name+Department	

12 Units, Symbols and Abbreviations

12.1 Units

Abbreviation	Full Form
µA	microampere
µV	microvolt
µS	Microsecond
A	ampere
Ah	ampere hour
bpm	beat per minute
bps	bit per second
ºC	centigrade
cc	cubic centimeter
cm	centimeter
cmH$_2$O	cmH$_2$O
dB	decibel
DS	dyne second
ºF	fahrenheit
g	gram
GB	giga bytes
GHz	gigahertz
GTT	gutta
h	hour
hPa	hPa
Hz	hertz
"	inch
k	kilo
kg	kilogram
kPa	kilopascal
L	litre
lb	pound
m	meter
mAh	milliampere hour
mbar	mbar
M	mega
MB	mega byte
MHz	mega hertz

Abbreviation	Full Form
mcg	microgram
mEq	milli-equivalents
mg	milligram
min	minute
ml	milliliter
mm	millimeter
mmHg	millimeters of mercury
ms	millisecond
mV	millivolt
mW	milliwatt
MΩ	megaohm
nm	nanometer
rpm	breaths per minute
s	second
V	volt
VA	volt ampere
Ω	ohm
W	watt

12.2   Symbols

Symbol	Explanation
−	minus
-	negative
%	percent
/	per; divide; or
~	to
+	plus
=	equal to
<	less than
>	greater than
≤	less than or equal to
≥	greater than or equal to
±	plus or minus
×	multiply
©	copyright

12.3 Abbreviations

Abbreviation	In Full
AC	alternating current
ADT	Admission\Discharge\Transfer
Adu	adult
aEEG	Amplitude-integrated Electroencephalogram
AG	anaesthesia gas
AgAwRR	Anaesthesia Gas Air-way Respiration Rate
AHA	American Heart Association
Ao	aortic pressure
AP MAP	Mean Artery Pressure
Art	arterial
ATMP	barometric pressure
AUC	area under the curve
AUX	Auxiliary
aVF	left foot augmented lead
aVL	left arm augmented lead
aVR	right arm augmented lead
awRR	airway respiratory rate
BAP	brachial arterial pressure
BC	burst count
BL	baseline
BIS	bispectral index
BSA	body surface area
BT	blood temperature
BTPS	body temperature and pressure, saturated
CaO_2	arterial oxygen content
CCI	continuous cardiac index
CCO	continuous cardiac output
CCU	cardiac (coronary) care unit
Cdyn	Dynamic compliance
CE	Conformité Européenne
CFI	cardiac function index
C.I.	cardiac index
CIS	clinical information system
CISPR	International Special Committee on Radio Interference
CMOS	complementary metal oxide semiconductor
CMS	central monitoring system
C.O.	cardiac output
CO_2	carbon dioxide

Abbreviation	In Full
COHb	carboxyhemoglobin
Compl	compliance
CPI	cardiac power index
CPO	cardiac power output
CPU	central processing unit
CRT	cathode ray tube
CSA	Compressed Spectral Array
Cstat	Static compliance
CVP	central venous pressure
DBS	double burst stimulation
DC	direct current
Des	desflurane
Dia	diastolic
DO_2	oxygen delivery
DO_2I	oxygen delivery index
dpi	dot per inch
dPmx	left ventricular contractility
DSA	Density Spectral Array
DVI	digital video interface
ECG	electrocardiograph
EDV	end-diastolic volume
EEC	European Economic Community
EEG	electroencephalogram
EMC	electromagnetic compatibility
EMG	electromyograph
EMI	electromagnetic interference
Enf	enflurane
ESU	electrosurgical unit
Et	end-tidal
EtAA	end-tidal anesthetic agent
EtDes	end-tidal anesthetic agent
EtEnf	
EtHal	
EtIso	
EtSev	
$EtCO_2$	end-tidal carbon dioxide
EtN_2O	end-tidal nitrous oxide
ETO	ethylene oxide
EtO_2	end-tidal oxygen

Abbreviation	In Full
EVLW	extravascular lung water
ELWI	extravascular lung water index
FAP	femoral arterial pressure
FCC	Federal Communication Commission
FDA	Food and Drug Administration
Fi	fraction of inspired
FiAA	inspired anesthetic agent
FiDes	inspired anesthetic agent
FiEnf	
FiHal	
FiIso	
FiSev	
FiCO$_2$	fraction of inspired carbon oxygen
FiN$_2$O	fraction of inspired nitrous oxide
FiO$_2$	fraction of inspired oxygen
Flow	flow
fmand	Mandatory breathing frequency
FPGA	field programmable gate array
FRC	fractional residual capacity
FreqMIN	Minimum breath frequency
fSIMV	Frequency of SIMV
fsigh	sigh rate
fspn	Spontaneous breathing frequency
ftot	Total breath rate
F-Trigger	Inspiratory trigger level (flow trigger)
FV	flow-volume
GEDV	global end diastolic volume
GEDI	global end diastolic volume index
GEF	global ejection fraction
Hal	halothane
Hb	hemoglobin
Hct	haematocrit
HIS	hospital information system
HR	heart rate
IBP	invasive brood pressure
IBW	ideal body weight
ICG	impedance cardiography
ICP	intracranial pressure
ICT/B	intracranial catheter tip pressure transducer

Abbreviation	In Full
ICU	intensive care unit
ID	identification
I:E	inspiratory time: expiratory time ratio
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronic Engineers
Ins, INS	inspired minimum
InsCO$_2$	inspired minimum carbon dioxide
Insp.Flow	inspiration flow
Insp. MAC	inspired minimum alveolar concentration
int.PEEP	Intermittent PEEP
IP	internet protocol
Iso	isoflurane
ITBI	intrathoracic blood volume index
ITBV	intrathoracic blood volume
LA	left arm
LAP	left atrial pressure
LCD	liquid crystal display
LCW	left cardiac work
LCWI	left cardiac work index
LED	light emitting diode
LF	low frequency
LL	left leg
LVET	left ventricular ejection time
LVSW	left ventricular stroke work
LVSWI	left ventricular stroke work index
MAC	minimum alveolar concentration
MAP	mean arterial pressure
MetHb	methemoglobin
MRI	magnetic resonance imaging
MV	minute volume
MVe	expiratory minute volume
MVi	inspiratory minute volume
N/A	not applied
N$_2$	nitrogen
N$_2$O	nitrous oxide
Neo	neonate
NIBP	noninvasive blood pressure
NIF	negative inspiratory force

Abbreviation	In Full
O_2	oxygen
O_2%	oxygen concentration
OR	operating room
oxyCRG	oxygen cardio-respirogram
PA	pulmonary artery
pArt	artery pressure
pArt-D	diastolic artery pressure
pArt-M	mean artery pressure
pArt-S	systolic artery pressure
Paw	airway pressure
PAWP	pulmonary artery wedge pressure
pCVP	central venous pressure
Ped	pediatric
PEEP	positive end expiratory pressure
PEF	peak expiratory flow
PEP	pre-ejection period
PIF	peak inspiratory flow
PIP	peak inspiratory pressure
Pleth	plethysmogram
Pmean	mean pressure
pNN50	NN50 count divided by the total number of all NN intervals
PO_2	oxygen supply pressure
Pplat	plateau pressure
PPV	pulse pressure variation
PR	pulse rate
PVC	premature ventricular contraction
PVPI	pulmonary vascular permeability index
PVR	pulmonary vascular resistance
PVRI	pulmonary vascular resistance index
RA	right arm
RAP	right atrial pressure
Raw	airway resistance
Rec	record, recording
Resp	respiration
RL	right leg
RM	respiratory mechanics
rMSSD	the square root of the mean of the sum of the squares of differences between adjacent NN intervals
RQ	respiratory quotient

Abbreviation	In Full
RR	respiration rate
RSBI	rapid shallow breathing index
rSO$_2$	regional oxygen saturation
SaO$_2$	arterial oxygen saturation
ScvO$_2$	central venous oxygen saturation
SDNN	standard deviation of all NN intervals
SEF	spectral edge frequency
Sev	sevoflurane
SI	stroke index
SMR	satellite module rack
SpO$_2$	arterial oxygen saturation from pulse oximetry
SQI	signal quality index
SR	suppression ratio
SSI	signal strength index
STR	systolic time ratio
SV	stroke volume
SVI	stroke volume index
SVR	systemic vascular resistance
SVRI	systemic vascular resistance index
SVV	stroke volume variation
SvO$_2$	venous oxygen saturation
Sync	synchronization
Sys	systolic pressure
TB	Blood Temperature
tcpCO$_2$	transcutaneous carbon dioxide partial pressures
tcpO$_2$	transcutaneous oxygen partial pressures
TD	temperature difference
Temp	temperature
TFC	thoracic fluid content
TFI	thoracic fluid index
TFT	thin-film technology
TI	injectate temperature
TP	total power
TRC	tube resistance compensation
TVe	expiratory tidal volume
TVi	inspiratory tidal volume
TV	tidal volume
UAP	umbilical arterial pressure
UPS	uninterruptible power supply

Abbreviation	In Full
USB	universal serial bus
UVP	umbilical venous pressure
VAC	volts alternating current
VEPT	volume of electrically participating tissue
VI	velocity index
VAC	volts alternating current
VCO_2	CO_2 production
VO_2	oxygen consumption
VO_2l	oxygen consumption index
VO_2/kg	oxygen consumption per body weight
VO_2/m^2	oxygen consumption per body surface area
VT	Tidal volume
VTapnea	apnea tidal volume
VTe/TVe	Expiratory tidal volume
VTe spn	Spontaneous breathed minute volume
VTi/TVi	inspiratory tidal volume
VTsigh	Sigh tidal volume
WOB	work of breathing
WOBimp	Imposed work of breathing

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