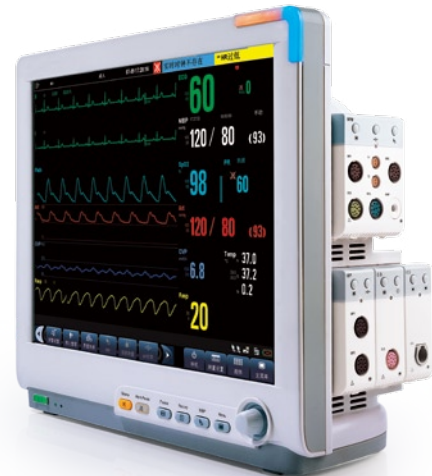# BeneView T5/T6/T8/T9
Patient Monitor Quick Guide

mindray

Thank you for purchasing Mindray Patient Monitor.

We have included this convenient Quick Guide to help you with the basic operations. For more details , please refer to the Operator's Manual.

Note:

❒ Before attempting to install, operate or adjust this product, please save and read the Quick Guide completely.

❒ This manual is based on the maximum configuration and therefore some contents may not apply to your monitor. If you have any question, please contact us.
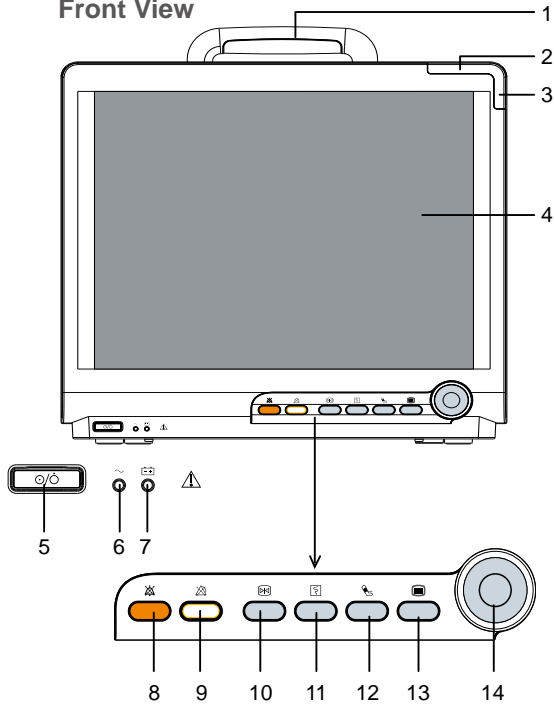
CE 0123 Comply with the requirements of the Council Directive 93/42/EEC.
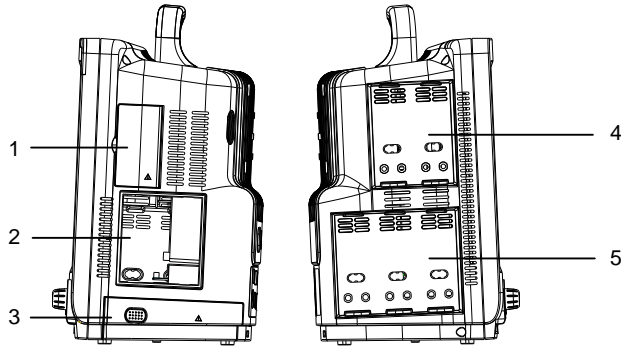
Product Overview

Front View

1. Handle(T5 only)
2. Alarm lamp
    When a physiological alarm or technical alarm occurs, this lamp will flash as defined below.
    • High level alarms: the lamp quickly flashes red.
    • Meidum level alarms: the lamp slowly flashes yellow.
    • Low level physiological alarms: the lamp turns yellow without flashing.
    • Low level technical alarms: the lamp does not light.
3. Technical alarm lamp
    This lamp will turn blue when a technical alarm occurs.
4. Display Screen
5. Power On/Off Switch
    Press the switch to turn on the patient monitor. Press it again and hold for 2 seconds to turn the patient monitor off. An indicator is built in this switch. It turns on when the patient monitor is on and turns off when the patient monitor is off.
6. AC power LED
    It turns on when AC power is connected.
7. Battery LED
    • On: when the battery is being charged or already fully charged.
    • Off: when no battery is installed or no AC source is connected.
    • Flash: when the patient monitor operates on battery power.
8. press to silence all alarm sounds.
9. press to pause or restore alarms.
10. press to freeze or unfreeze waveforms.
11. press to start or stop recordings.
12. press to start or stop NIBP measurements.
13. If no menu is displayed on the screen, pressing it will enter the main menu.
    If there is a menu displayed on the screen, pressing it will close that menu.
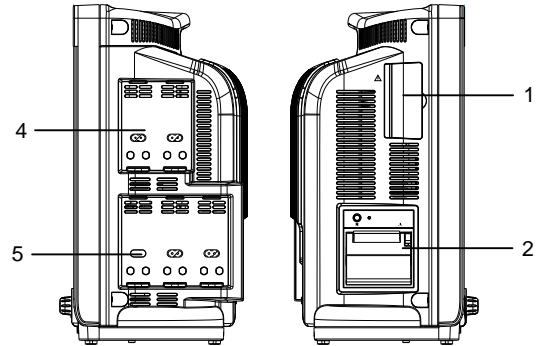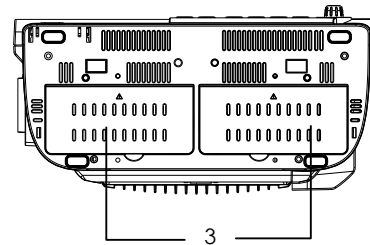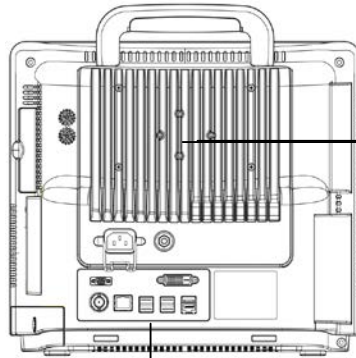14. Knob

Side View (T5)

Side View (T6, T8, T9)

1. Compartment for CF storage card slot
2. Recorder
3. Battery compartment
4. Integral Module Racks
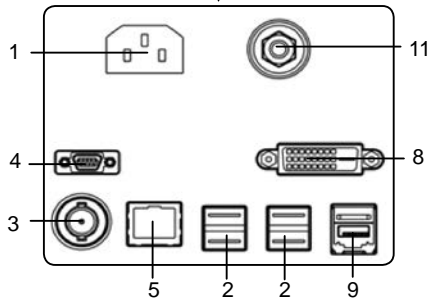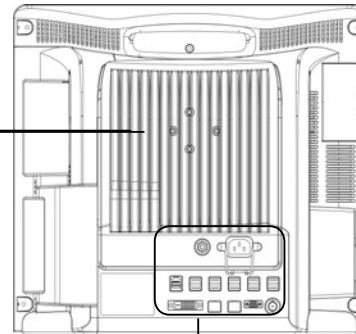5. Integral Module Racks

Bottom View (T6, T8, T9)

Rear View (T5)

Rear View (T6, T8, T9)
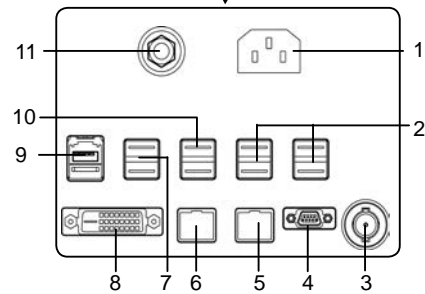
Radiator

1

11

4

8

3

5   2   2   9

11

10

9

1

2

8   7   6   5   4   3

1. AC Power Input
2. USB Connectors

   They connect such devices as the USB mouse, USB keyboard, etc.
3. Nurse Call Connector

   It connects the patient monitor to the hospital's nurse call system through the nurse call cable (PN: 8000-21-10361). Alarms indications are alerted to nurses through the nurse call system, if configured to do so.
4. Micro-D Connector

   It outputs ECG, IBP and defibrillator synchronization signals simultaneously.
5. Network Connector

   It is a standard RJ45 connector that connects the patient monitor to the CMS or other devices through the LAN.
6. iView Network Connector

   It is a standard RJ45 connector that connects the iView system to external network.
7. USB connector

   They connect the controlling devices (USB mouse and USB keyboard) of the secondary display.
8. Digital Video Interface (DVI)

   It connects a standard digital video display.
9. SMR Connector

   It connects the satellite module rack (SMR).
10. USB Connectors

    They are only used for iView maintenance and data transfer.
11. Equipotential Grouding Terminal

    When the patient monitor and other devices are to be used together, their equipotential grounding terminals should be connected together, eliminating the potential difference between them.

Satellite Module Rack

Contact   Indicator

Slot

Handle   SMR connector
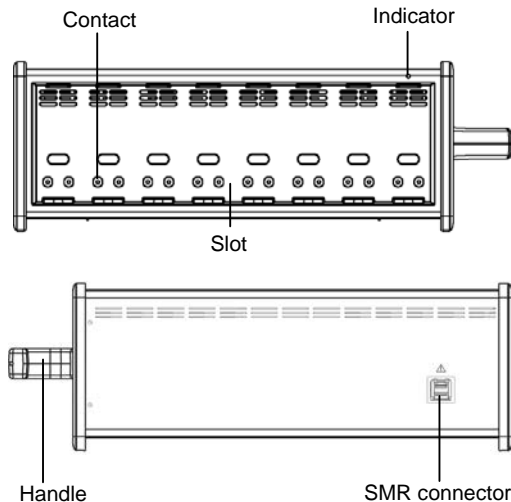
As shown in the figure above, there is an indicator telling the status of the SMR:

On: when the SMR works normally.

Off: when the SMR disconnects from the patient monitor, there is a problem with the power, or the patient monitor shuts down.

The SMR can be connected to the patient monitor through their SMR connectors via a SMR cable.

The patient monitor supports the following modules:


BeneView T1:   Used as a multi-measurement module for monitoring ECG, respiration, SpO_2, temperature, NIBP and IBP.
MPM: Multi-parameter module. It can simultaneously monitor ECG, respiration, SpO_2, temperature, NIBP and IBP.
IBP module: Invasive blood pressure module.
PiCCO: PiCCO module.
C.O. module: Cardiac output module.
CCO/SvO_2 module: CCO/SvO_2 interface module, used to interface with Edwards Vigilance II® or Vigileo™ monitor.
NMT module: Neuromuscular transmission module.
SpO_2 module: Pulse oxygen saturation module.
BIS module: Bispectral index module.
RM module: Respiration mechanics module.
AG module: Anesthesia gas module. The functions of the O_2 and BIS modules can be incorporated into it.
CO_2 module: Carbon dioxide module (including sidestream, microstream and mainstream).
$ScvO_2$ module: Central venous oxygen saturation module.
EEG module: Electroencephalograph module.
ICG module: Impedance cardiography module.
BeneLink module: BeneLink module is used for transmitting information from a connected external device to the monitor.

Display Screen
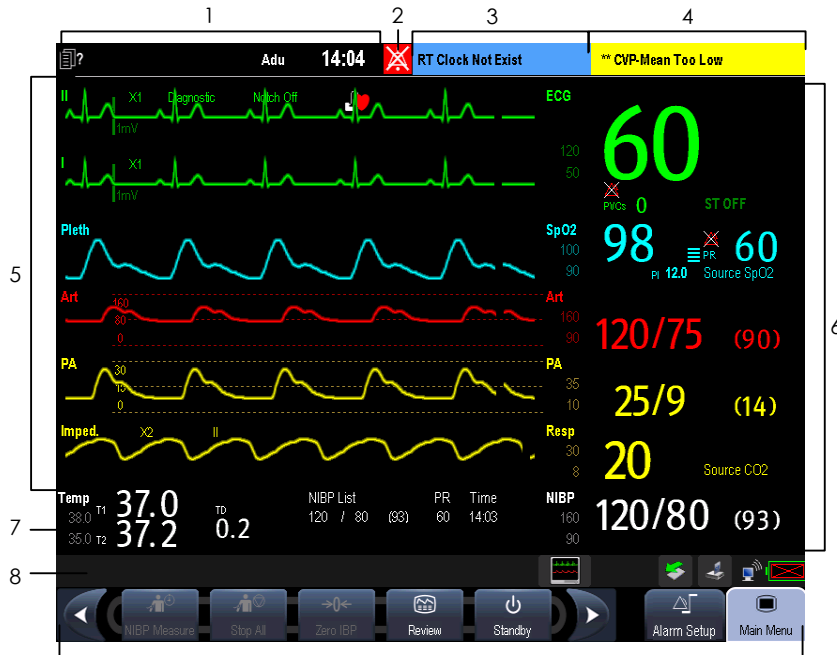
1.   Patient Information Area
2.   Alarm Symbols
3.   Technical Alarm Area
4.   Physiological Alarm Area
5.   Waveform Area
6.   Parameter Area A
7.   Parameter Area B
8.   Prompt Message Area
9.   QuickKeys area

Using the Touchscreen

Select screen items by pressing them direct-ly on the patient monitor's screen. You can enable or disable touchscreen operation by pressing and holding the **[Main Menu]** QuickKey for 3 seconds. A padlock symbol is displayed if touchscreen operation is disabled.

Setting the Screen

You can enter the [**Screen Setup**] window as shown below by selecting the [**Screen Setup**] button in the prompt message area. In this window, you can allocate the positions of the parameters and waveforms. The parameters or waveforms whose positions are not allocated will not be displayed.

Area A
Area C
Area B

The ECG parameter and the first ECG waveform always display in the first row. The configurable areas can be classified as Area A, Area B, and Area C.

• In Area A, you can choose to display the parameters (having waveforms) and their waveforms. Each parameter and the associated waveform are displayed in the same row.
• In Area B, you can choose to display the parameters and their waveforms. When there is no parameter displayed in area C, both the parameters and their waveforms will be displayed in area B. Otherwise, only the parameters will be displayed.
• In Area C, you can choose to display Timer and all the parameters whose associated waveforms will not be displayed.

The screen can automatically adjust to ensure the best view based on your screen setup.

If no corresponding parameter or waveform is displayed after the module is inserted, you should perform the following inspections:

• Check the connection between the module and lead, cable, sensor, or external device.
• Check whether there are the [**The display setup for XX is disabled**] message and the flashing [**Screen Setup**] button in the prompt message area. If yes, select this button to enter the [**Screen Setup**] window for the desired display configuration.
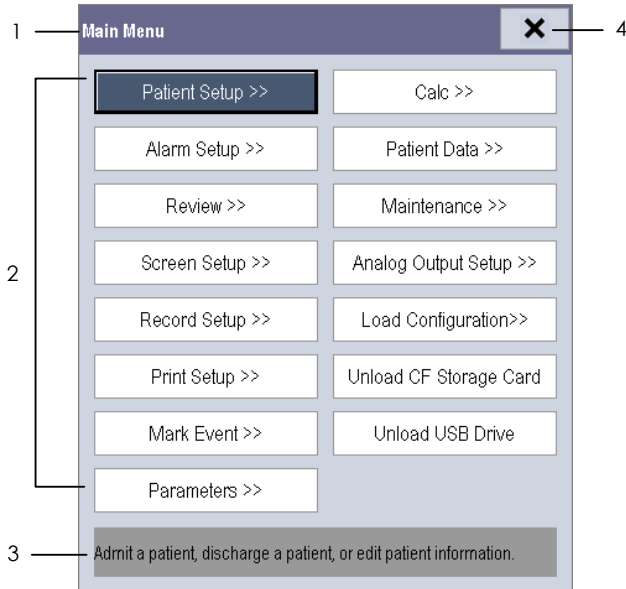• Check that the parameter is switched on in the [**Parameters Switch**] window.

 Note:

❒ The parameters whose positions are not allocated in the [**Screen Setup**] window will not be displayed. However, the monitor can still give alarms of these parameters.

Using the Main Menu

To enter the main menu, select the [■] QuickKey on the monitor's screen or the [■] hardkey on the monitor's front. Most of monitor operations and settings can be performed through the main menu.

1 ── Main Menu ──── ✖ ──── 4

Patient Setup >>	Calc >>
Alarm Setup >>	Patient Data >>
Review >>	Maintenance >>
Screen Setup >>	Analog Output Setup >>
Record Setup >>	Load Configuration>>
Print Setup >>	Unload CF Storage Card
Mark Event >>	Unload USB Drive
Parameters >>	

2 (brackets around left/right menu body)

3 ── Admit a patient, discharge a patient, or edit patient information.

Other menus are similar to the main menu and contain the following parts:
1. Heading: gives a sum-up for the current menu.
2. Main body: displays options, buttons, prompt messages, etc. The menu button with ">>" enlarges a secondary window to reveal more options or information.
3. Online help area: displays help information for the screen item that the cursor is positioned.
4. Select to exit the current menu.

Turning Power On

1. Before you start to make measurements, check the patient monitor, SMR and plug-in modules for any mechanical damage and make sure that all external cables, plug-ins and accessories are properly connected.

2. Plug the power cord into the AC power source. If you run the patient monitor on battery power, ensure that the battery is sufficiently charged.

3. Press the power on/off switch on the monitor's front. The start-up screens are displayed, and the technical alarm lamp and alarm lamp are lit in blue and yellow respectively. Then, the alarm lamp turns into red, and turns off together with the technical alarm lamp after the system gives a beep.

4. The monitor enters the main screen.

Starting Monitoring

1. Decide which measurements you want to make.

2. Connect the required modules, patient cables and sensors.

3. Check that the patient cables and sensors are correctly connected.

4. Check that the patient settings such as [**Patient Cat.**], [**Paced**], etc, are appropriate for your patient.

5. Refer to the appropriate measurement section for details of how to perform the measurements you require.

Disconnecting from Power

To disconnect the patient monitor form the AC power source, follow this procedure:

1. Confirm that the patient monitoring is finished.

2. Disconnect the patient cables and sensors from the patient.

3. Make sure to save or clear the patient monitoring data as required.

4. Press and hold the power on/off switch for above 2 seconds. The patient monitor shuts down and you can unplug the power cable. If the patient monitor does not shut down properly, press and hold the power on/off switch for 10 seconds to shut it down.

Note:

❒ Make sure that the operating environment of the patient monitor meets the specific requirements. Otherwise unexpected consequences, e.g. damage to the equipment, could result.

❒ Do not use the patient monitor for any monitoring procedure on a patient if you suspect it is not working properly, or if it is mechanically damaged. Contact your service personnel or us.

Basic Operations

Setting up a Monitor

In situations where you install a patient monitor or change the patient monitor's application site, you need to setup the patient monitor as follows:

1. Select [**Main Menu**]→[**Maintenance >>**]→[**User Maintenance >>**]→enter the required password.

2. In the [**User Maintenance**] menu, select [**Monitor Name**], [**Department**] and [**Bed No.**] and change their settings.

Changing Language

1. Select [**Main Menu**]→[**Maintenance >>**]→[**User Maintenance >>**]→enter the required password.

2. In the [**User Maintenance**] menu, select [**Language**] and then select the desired language.

3. Restart the patient monitor.

Adjusting the Screen Brightness

1. Select [**Main Menu**]→[**Screen Setup >>**]→ [**Brightness**].

2. Select the appropriate setting for the screen brightness. 10 is the brightest, and 1 is the least bright. If the patient monitor operates on battery power, you can set a less bright screen to prolong the operating time of the battery. When the patient monitor enters standby mode, the screen will change to the least brightness automatically.

Showing/Hiding the Help

The patient monitor provides online help information. The user can display or hide the help as required.

1. Select [**Main Menu**]→[**Screen Setup >>**].

2. Select [**Help**] and toggle between [**On**] and [**Off**].

Setting the Date and Time

1. Select [**Main Menu**]→[**Maintenance >>**]→[**System Time >>**].

2. Set the date and time.

3. Select [**Date Format**] and toggle between [**yyyy-mm-dd**], [**mm-dd-yyyy**] and [**dd-mm-yyyy**].

4. Select [**Time Format**] and toggle between [**24h**] and [**12h**].

Note:

❒ Changing date and time will affect the storage of trends and events and may cause data missing.

Adjusting Volume

Alarm Volume

1. Select the [**Volume Setup**] QuickKey, or [**Main Menu**]→[**Alarm Setup >>**]→[**Others**].

2. Select [**Alm Volume**] and then select the appropriate volume: X-10, in which X is the minimum volume, depending on the set minimum alarm volume, and 10 the maximum volume.

Key Volume

1. Select the [**Volume Setup**] QuickKey, or [**Main Menu**]→[**Screen Setup >>**].

2. Select [**Key Volume**] and then select the appropriate volume. 0 means off, and 10 is the maximum volume.

QRS Volume

The QRS tone is derived from either the HR or PR, depending on which is currently selected as the alarm source in [**ECG Setup**] or [**SpO$_2$ Setup**]. When monitoring SpO$_2$, there is a variable pitch tone which changes as the patient's saturation level changes. The pitch of the tone rises as the saturation level increases and falls as the saturation level decreases. The volume of this tone is user adjustable.

1. Select the [**Volume Setup**] QuickKey, or the ECG parameter window→[**Others >>**], or the SpO$_2$ parameter window.

2. Select [**QRS Volume**] or [**Beat Vol**] and then select the appropriate volume. 0 means off, and 10 is the maximum volume.

Managing Configurations

Entering the [Manage Configuration] Menu

1. Select [**Main Menu**]→[**Maintenance >>**]→[**Manage Configuration >>**].

2. Enter the required password and then select [**Ok**].

Setting Default Configuration

1. Select [**Select Default Config. >>**] in the [**Manage Configuration**] menu.

2. In the [**Select Default Config.**] menu, select [**Load the Latest Config.**] or [**Load Specified Config.**].

Saving Current Settings

1. Select [**Save Current Settings As >>**] in the [**Manage Configuration**] menu.

2. In the popup dialog box, enter the configuration name and then select [**Ok**].

Editing Configuration

1. Select [**Edit Config. >>**] in the [**Manage Configuration**] menu.

2. The popup menu shows the existing configurations on the monitor. Selecting [**Config. on USB drive >>**] will show the existing configurations on the USB drive. Select the desired configuration and then select the [**Edit**] button.

3. Select [**Alarm Setup >>**], [**Screen Setup >>**] or [**Parameter >>**] to enter the corresponding menu in which settings can be changed. The changed items of alarm setup will be marked in red.

4. You can select [**Save**] or [**Save as**] to save the changed configuration. Select [**Save**] to overwrite the original configuration. Select [**Save as**] to save the changed configuration in another name.

Deleting a Configuration

1. Select [**Delete Config. >>**] in the [**Manage Configuration**] menu.

2. The popup menu shows the existing user configurations on the monitor. Selecting [**Config. on USB drive >>**] will show the existing user configurations on the USB drive. Select the user configurations you want to delete and then select [**Delete**].

3. Select [**Yes**] in the popup.

Transferring a Configuration

To export the current monitor's configuration:

1. Connect the USB drive to the monitor's USB port.

2. Select [**Export Config. >>**] in the [**Manage Configuration**] menu.

3. In the [**Export Config.**] menu, select the configurations and [**User Maintenance Settings**] to export. Then select the [**Export**] button. A status message will report completion of the transfer.

To import the configuration on the USB drive to the monitor:

1. Connect the USB drive to the monitor's USB port.

2. Select [**Import Config. >>**] in the [**Manage Configuration**] menu.

3. In the [**Import Config.**] menu, select the configurations and [**User Maintenance Settings**] to import. Then select the [**Import**] button. A status message will report completion of the transfer.

Loading a Configuration

1. Select [**Load Configuration >>**] from the main menu.

2. The popup menu shows the existing configurations on the monitor. Selecting [**Config. on USB drive >>**] will show the existing configurations on the USB drive.

3. Select a desired configuration.

4. Select [**View**] to view the configuration details. In the popup menu, you can select [**Alarm Setup >>**], [**Screen Setup >>**] or [**Parameter >>**] to view the corresponding contents. The alarm setup items which are different than those currently used are marked in red.

5. Select [**Load**] to load this configuration.

Using a Mouse

When you are using a mouse:

❒ By default, the left mouse-button is the primary button and the right one the secondary button.

❒ Clicking the primary button equals to pressing the knob or selecting the touchscreen.

❒ The secondary button is disabled.

You can also define the right mouse button as the primary button by following this procedure:

1. Select [**Main Menu**]→[**Maintenance >>**]→[**User Maintenance >>**]→enter the required password.
2. Select [**Others >>**] to enter the [**Others**] menu.
3. Select [**Primary Button**] and then select [**Right**] from the popup list.

Using Keyboards

The on-screen keyboard enables you to enter information. Use the [**Back**] key to delete the previously entered character. Use the [**Caps**] to toggle between uppercase and lowercase letters. Select [**Enter**] to confirm what you have entered and close the on-screen keyboard.

To insert a CF storage card, open the compartment and insert the card until the button flips out.

To remove the CF storage card:

1. In the main menu, select [**Unload CF Storage Card**], or [**Patient Data**]→[**Unload CF Storage Card**].

2. Select [**Ok**] from the popup menu to unload the CF storage card. A status message shown in the prompt message area will report completion of the unloading.

3. Press the button until the CF storage card flips out.

To browse the data saved in the CF storage card, follow this procedure:

1. Select [**Main Menu**]→[**Patient Data >>**]→[**History Data >>**].

2. Select a patient you want to view from the [**Patient Data List**] and then select [**Review**].

3. Select [**Data Review**].

Note:

❒ Data may be unable to be saved into the CF storage card when the patient monitor is just turned on.

❒ If no CF stroage card is used, all the data you have saved will get lost in case of monitor shut-down or sudden power interrupt. To avoid electrostatic charges, do not come into contact with the CF storage card when the patient monitor is on.

❒ Unload the CF storage card before removing it from the patient monitor. Otherwise it may cause damage to the data in the card.

❒ Use only the CF storage card specified by Mindray.

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

Starting and Stopping Recordings

To manually start a recording:

❒ Select the [symbol] hardkey on the front of either the patient monitor or the recorder module.

❒ Select the [**Record**] button from the current menu or window.

Automatic recordings will be triggered in the following conditions:

❒ Timed recordings will start automatically at preset intervals.

❒ If both [**Alarm**] and [**Alm Rec**] for a measurement are set on, an alarm recording will be triggered automatically as alarms occur.

To manually stop a recording:

❒ Select the [symbol] hardkey again.

❒ Select [**Clear All Tasks**] in the [**Record Setup**] menu.

Recordings stop automatically when:

❒ A recording is completed.

❒ The recorder runs out of paper.

❒ When the recorder has an alarm condition.

Left view of T6, T8, T9 (For T5, the recorder is located at the right side)

The battery is charged whenever the patient monitor is connected to an AC power source regardless of whether or not the patient monitor is currently on. Whenever the AC power is interrupted during patient monitoring, the patient monitor will automatically run power from the internal batteries.

For T6, T8 and T9, The patient monitor uses two battery packs. If the two batteries have very different charge capacity, the message [**Diff. Battery Voltages**] will be displayed. In this case, apply AC power to the patient monitor until the two batteries have approximately equal charge capacity or are both fully charged. You cannot use them before they have approximately equal charge capacity or are fully charged.

Installing the Batteries

For T5, When the patient monitor uses two battery packs, one battery pack can be easily exchanged while the patient monitor operates from the other. If the patient monitor uses one battery pack, you should insert a new battery pack before the old one depletes.

For T5, battery compartment is located at the lower

right side. You can install the batteries by following this procedure:

1. Turn off the patient monitor and disconnect the power cord and other cables.
2. Place the patient monitor with its face up.
3. Open the battery compartment door.
4. Place the batteries into the slots.
5. Close the battery door and place the patient monitor upright.

For T6, T8 and T9, battery compartments are located at the bottom. The patient monitor uses two batteries. You can install the batteries by following this procedure:

1. Turn off the patient monitor and disconnect the power cord and other cables.
2. Place the patient monitor with its back on the desk.
3. Open the battery compartment door.
4. Place the batteries into the slots.
5. Close the battery door and place the patient monitor upright.

On-screen battery symbols indicate the battery status as follows:

indicates that batteries are working normally. The solid portion represents the current charge level of the batteries as a percentage of its maximum charge level.

indicates that the batteries have low charge level and need to be charged.

indicates that the batteries are almost depleted and need to be charged immediately.

Indicates that no batteries are installed or only one battery is installed to the BeneView T8 or BeneView T9 monitor.

Note:

☐ Take out the battery before transport or storage to avoid damaging the battery.

☐ Keep the battery out of children's reach.

☐ Use only specified batteries.

☐ Do not disassemble batteries, or dispose of them in fire, or cause them to short circuit. They may ignite, explode, or leak, causing personal injury.

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