## VS9 User Guide



# mindray

### SAFET

### Safety checks

- General overview of system integrity, system is visually clean, all required accessories are available and suitable for patient group
- Check integrity of accessories, ensure mains lead is plugged in and that mains power is on

### Disabling the touchscreen

- Press and hold the **Main Menu** quick key and slide as directed by the arrow. A padlock symbol A displays above the main menu quick key if the touchscreen is disabled.
- The touchscreen lock period is 10 seconds.
- The touchscreen is enabled when the pre-set time is reached.
- To manually enable the touchscreen, press and hold the **Main Menu** quick key and slide as directed by the arrow.

### Cleaning

- Adhere to the **Operators Manual** for advice on cleaning agents
- Follow hospital policy, but with an awareness that agents utilised by the hospital may cause damage to the monitor over time

### Please Note: Some items that connect to the system are single patient use.

### WORKFLOW

### Spot Check Mode

To switch to spot check mode, select the workflow area and select a workflow under **Spot Check**.

In spot check mode:

- There will be no physiological alarm related indications
- The alarm setup menus will not be displayed
- Alarm limits cannot be set

#### **Continuous Mode**

To switch to continuous mode, select the workflow area and select a workflow under **Continuous Mode**.

The continuous monitoring mode is used for long-term patient monitoring. To switch to monitoring mode, select the workflow area and select a workflow under **Continuous Monitoring**.

### Standby Mode

You can temporarily stop patient monitoring without switching off the monitor by entering the standby mode. In standby mode, the monitor behaves as follows:

- Stops all parameter measurements
- Disables all the alarms and prompt messages, except for the battery low alarm
- Turns screen brightness to the dimmest setting

You can switch the monitor to standby mode manually or set **Auto Enter Standby** for the monitor to enter standby automatically.

These guidelines do <u>NOT</u> replace the instructions for use and all users should refer to the appropriate **Operator's Manual** for detailed instructions. The Illustrations may not necessarily reflect the setup or data displayed on your device. To switch the monitor to standby mode:

1. Press the power switch or select the **Main Menu** quick key  $\rightarrow$  from the **Patient Management** column select **Standby**.

If the monitor is in **Continuous Monitoring** mode, select a location in the drop-down list to define where the patient is when the monitor enters the standby mode. If the monitor is in **Spot Check** mode, skip this step.
 Select **OK**.

### To set Auto Enter Standby:

1. Select the **Main Menu** quick key  $\rightarrow$  from the **System** column select **Maintenance**  $\rightarrow$  input the required password  $\rightarrow$  select  $\checkmark$ 

2. Select the Standby tab, switch on Auto Enter Standby, and set the Auto Enter Standby Time

After setting, the monitor enters standby mode automatically if no operation is detected after the **Auto Enter Standby Time**.

If the monitor enters standby mode in **Continuous Monitoring** mode, you can change the patient location from the standby screen.

On the standby screen, you can select **Discharge Patient** to discharge a patient.

To exit the standby mode, select **Resume monitor** on standby.

### SpO2

### Selection and application of the SpO2 Sensor

- Different sensors are available for finger and earlobe placement, and reusable/single patient use
- Sensor selection should depend on the weight range of the patient (see sensor packaging)
- The finger sensor should be fitted with the finger diagram uppermost
- Incorrect sensor placement can result in less than optimum measurements

### Perfusion Index (PI)

- This is the numerical value for the pulsatile portion of the measured signal caused by arterial pulsation
- PI is an indicator of pulsatile strength and is also used to assess the quality of an SpO<sub>2</sub> measurement
  - Above 1 is optimal
  - Between 0.3 and 1 is acceptable (displays with a **yellow** background)
  - Below 0.3 indicates low perfusion (displays with a red background)
     Reposition the SpO<sub>2</sub> sensor or find a better sensor location. If low perfusion persists, choose another method of measuring oxygen saturation if possible.

#### Low PI value



- This example displays a low PI of 0.2 indicating that the pulse is weak
- The PI value highlighted in RED offers a visual indicator of the PI status
- A '?' is displayed, as a further visual indication that the measurement may be unreliable

### NIBP

### Selection and application of the NIBP Cuff

- Select an appropriately sized cuff by referring to the limb circumference marked on the cuff
- Apply the cuff to the patient's upper arm or leg, ensuring the **()** marking on the cuff matches the artery location
- The cuff should fit snugly, but with enough room for two fingers to be placed between the cuff and the patient's limb (on adults) and loosely on neonates with little or no air present within the cuff
- Do not use NIBP cuff on limb with an Intravenous Infusion or arterial catheter in place
- The middle of the NIBP cuff should be in line with the right atrium of the heart
- An incorrect cuff size may give inaccurate readings

Please Note: If your monitor is using the inflation algorithm, select cuffs with the *TrueBP*<sup>™</sup> symbol. Using other cuffs may lead to incorrect or failed measurements.

### Performing Manual Measurement

To perform manual measurement, follow this procedure:

- 1. Prepare the patient and place the cuff as instructed
- 2. Select 🌜 to set the patient position and measurement site
- 3. Select 🛸 to start the measurement

### Performing Auto Measurement

To perform auto measurement, follow this procedure:

- 1. Prepare the patient and place the cuff as instructed
- 2. Select a workflow under **Continuous Monitoring**
- 3. Select (5) to set the patient position and measurement site
- 4. Select the NIBP numeric area to enter the NIBP menu
- 5. Set Interval to an appropriate duration
- 6. Set Start Mode to Interval
- 7. Select Start NIBP

### RESPIRATION

### **Manually Inputting RR Value**

To manually input an RR value, follow this procedure:

- 1. Select 🖉 in the Resp area. A timer is displayed and starts to time
- 2. Count the total number of Resp of the patient in the past minute
- 3. Input the number and select 🚽
- 4. Select the **Save** quick key to save the data

#### **Enabling SpO2 Source for RR Measurement**

To enable the SpO2 source, follow this procedure:

- 1. Select the **Main Menu** quick key → from the **System** column select **Maintenance** → input the required password → select ◄
- 2. Select **Module** → **Other**
- 3. Switch **SpO2 Calc RR** on

#### **Setting Timer Interval**

A timer is provided when manually inputting RR value. A reminder is given at a set interval to assist in counting of Resp number. To set the timer reminding interval for manual RR, follow this procedure:

1. Select the **Main Menu** quick key → from the **Configuration** column select **Workflow** → input the required password → select ←

- 2. Select  $\square$  on the right of the workflow to be set
- 3. Select Parameters Setup  $\rightarrow$  RR tab
- 4. Set Timer Reminder Interval as needed

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### **Taking a Temperature**

To take a temperature, follow this procedure:

- 1. Remove the thermometer from the base.
- 2. Inspect the probe tip and make sure that the probe tip is clean. If it is soiled, clean with a lens wipe or lint free swab.
- 3. Press the scan button to verify functionality and mode selection on the LCD screen.
- 4. Install a probe cover by firmly inserting the probe tip into a probe cover. Make sure that the probe cover is fully seated.
- 5. Place the probe in the ear canal.
- 6. Once positioned lightly in the ear canal, press and release the scan button.
- 7. Remove the probe from the ear as soon as the triple beep is heard. The temperature and probe eject icon display on the LCD screen.
- 8. Press the eject button to eject the probe cover.
- 9. Replace the thermometer to the base.

#### Manually Inputting Temperature

You can manually input a Temperature value and save the data for future reference. Follow this procedure:

1. Select the Temp area

- 2. Select a Temp Measurement Site (the options displayed in the menu are configurable)
- 3. Input a measured Temp value
- 4. Select the Save quick key to save the data

### REVIEW

The **Review** page contains tabs to display trend data in tabular, graphic, or other forms.

#### Accessing the Review Page

To enter the review page, select the **Review** quick key.



1. Record button: Select it to output patient information and data through the recorder.

2. Timeline: Indicates the entire time length.

 Waveform area: Displays trend curves. The colour of trend curves is consistent with the colour of parameter labels.
 Zoom: Select the time duration of data to be viewed on one screen.

5.  $\leftarrow$  or  $\rightarrow$  : Goes to the previous or next event.

6. **EQ** : Displays events in a chronological order. The most recent event is displayed at the top. The number of asterisk symbols before an event matches alarm priority.

7.  $\checkmark$  or  $\rightarrow$  : Moves the cursor backwards or forwards.

8. D: 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 data in the current window accordingly.
9. Current window timeline: Indicates the time length of the current window.

10. Numeric area: Displays numeric values at the cursor indicated time. The background colour of numeric values matches the alarm priority.

11. Event area: Displays the event of the cursor time. Selecting the event accesses, the event list. If there is no event at the cursor time, the cursor time is displayed.

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- Red: high priority alarm event
- Yellow: medium priority alarm event
- Cyan: low priority alarm event
- Green: manual event
- White: operation-related event

### **PATIENT ADMISSION & DISCHARGE**

### **Admitting a Patient**

### Automatically Admitting a Patient

The monitor admits a new patient automatically when it's started for the first time or after a patient is discharged. For an automatically admitted patient, you need to input and save the patient information so the measurements and other physiological data could be correctly saved to the patient.

### **Manually Admitting a Patient**

You can admit a patient from an **ADT Database** (if available) and **Local Patient List**. You can also admit a new patient, follow this procedure:

- 1. Select Patient quick key
- 2. Select a patient from the list and then select Admit or select Add New to admit a new patient
- 3. Check or modify the information of the patient, select **OK**

### **Discharging a Patient**

The monitor discharges a patient in the following situations:

- After a patient is manually admitted, the previous patient is automatically discharged.
- In **Spot Check** mode, a patient is discharged if the monitor is powered off or workflow is switched.
- For patients under **Continuous Monitoring** mode, you can let the monitor automatically discharge after the monitor has been switched-off for a period of time.

If the monitor has not detected certain patient vital signs (SpO2, PR, RR, NIBP) for 30 minutes, you will be prompted whether to start monitoring a new patient if any of the above vital signs are detected again. When a patient is discharged, all patient data, including patient information, trend data, and physiological alarm information is deleted from the monitor. The technical alarms are reset, and monitor settings return to their defaults.

### **Manually Discharging a Patient**

Patients under **Continuous Monitoring** mode can be discharged manually.

Follow this procedure:

- 1. Make sure all the patient data needed is properly saved
- 2. Select the patient information area at the top left corner of the screen
- 3. Select Discharge Patient

### Auto Discharging a Patient after Monitor Power Off

For patients under **Continuous Monitoring** mode, you can set the time period of discharging a patient. Follow this procedure:

- 1. Select the **Main Menu** quick key → from the **System** column select **Maintenance** → input the required password → select
- 2. Select the **Patient Management** tab → select the **Discharge** tab
- 3. Select a time for Auto Discharge When Power Off

The monitor will automatically discharge the patient when it is turned off for the designated period of time.

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### **SCREEN NAVIGATION**

Everything you need to operate the monitor is on its screen. Almost every element on the screen is interactive. Screen elements include parameter values, waveforms, quick keys, information fields, alarms fields and menus. Often you can access the same element in different ways. For example, you can access a parameter menu by selecting corresponding numeric area or waveform area, or by selecting the **Main Menu** quick key  $\rightarrow$  from the **Parameters** column select **Setup**.

#### Using the Touchscreen

- To select an item from menus or lists, or to select a quick key, tap on it with your finger.
- To enter a parameter menu, tap corresponding numeric area or waveform area. For example, select the NIBP area to enter the NIBP menu.
- To scroll through a list and a menu, swipe up and down.
- To show more pages of a screen, such as the **Main Menu** screen, swipe left or right to switch between the two setup pages.



### **QUICK KEYS**

The monitor provides <b>C</b> bottom of the screen. T	<b>Quick Ke</b> These ke	<b>eys</b> for you ys may va	u to quickly access ry according to the	some of e workflo	the funct w setting	ions. The quic s.
:	Symbol	Label	Function	Symbol	Label	Function
	*	Review	Enters the Review menu.	<b>*</b> +	Patient	Displays the patient list.
	8	Save	Saves the input information.	$\diamond$	Clear	Clears all input information.
-		Main Menu	Enters the main unit.		More	Shows more quick keys.
	٩	Next	Shows the next screen.	•	Back	Shows the previous screen.
	潋	Alarm Pause	Pauses the physiological alarms.	<mark>.20</mark>	Alarm Reset	Resets the alarm system.
	$\bigcirc$	Targeted Goal Screen.				

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