Event Mark Table

The event mark table (figure 12) shows the last 10 event marks, along with the date and time the event was marked, the event mark letter, and the readings for each connected channel. The event mark table screen times out after 2 minutes.

Figure 12. Event Mark Table

Timescale

The timescale is located in the upper left corner of the monitoring screen and is the amount of data time that will display on the screen (figure 11). The default timescale is 30 minutes. The range can be set so the monitoring screen shows as few as 7.5 minutes of data or up to 24 hours of data. The timescale uses a 24-hour clock.

The current time displays on the right side of the graph area of the screen.

Scrolling Cursor and Cursor Values

The scrolling cursor displays when the right or left navigation button is pressed. The scrolling cursor displays directly below the timescale and moves back and forth across the top of the channel graph display area (figure 11).

For rSO_2 channels, patient readings display on the left side of the monitoring screen as a list of cursor values.

Graphs

The user may choose to have each connected channel display a graph on the monitoring screen, for a total of up to six graphs. A graph may also be shut off. Graph height will vary depending on how may graphs are set to display on the monitoring screen.

rSO$_2$ Trendlines

The color-coded trendlines can be displayed individually or can be combined so multiple trendlines appear in a single graph. After the baseline is set, the channel's color-coded baseline value displays to the right of each trendline graph.

SpO$_2$ Plethysmograms

Each plethysmogram displays as a separate graph. The scale of the plethysmogram is automatically determined by how many graphs are set up to display on screen. The default setting is On.

Figure 13. Graphs

Monitoring Screen – Procedures

Set All rSO_2 Channel Baselines to Current %rSO_2 Values

1. (OPTIONAL STEP) Press **Event Mark** to mark an event. Record the letter of the event in the hospital records.
2. While in the monitoring screen, press **Baseline**. “Update baselines for rSO_2 channels” screen displays with the patient’s baseline values.
3. Press **Baseline** or **Select**.
4. rSO_2 channel baseline values are set to the current baseline readings and the display returns to the monitoring screen.

Mark an Event

1. While monitoring, momentarily press **Event Mark** .
2. The event mark letter appears on the screen and is stored in memory.

NOTE: It may take up to 4 seconds for the event mark to appear on the display.

View the Event Mark Table

1. While monitoring, press **Event Mark** for approximately 2 seconds.
2. The event mark table (figure 12) displays on the monitor.
3. Press **Menu** or **Select** to return to the monitoring screen.

Change the Timescale

While monitoring, press **up**/**down** to change the timescale to the desired setting.

Available settings are:

- 7.5 minutes
- 15 minutes
- 30 minutes (default)
- 1 hour
- 2 hours
- 4 hours
- 8 hours
- 12 hours
- 24 hours

Scroll Through the Timescale

1. While monitoring, press **left** to display the cursor above the graph(s).
2. When the scrolling cursor displays, the color-coded cursor values display on the left side of the monitoring screen below the timescale rate.

Graph Set-up

Graphs are set up on the Settings Menu screen. See “Graph Position” on page 33 or “Set Graph Position(s)” on page 36 for more information.

Settings Menu Screen

This section contains:

- Description of the Settings Menu
- Settings Menu procedures (see “Settings Menu – Procedures” on page 34)

Settings Menu – Description

The Settings screen allows the user to configure the system for specific use case needs. From the Settings screen, the user can review and configure the following settings and alarm limits.

- Sensor site
- Sensor type
- Baseline
- rSO_2 high
- rSO_2 low (% BL) **or** rSO_2 low (Abs)
- SpO_2 high
- SpO_2 low
- PR high
- PR low
- Graph position
- Presets

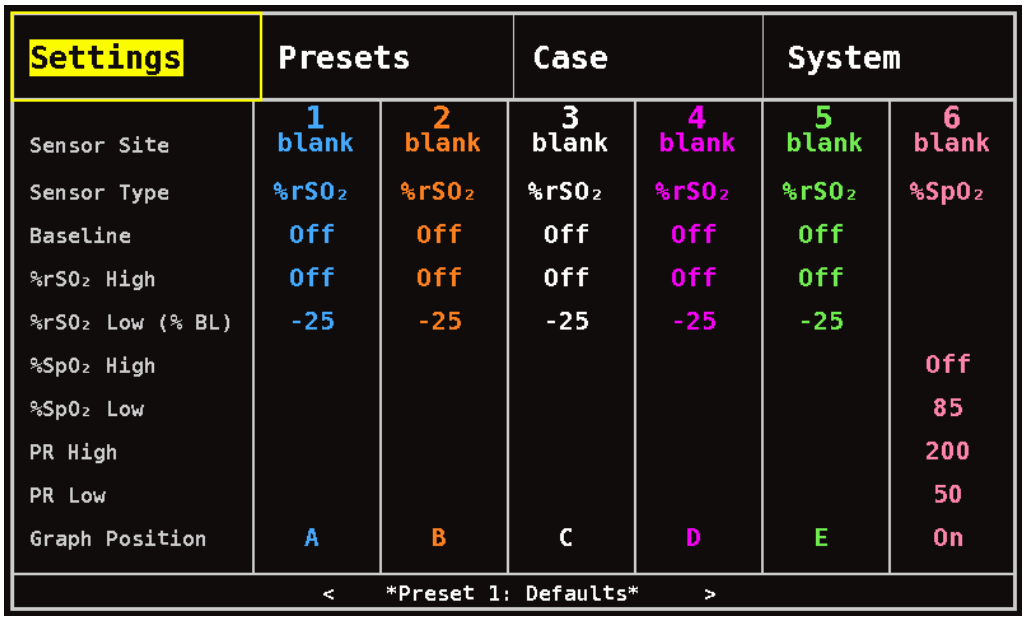

Figure 14. Settings Menu Screen

Sensor Site

The setting allows the user to select, customize, or clear a sensor site name. Table 7 lists the pre-defined, commonly-used sensor site names.

Table 7. Commonly-Used Sensor Site Names

Head	Arms	Torso	Legs	Leg Compartments
L Cere (Left Cerebral) R Cere (Right Cerebral) L Ear (Left Ear) R Ear (Right Ear) FH (Forehead)	L Delt (Left Deltoid) R Delt (Right Deltoid) L Fore (Left Forearm) R Fore (Right Forearm) L Then (Left Thenar) R Then (Right Thenar) L Hand (Left Hand Finger) R Hand (Right Hand Finger)	Abdomen (Abdominal) L Flank (Left Flank) R Flank (Right Flank) Up R Abd (Upper Right Abdomen)	L Thigh (Left Thigh) R Thigh (Right Thigh) L Calf (Left Calf) R Calf (Right Calf) L Foot (Left Foot) R Foot (Right Foot) L Toe (Left Foot Toe) R Toe (Right Foot Toe)	LAC (Left Anterior Calf) LLC (Left Lateral Calf) LDP (Left Deep Posterior) LP (Left Posterior) RAC (Right Anterior Calf) RLC (Right Lateral Calf) RDP (Right Deep Posterior) RP (Right Posterior)

Sensor Type

When creating a preset, this setting allows the user to select the type of sensor that will be attached to that channel. The sensor type options are rSO_2 or SpO_2. This field is disabled when a compatible sensor is attached.

Baseline (rSO_2 channels only)

If the patient's baseline values have not been set by the user, the BL display shows dashes, and the low alarm limit values are calculated using either the factory default baseline (50%) or user-defined baseline defaults (range of 10 to 99%). Default baseline values are recalled when the device cycles power.

The rSO_2 baseline values must be set by the user for each patient so that subsequent rSO_2 changes are measured relative to this baseline. As soon as rSO_2 values appear on the monitoring screen, the device begins plotting trend data on the screen. At this point, if the patient condition is stable, a baseline value must be set for each rSO_2 channel in use. For example, in surgical patients, the baseline must be set prior to induction.

Baselines may be set to the current rSO_2 values displayed on the monitor or be set to specific values.

⚠ **CAUTION:** Between patients, turn the X-100M monitor off (Standby mode) or start a new case (Case Menu). Failure to do so could result in inaccurate baseline values for the new patient. When the device is turned ON or a new case is started, the monitor clears the baseline values, resets the limits to the default values, and begins a new patient record in data memory.

Alarm Limits

The following table lists the device's factory defaults and alarm limits.

Table 8. Alarm Limit Settings

Alarm Limit	Factory Defaults	Adjustment Options	Adjustment Increments
%rSO_2 High	Off	Off, 20% – 95%	1%
%rSO_2 Low*			
%rSO_2 Low (% BL) % below baseline	Baseline - 25% (Baseline minus 25%)	Off, - 40% to - 5% (minus 40% to minus 5%)	1%
or			
%rSO_2 Low (Abs) Absolute	50%	Off, 15% – 90%	1%
%SpO_2 High	Off	Off, 80% – 100%	1%
%SpO_2 Low	85%	Off, 50% – 95%	1%
Pulse High	200 BPM	Off, 75 – 275 BPM	5 BPM
Pulse Low	50 BPM	Off, 30 – 110 BPM	5 BPM

* Depending on how the rSO_2 Low Alarm Mode is set on the System Menu screen, this setting will be either "%rSO_2 Low (% BL)" or "%rSO_2 Low (Abs)." See "Set Graph Position(s)" on page 36 for more information.

CAUTION: Verify all alarm settings and limits during system startup to ensure that they are set as intended.

NOTE: The AUC will not calculate if the %rSO_2 Low (% BL) setting or %rSO_2 Low (Abs) setting is OFF.

%rSO_2 Low

Depending on how the rSO_2 Low Alarm Mode is set on the System Menu screen, this setting will be either "%rSO_2 Low (% BL)" or "%rSO_2 Low (Abs)."

The rSO_2 Low Alarm Limit displays to the right of the channel's trendline area on the monitor screen. This value may be automatically or manually set.

%rSO_2 Low (% BL)

To have the rSO_2 low alarm limit value automatically calculated as a percentage below the baseline, set the rSO_2 Low Alarm Mode to % Below Baseline (% BL) (default) on the System Menu screen. As shown in table 8, the factory default is the baseline value minus 25%.

Example: if the BL is 60, then the low alarm limit is 45 (60 minus 25% = 45).

To customize the rSO_2 low alarm limit, users can select a percentage between -40% to -5% in the rSO_2 Low (% BL) field on the Settings Menu screen. The low alarm limit calculation is the set baseline minus the selected percentage.

If the baseline is modified, the Low Alarm Limit display automatically updates, and the AUC recalculates from the beginning of the current record.

%rSO$_2$ Low (Abs)

To manually set the %rSO$_2$ Low value, the rSO$_2$ Low Alarm Mode is set to Absolute. The user may then set the %rSO$_2$ Low field to an absolute value for each channel, use the current default setting, or use the factory default setting of 50%.

If the low alarm limit is modified, the Auto Low Alarm display automatically updates, and the AUC recalculates from the beginning of the current record.

Graph Position

This setting determines the location of individual channel trendlines or plethysmograms.

TIPS:

- The trendlines on the graphs are color-coded and match the channel and signal processor colors.
- Multiple rSO$_2$ trendlines can be placed on one graph.
- rSO$_2$ trendlines and SpO$_2$ plethysmograms cannot be on the same graph.
- rSO$_2$ graphs display at the top of the monitoring screen in the order they are set (A – F).
- Each SpO$_2$ plethysmogram is a separate graph. SpO$_2$ graphs display below rSO$_2$ graphs and are ordered based on channel number.

Presets

The setting allows the user to quickly access and review the monitor’s presets.

Asterisks appear around the preset name when the active preset has been modified on the Settings Menu screen or the System Menu screen. To save these changes for future use, save the preset (see "Presets Menu – Procedures" on page 38).

Settings Menu – Procedures

Open the Settings Menu

1. Press **Menu** (■). Settings Menu screen displays.

Assign a Pre-Defined Sensor Site Name

1. While in the Settings Menu screen, use the navigation buttons to move to and highlight the desired channel's "Sensor Site" setting.
2. Press **Select**. Pop-up menu displays.
3. Use the navigation buttons to move to and highlight the desired sensor site category.
4. Press **Select**. Pop-up submenu displays.
5. Use the navigation buttons to move to and highlight the desired sensor site name.
6. Press **Select** to save. Display returns to the Settings menu. The abbreviated sensor site name displays below the channel number.
7. Change additional settings, press **Menu** twice to return to monitoring screen, or allow the screen to time out.

Customize a Sensor Site Name

1. While in the Settings Menu screen, use the navigation buttons to move to and highlight the desired channel's "Sensor Site" setting.
2. Press **Select**. Pop-up menu displays.
3. Use the navigation buttons to move to and highlight "Custom."
4. Press **Select.** Alphanumeric keyboard screen displays.
5. Enter sensor site name (maximum of 8 characters):
   a. Use the navigation buttons to move to and highlight the desired character.
   b. Press **Select**.
   c. Repeat steps a and b as needed to enter the name.
6. Press **down** until "Save" is highlighted.
7. Press **Select**. Display returns to the Settings Menu screen. The custom sensor site name displays below the channel number.
8. Change additional settings, press **Menu** twice to return to monitoring screen, or allow the screen to time out.

Clear a Sensor Site Name

1. While in the Settings Menu screen, use the navigation buttons to move to and highlight the desired channel's "Sensor Site" settings.
2. Press **Select**. Pop-up menu displays.
3. Use the navigation buttons to move to and highlight "Clear."
4. Press **Select**. Display returns to the Settings Menu screen. The sensor site field displays "blank" below the channel number.
5. Change additional settings, press **Menu** twice to return to monitoring screen, or allow the screen to time out.

Set Sensor Type

NOTE: Sensor type is automatically set when a Nonin SenSmart-compatible rSO_2 or SpO_2 sensor is attached to the signal processor.

1. While in the Settings Menu screen, use the navigation buttons to move to and highlight the desired channel's "Sensor Type" setting.
2. Press **Select**. Small arrows display above and below the setting.
3. Press the **up/down** navigation buttons to change the setting.
4. Press **Select** to set the sensor type. When the sensor type is set, the Settings Menu screen activates the settings for that sensor type:

   rSO_2 settings:

   - Baseline
   - $\%rSO_2$ high
   - $\%rSO_2$ low (% BL) **or** $\%rSO_2$ low (Abs)

   SpO_2 settings:

   - $\%SpO_2$ high
   - $\%SpO_2$ low
   - PR high
   - PR low

5. Change additional settings, press **Menu** twice to return to monitoring screen, or allow the screen to time out.

Set Individual Baseline Values

1. (OPTIONAL STEP) Press **Event Mark** to mark an event. Record the letter of the event in the hospital records.
2. Press **Menu**. Settings Menu screen displays.
3. Use the navigation buttons to move to and highlight the desired channel's "Baseline" setting.
4. Press **Select**. Small arrows display above and below the setting.
5. Press the **up/down** navigation buttons to change the setting.
6. Press **Select** to set the baseline value.
7. Repeat as needed for each rSO_2 channel.
8. Change additional settings, press **Menu** twice to return to monitoring screen, or allow the screen to time out.

NOTE: Alarm limits reset to currently active default values each time the unit is powered up.

Set Alarm Limits

1. Follow steps 1 – 4 of the "Set Sensor Type" on page 35 or connect a Nonin SenSmart-compatible sensor to the signal processor.
2. Use the navigation buttons to move to and highlight the desired channel's alarm limit setting.
3. Press **Select**. Small arrows display above and below the setting.
4. Press the **up/down** navigation buttons to change the setting. See table 8 for alarm limit setting options.

5. Press **Select** to set the limit.
6. Repeat as needed for each of the high and low alarm limit settings.
7. Change additional settings, press **Menu** twice to return to monitoring screen, or allow the screen to time out.

Set Graph Position(s)

1. Press **Menu**. Settings Menu screen displays. Verify and/or modify the channel(s) settings as needed for monitoring.
2. Use the navigation buttons to move to and highlight a channel's "Graph Position" setting.
3. Press **Select**. Small arrows display above and below the setting.
4. Press the **up/down** navigation buttons to change the setting.
   - rSO_2 channels can be set to a letter from A to F. Up to six rSO_2 channels can display in one graph.
   - SpO_2 channels can be set to On or Off.
5. Press **Select** to set the graph position.
6. Change additional settings, press **Menu** twice to return to monitoring screen, or allow the screen to time out.

Review/Select a Preset

1. Press **Menu**. Settings Menu screen displays.
2. Press **down** to move to and highlight the Preset field at the bottom of the Settings Menu screen.
3. Use the **right/left** navigation buttons to scroll through the presets and review the settings for each preset.
4. To select a preset, stop scrolling through the presets. The preset on the screen becomes the active preset.
5. Press **Menu** twice to return to the monitoring screen.

Presets Menu Screen

This section contains:

- Description of the Presets Menu screen
- Presets Menu procedures (see “Presets Menu – Procedures” on page 38)

TIPS:

- All channel-specific settings on the Settings Menu screen can be saved in a preset.
- Six of the System Menu settings can be saved in a preset: Brightness, Alarm Volume, rSO_2 Low Alarm Mode, Pulse Tone Volume, Pulse Tone Source, and Data Output Modes.

Presets Menu – Description

The Presets Menu screen allows the user to save the current settings as a preset, activate a saved preset, and delete, rename, lock, or unlock a preset.

A preset is a collection of channel and system settings that can be saved and recalled. The monitor can save up to 10 presets. The 10 default presets are initially set to the factory default settings; however, if the institution default settings have been set up, the default presets use those settings.

One preset can be designated as the institution default preset. When the monitor is turned on, the default preset is applied to the new case. The user may use this preset or activate another preset.

When a preset is deleted, the name reverts “Defaults” and the settings become the factory default values, or the institution defaults if they have been set.

⚠ **CAUTION:** Verify all alarm settings and limits during system startup to ensure that they are set as intended.

NOTE: Presets are retained even when both external and battery power are lost.

NOTE: If the user changes the settings in an active preset and then wants to save the new settings as the preset, follow "Save Current Settings as a Preset" on page 38.

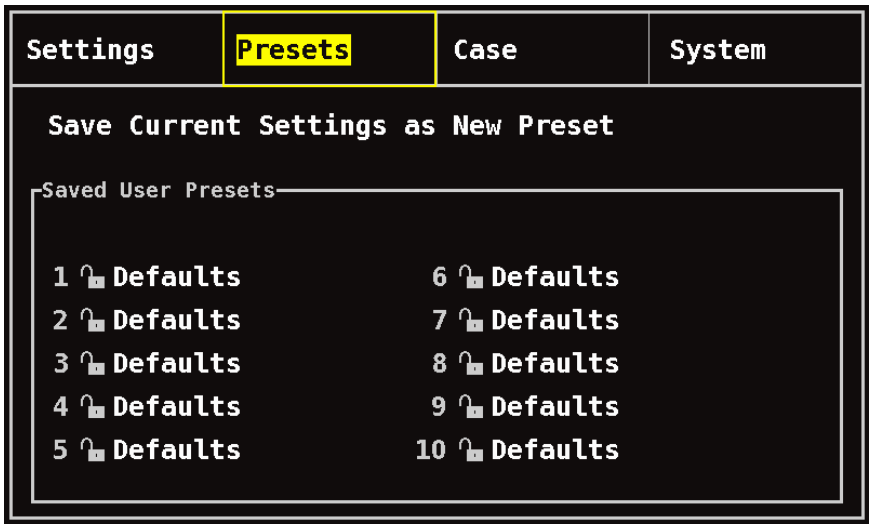

Figure 15. Presets Screen

Presets Menu – Procedures

Open the Presets Menu

1. Press **Menu**.
2. Press **right** once to highlight the Presets tab. Presets Menu screen displays.

Activate a Preset

1. While in the Presets Menu screen, use the navigation buttons to move to and highlight the desired preset
2. Press **Select**. Pop-up menu displays with “Use This Preset” highlighted.
3. Press **Select**. Preset activates and display returns to the monitoring screen.

Save Current Settings as a Preset

NOTE: A preset cannot be saved with settings that are lower than the institution default settings.

1. Using the Settings and System menus, set all parameters and settings to the desired values.
2. Use the navigation buttons to move to and highlight the Presets tab.
3. While in the Presets Menu screen, use the navigation buttons to move to and highlight “Save Current Settings as a New Preset.”
4. Press **Select**. Pop-up menu displays.
5. Using the **up/down** navigation buttons, select a preset to overwrite.

NOTE: If the preset is locked, the message *Cannot overwrite locked preset!* displays. To unlock the preset, see “Lock/Unlock a Preset” on page 40.

6. Press **Select**. Preset name box displays along with alphanumeric keyboard screen. If re-saving an existing preset, continue to step 8.
7. Enter Preset name (maximum of 11 alphanumeric characters):
   a. Use the navigation buttons to move to and highlight the desired character.
   b. Press **Select**.
   c. Repeat steps a and b as needed to enter the name.
8. Press **down** until “Save” is highlighted.
9. Press **Select** to save. Preset activates and the display returns to the monitoring screen.

Delete a Preset

1. While in the Presets Menu screen, use the navigation buttons to move to and highlight the desired preset.
2. Press **Select**. Pop-up menu displays. If needed, unlock the preset (see Lock/Unlock a Preset).
3. Press **down** once to highlight “Delete.”
4. Press **Select**. “Delete selected preset?” pop-up displays with “No” highlighted.
   - To cancel deletion, press **Select**.
   - To confirm deletion, press **down** to highlight Yes, and then press **Select**. The preset name reverts to “Defaults” and the preset values become the factory or institution defaults.
5. Press **Menu** twice to return to the monitoring screen.

Rename a Preset

1. While in the Presets Menu screen, use the navigation buttons to move to and highlight the desired preset.
2. Press **Select**. Pop-up menu displays. If needed, unlock the preset (see Lock/Unlock a Preset).
3. Press **down** twice to highlight “Rename.”
4. Press **Select**. Alphanumeric keyboard screen displays
5. Enter Preset name (maximum of 11 alphanumeric characters):
   a. Use the navigation buttons to move to and highlight the desired character.
   b. Press **Select**.
   c. Repeat steps a and b as needed to enter the name.
6. Press **down** until “Save” is highlighted.
7. Press **Select**. Display returns to the Presets Menu screen.
8. Press **Menu** twice to return to the monitoring screen.

Lock/Unlock a Preset

NOTE: An unlocked preset displays an open lock next to the preset name, and a locked preset displays a closed lock next to the preset name.

1. While in the Presets Menu screen, use the navigation buttons to move to and highlight the desired preset.
2. Press **Select**. Pop-up menu displays.
   - To unlock a preset, press **down** to highlight “Unlock.”
   - To lock a preset, press **down** to highlight “Lock.”
3. Press **Select**.
4. Enter a preset password. This is a user-specific password, which can be overridden by the institution password.
5. Display returns to the Presets Menu screen.
6. Press **Menu** twice to return to the monitoring screen.

Case Menu Screen

This section contains:

- Description of the Case Menu screen
- Case Menu procedures

Case Menu – Description

The Case menu screen (figure 16) allows the user to view the current patient's ID, start a new case or edit a patient ID. Patient IDs may be a maximum of 15 alphanumeric characters.

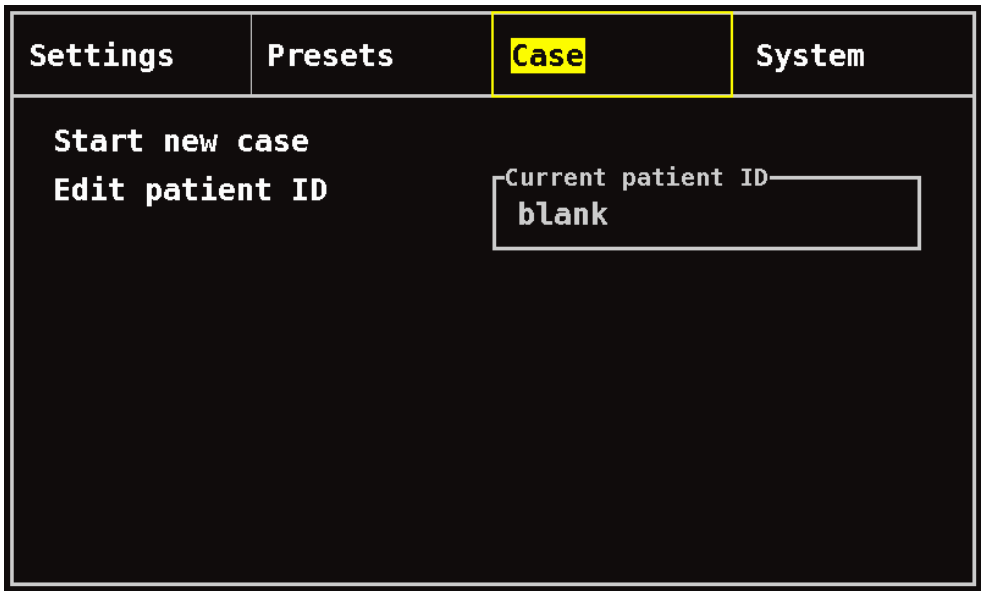

Figure 16. Case Screen

Start New Case

This setting allows the user to begin a new case using the current preset. When a new case is started, the baselines are cleared and a new record starts in memory.

Edit Patient ID

This setting allows the user to edit an existing patient ID or add a patient ID to a case.

Case Menu – Procedures

Open the Case Menu

1. Press **Menu**.
2. Press **right** twice to highlight the Case tab. Case Menu screen displays.

Start a New Case

1. While in the Case Menu screen, use the navigation buttons to move to and highlight "Start new case."
2. Press **Select**. "Start new case?" pop-up displays with No highlighted.
3. Press the **down** navigation arrow to highlight Yes.
4. Press **Select**.
   - If system is set up to enter a patient ID at the start of a new case (see "Patient ID Request" for more information):
     - Alphanumeric keyboard screen displays. Follow steps 3 – 6 in the next procedure, "Edit a Patient ID."
     - After patient ID is entered, "Starting new case..." displays. Monitor returns to monitoring screen and all baselines from the previous case are cleared.
   - If system is not set up to enter a patient ID at the start of a new case:
     - "Starting new case..." displays. Monitor returns to monitoring screen and all baselines from the previous case are cleared.
     - The case will not have a patient ID. To enter a patient ID, see the next procedure, "Edit a Patient ID."

Edit a Patient ID

1. While in the Case Menu screen, use the navigation buttons to move to and highlight "Edit patient ID."
2. Press **Select**. Alphanumeric keyboard screen displays.
3. Enter the Patient ID (maximum of 15 alphanumeric characters).
   a. Use the navigation buttons to move to and highlight the desired character.
   b. Press **Select**.
   c. Repeat steps a and b as needed to enter the patient ID.
4. Press **down** until "Save" is highlighted.
5. Press **Select** to save. Current patient ID displays on Case Menu screen.
6. Press **Menu** twice to return to the monitoring screen, or allow the screen to time out.

System Menu Screen

This section contains:

- Description of the System Menu screen
- System Menu procedures (see “System Menu – Procedures” on page 48)

System Menu – Description

The System Menu screen (figure 17) allows the user to set up system settings. From the System menu, the user can access the following system settings:

- Brightness*
- Alarm volume*
- rSO_2 low alarm mode*
- Pulse beep volume*
- Pulse beep source*
- Data output modes*

- Clear memory
- Restore factory defaults
- System Information
- Date / time
- Nurse call mode
- Bluetooth
- Language
- Patient ID request
- System name
- Default preset
- Institution default limits
- Institution password

* These settings can be included as a preset parameter.

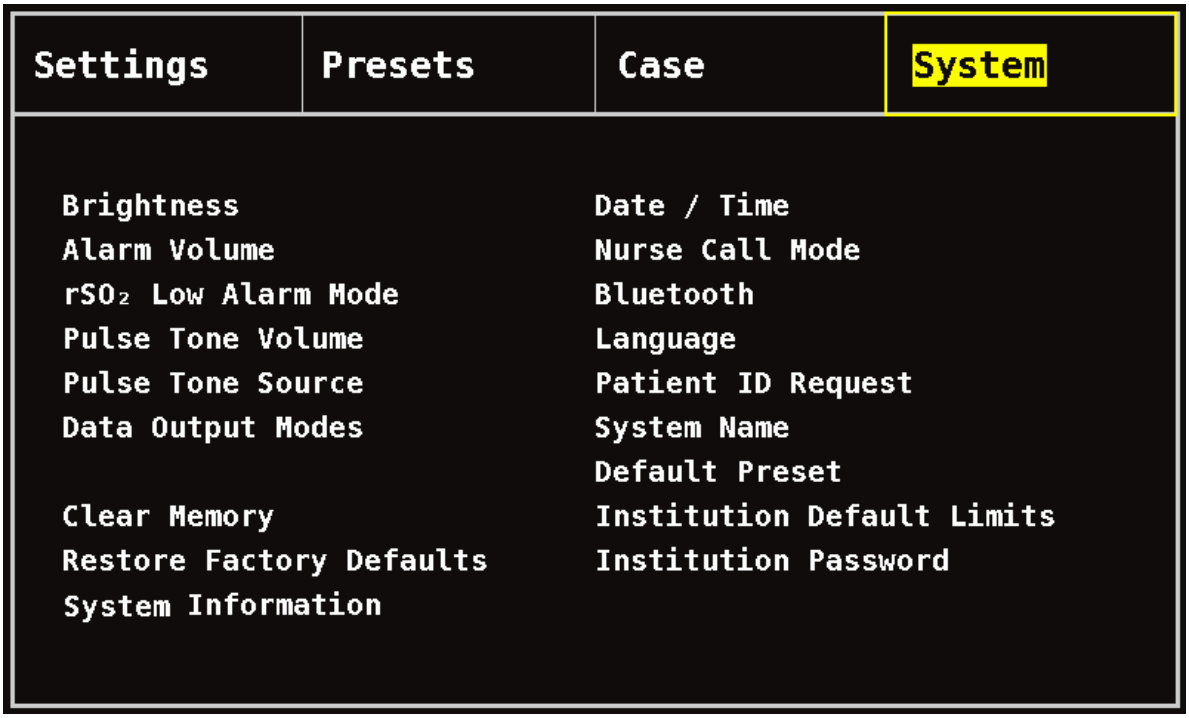

Figure 17. System Screen

Brightness

This setting determines the display screen brightness. The brightness slider has 15 steps. This setting can be saved as a preset parameter.

Alarm Volume

This setting determines the volume of audible alarms. The alarm volume slider has 15 steps. This setting can be saved as a preset parameter.

If the alarm volume is at step 5 or higher, the slider is green. If the alarm volume is at step 4 or lower (less than 45 decibels), the slider is yellow, and the yellow Alarm Silence indicator is lit solidly on the monitoring screen.

rSO_2 Low Alarm Mode

This setting determines how the baseline setting displays and is set on the Settings menu screen. Default is “% below baseline (% BL).” See "%rSO_2 Low" on page 32 for more information about low alarm limits. This setting can be saved as a preset parameter.

Pulse Tone Volume

This setting determines the volume of the pulse beep. The pulse tone volume slider has 15 steps. The default pulse tone default volume is off (0). This setting can be saved as a preset parameter.

Pulse Tone Source

This setting determines which SpO_2 channel will provide the pulse tone. Only one SpO_2 channel can be set as the pulse tone source. This setting can be saved as a preset parameter.

Data Output Modes

This device features 5 different once-per-second, real-time data output formats (Nonin 1 – Nonin 5). In addition, the RS-232 port outputs data through the Dymo printer (Printer).

This setting can be saved as a preset parameter.

NOTE: Bluetooth and the RS-232 port have separate selection options and may use different data output formats.

For more information on the data formats, see "Memory and Data Output Features" on page 57.

Clear Memory

This setting deletes all patient data recordings from the monitor. This does not delete presets from the monitor.

Restore Factory Defaults

This setting discards all presets, institution defaults, institution and other user settings and returns the monitor to the factory default alarm limit settings (table 6)..

Table 9. Factory Default Alarm Limit Settings

Alarm Limit Setting	Factory Default
rSO_2 High	Off
rSO_2 Low (% BL) % below baseline	Baseline - 25% (Baseline minus 25%)
rSO_2 Low (Abs) Absolute	50%
SpO_2 High	Off
SpO_2 Low	85%
Pulse High	200 BPM
Pulse Low	50 BPM

System Information

This pop-up window provides system information for the monitor and any attached signal processors. This information may be needed if calling the Technical Service department.

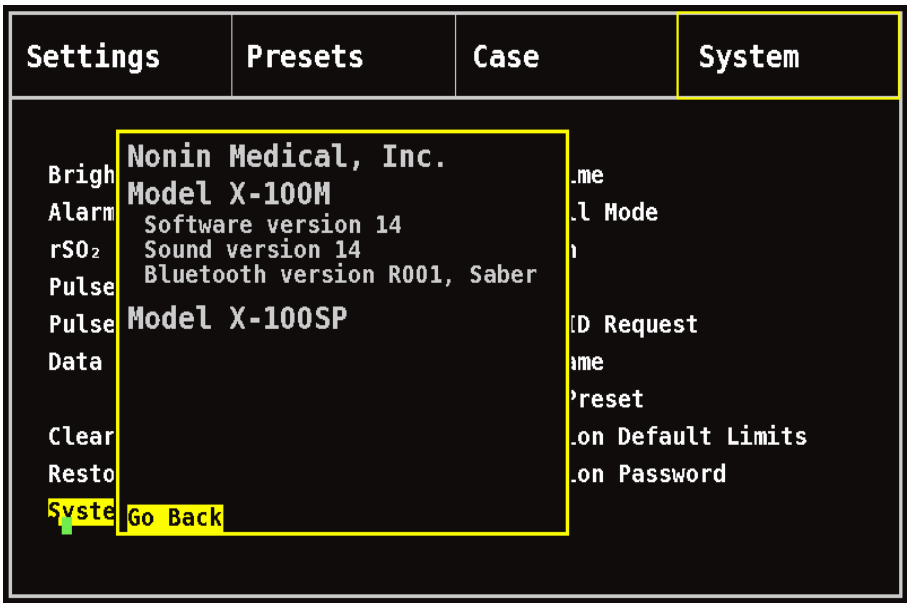

Figure 18. System Information Pop-up

Date / Time

This setting is used to set the device's date and time.

Nurse Call Mode

This setting allows alarm notification at a central monitoring location. Nurse call functions on AC or battery power. The facility determines the alarm condition as audible, visual, or both. The nurse call options are:

- ***Normally open, continuous*** – The nurse call contact is normally open, but closes during alarm conditions. The nurse call contact continuously changes state during an alarm condition and only reverts to the original non-alarm state when the alarm condition is cleared.
- ***Normally open, momentary*** – The nurse call contact is normally open, but closes during alarm conditions. The nurse call contact temporarily changes state at the onset of an alarm condition.
- ***Normally closed, continuous*** – The nurse call contact is normally closed, but opens during alarm conditions. The nurse call contact continuously changes state during an alarm condition and only reverts to the original non-alarm state when the alarm condition is cleared.
- ***Normally closed, momentary*** – The nurse call contact is normally closed, but opens during alarm conditions. The nurse call contact temporarily changes state at the onset of an alarm condition.

NOTE: The Nurse Call feature overrides silenced alarms.

NOTE: It is the user's responsibility to implement the interface between the Nurse Call system and the Model X-100M, and to adequately test the interface between the Model X-100M and the Nurse Call system to ensure operation.

WARNING: The device Nurse Call and Bluetooth features should not be used as the primary source of alarm notification.

Bluetooth

This pop-up window provides the user with the information needed to pair the X-100M to a Bluetooth master device and the option to turn off the Bluetooth radio.

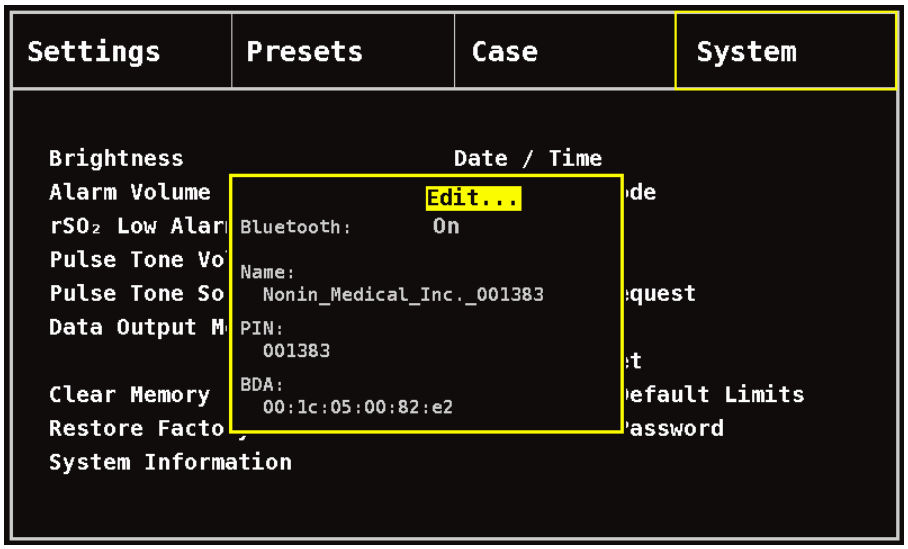

Figure 19. Bluetooth Information Pop-up

Language

This feature allows the user to change the language displayed on the monitor. Language options are:

- English
- German (Deutsch)
- Spanish (Español)
- French (Français)
- Italian (Italiano)
- Dutch (Nederlands)
- Swedish (Svenska)
- Portuguese (Português)

Patient ID Request

This setting determines whether or not the user will be asked to enter a patient ID when a new case is started.

System Name

This setting allows the user to assign a name to the system. The default system name is X-100M.

Default Preset

This setting allows the user to select one of the presets to be the default preset. The default preset is active when the monitor is turned on.

Institution Default Limits

This setting allows the user to establish institution default high and low limits for %rSO_2, %SpO_2, and pulse rate. When the institutional default limits are set, these values become the default values in any default presets.

After updating the institutional defaults, the message *Presets with SpO_2 or rSO_2 low alarm limits lower than the new institution limits have been updated to the new limits* displays. In saved presets, the institutional defaults take precedent over any limits saved in a preset.

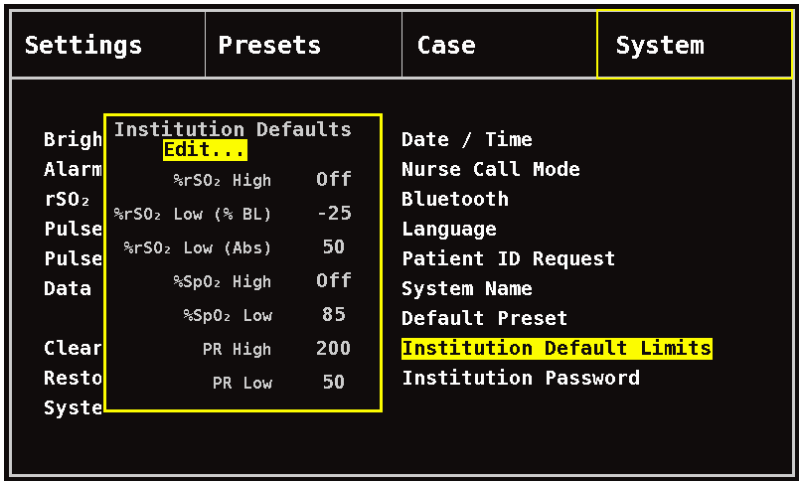

Figure 20. Institution Defaults Pop-up

Institution Password

The default institution password is 0000. The institution password may be set to any four-digit number and is used to unlock parameter settings on the System Menu screen. The institution password can be used to unlock saved presets.

System Menu – Procedures

Open the System Menu

1. Press **Menu** .
2. Press **right** three times to highlight the System tab. System Menu screen displays.

Adjust the Display Brightness

1. While in the System Menu screen, use the navigation buttons to move to and highlight "Brightness."
2. Press **Select**. Brightness slider displays.
3. Press **up/down** navigation buttons to adjust the setting.
4. Press **Select** to save the setting. Display returns to System Menu screen.
5. Change additional settings, press **Menu** twice to return to monitoring screen, or allow the screen to time out.

Adjust the Alarm Volume

1. While in the System Menu screen, use the navigation buttons to move to and highlight "Alarm Volume."
2. Press **Select**. Alarm volume slider displays.
3. Press **up/down** navigation buttons to adjust the setting.
   - ***Green slider*** — volume is above 45 decibels (steps 5 – 15).
   - ***Yellow slider*** — volume is below 45 decibels and the alarm silence indicator displays on the monitor (steps 0 – 4).
4. Press **Select** to save the setting. Display returns to System Menu screen.
5. Change additional settings, press **Menu** twice to return to monitoring screen, or allow the screen to time out.

WARNING: Ensure all alarm volumes are set appropriately and are audible in all situations. Keep speaker openings clear of all obstructions.

Set the rSO_2 Low Alarm Mode

1. While in the System Menu screen, use the navigation buttons to move to and highlight "rSO_2 Low Alarm Mode."
2. Press **Select**. Pop-up menu displays.
3. Press **up/down** navigation buttons to change the setting.
   - % Below Baseline (% BL)
   - Absolute (Abs)

4. Press **Select** to save the setting. Display returns to System Menu screen.
5. Change additional settings, press **Menu** twice to return to monitoring screen, or allow the screen to time out.

Adjust the Pulse Tone Volume

1. While in the System Menu screen, use the navigation buttons to move to and highlight "Pulse Tone Volume."
2. Press **Select**. Pulse tone volume slider displays. Default volume is off.
3. Press **up/down** navigation buttons to adjust the setting.
4. Press **Select** to save the setting. Display returns to System Menu screen.
5. Change additional settings, press **Menu** twice to return to monitoring screen, or allow the screen to time out.

NOTE: When setting a channel as the pulse beep source, verify the pulse tone volume for that channel has been adjusted so it is audible.

Select a Pulse Tone Source

1. While in the System Menu screen, use the navigation buttons to move to and highlight "Pulse Tone Source."
2. Press **Select**. Pulse tone source pop-up window displays.
3. Press **up/down** navigation buttons to select a setting.
4. Press **Select** to save the setting. Display returns to System Menu screen.
5. Change additional settings, press **Menu** twice to return to monitoring screen, or allow the screen to time out.

Set Bluetooth and/or RS-232 Data Output Formats

1. While in the System Menu screen, use the navigation buttons to move to and highlight "Data Output Modes."
2. Press **Select**. Pop-up window displays with Bluetooth setting highlighted. If not using Bluetooth, proceed to step 5.
   a. Press **Select**. Small arrows display above and below the setting.
   b. Press **up/down** to select a Bluetooth data output format.
   c. Press **Select** to save the setting. Continue with RS232 output mode, or skip to step 6 if RS232 is not needed.
3. Press **down** to highlight RS232 setting.
   a. Press **Select**. Small arrows display above and below the setting.
   b. Press **up/down** to select a RS232 data output format.
   c. Press **Select** to save the setting.
4. Press **Menu** to close the pop-up and return to the System Menu screen.
5. Change additional settings, press **Menu** twice to return to monitoring screen, or allow the screen to time out.

Clear the Memory

1. While in the System Menu screen, use the navigation buttons to move to and highlight "Clear Memory."
2. Press **Select**. "Clear ALL patient data recordings?" pop-up menu displays.
3. Use the **down** navigation button to highlight "Yes."
4. Press **Select**.
5. *Memory cleared!* message displays. Display returns to the System menu screen.
6. Change additional settings, press **Menu** twice to return to monitoring screen, or allow the screen to time out.

Restore Factory Defaults

1. While in the System Menu screen, use the navigation buttons to move to and highlight "Restore Factory Defaults."
2. Press **Select**. "Discard ALL presets and settings?" pop-up menu displays.
3. Use the **down** navigation button to highlight "Yes."
4. Press **Select**.
5. Enter the institution password.
6. *Factory defaults restored!* message displays. Display returns to monitoring screen.

NOTE: Institution defaults are lost when factory defaults are restored.

Review System Information

1. While in the System Menu screen, use the navigation buttons to move to and highlight "System Information."
2. Press **Select**. System information pop-up window displays (figure 18).
3. To close the window, press **Menu** or **Select**. Display returns to System Menu screen.
4. Press **Menu** twice to return to the monitoring screen.

Set the Date and Time

NOTE: To save the date and time, Menu must be pressed.

1. While in the System Menu screen, use the navigation buttons to move to and highlight "Date / Time."
2. Press **Select**. Pop-up window displays.
   a. To move between fields, use the navigation buttons.
   b. To update a field, press **Select** (small arrows display above and below the setting) and then press **up/down** to change the setting.
3. Press **Menu** to save the date and time, close the pop-up, and return to the System Menu screen.
4. Change additional settings, press **Menu** twice to return to monitoring screen, or allow the screen to time out.

Set-up Nurse Call

1. While in the System Menu screen, use the navigation buttons to move to and highlight “Nurse Call Mode.”
2. Press **Select** to review current setting. Pop-up window displays setting along with “Edit...” highlighted.
   - To change the setting, press **Select** and continue with step 5.
   - To cancel, press **Menu**. Display returns to System Menu screen.
3. Enter the institution password. Pop-up menu displays.
4. Press the **up/down** navigation buttons to select a nurse call option.
5. Press **Select** to save. Display returns to System Menu screen.
6. Change additional settings, press **Menu** twice to return to monitoring screen, or allow the screen to time out.

Connect/Disconnect Bluetooth

1. While in the System Menu screen, use the navigation buttons to move to and highlight “Bluetooth.”
2. Press **Select**. Bluetooth information pop-up window displays with “Edit...” highlighted (figure 19).
3. To change the setting, press **Select**.
4. Enter the institutional password.
5. Press **Select**. Small arrows display above and below the setting.
6. Press **up**/**down** navigation buttons to change the setting.
7. Press **Select** to save. If turning Bluetooth on, the message *Please wait...* displays while the Bluetooth radio is enabled.
8. Change additional settings, press **Menu** twice to return to monitoring screen, or allow the screen to time out.

Change Language

1. While in the System Menu screen, use the navigation buttons to move to and highlight “Language.”
2. Press **Select**. Pop-up menu displays.
3. Press **up/down** navigation buttons to select a new language.
4. Press **Select** to save. Display returns to System Menu screen.
5. Change additional settings, press **Menu** twice to return to monitoring screen, or allow the screen to time out.

Set Patient ID Request

1. While in the System Menu screen, use the navigation buttons to move to and highlight “Patient ID Request.”
2. Press **Select** to review current setting. Pop-up window displays settings along with “Edit...” highlighted.
   - To change the setting, press **Select** and continue with step 5.

- To cancel, press **Menu**. Display returns to System Menu screen.

3. Enter the institution password. Pop-up menu displays.
4. Press **up/down** navigation buttons to change the setting.
5. Press **Select** to save. Display returns to System Menu screen.
6. Change additional settings, press **Menu** twice to return to monitoring screen, or allow the screen to time out.

Assign System Name

1. While in the System Menu screen, use the navigation buttons to move to and highlight “System Name.”
2. Press **Select** to review current setting. Pop-up window displays setting along with “Edit...” highlighted.
   - To change the setting, press **Select** and continue with step 5.
   - To cancel, press **Menu**. Display returns to System Menu screen.
3. Enter the institution password. Alphanumeric keyboard screen displays.
4. Enter the System Name (maximum of 15 alphanumeric characters).
   a. If needed, delete existing system name.
   b. Use the navigation buttons to move to and highlight the desired character.
   c. Press **Selec**t.
   d. Repeat steps b and c as needed to enter the name.
5. Press **down** until “Save” is highlighted.
6. Press **Select** to save. Display returns to System Menu screen.
7. Change additional settings, press **Menu** twice to return to monitoring screen, or allow the screen to time out.

Select Default Preset

1. While in the System Menu screen, use the navigation buttons to move to and highlight “Default Preset.”
2. Press **Select** to review current setting. Pop-up window displays setting along with “Edit...” highlighted.
   - To change the setting, press **Select** and continue with step 5.
   - To cancel, press **Menu**. Display returns to System Menu screen.
3. Enter the institution password. “Select default preset” pop-up displays.
4. Current default preset is highlighted. Press **up/down** navigation buttons to move to and highlight the desired preset.
5. Press **Select** to save. The selected default setting will be the active setting the next time the monitor is turned on.
6. Display returns to System Menu screen. Change additional settings, press **Menu** twice to return to monitoring screen, or allow the screen to time out.