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## **Apnea Monitor Instructions**

## Apnea Monitor General Information

Your physician has prescribed an apnea monitor for your child. The apnea monitor should be used only as your physician prescribes. If your physician prescribes different settings (Heart Rate or Caffeine Level) or discontinues your apnea monitor, it is your responsibility to notify Procure Home Medical at 1-877-274-0770. A written physician order must be obtained by Procure Home Medical for any changes regarding your apnea monitor. **The apnea monitor can be dangerous if misused.**

### What is the Purpose of the Apnea Monitor

An apnea Monitor is designed to monitor and record your baby's breathing and heart activity. The monitor alerts you if either of these activities exceeds the limit prescribed by your physician. Patient alarm limits are prescribed by your physician and set by the Procure Home Medical before the Apnea monitor is delivered. During monitoring, when the baby's breathing effort and heart activity are not within these set boundaries, an indicator light comes on and an alarm sounds.

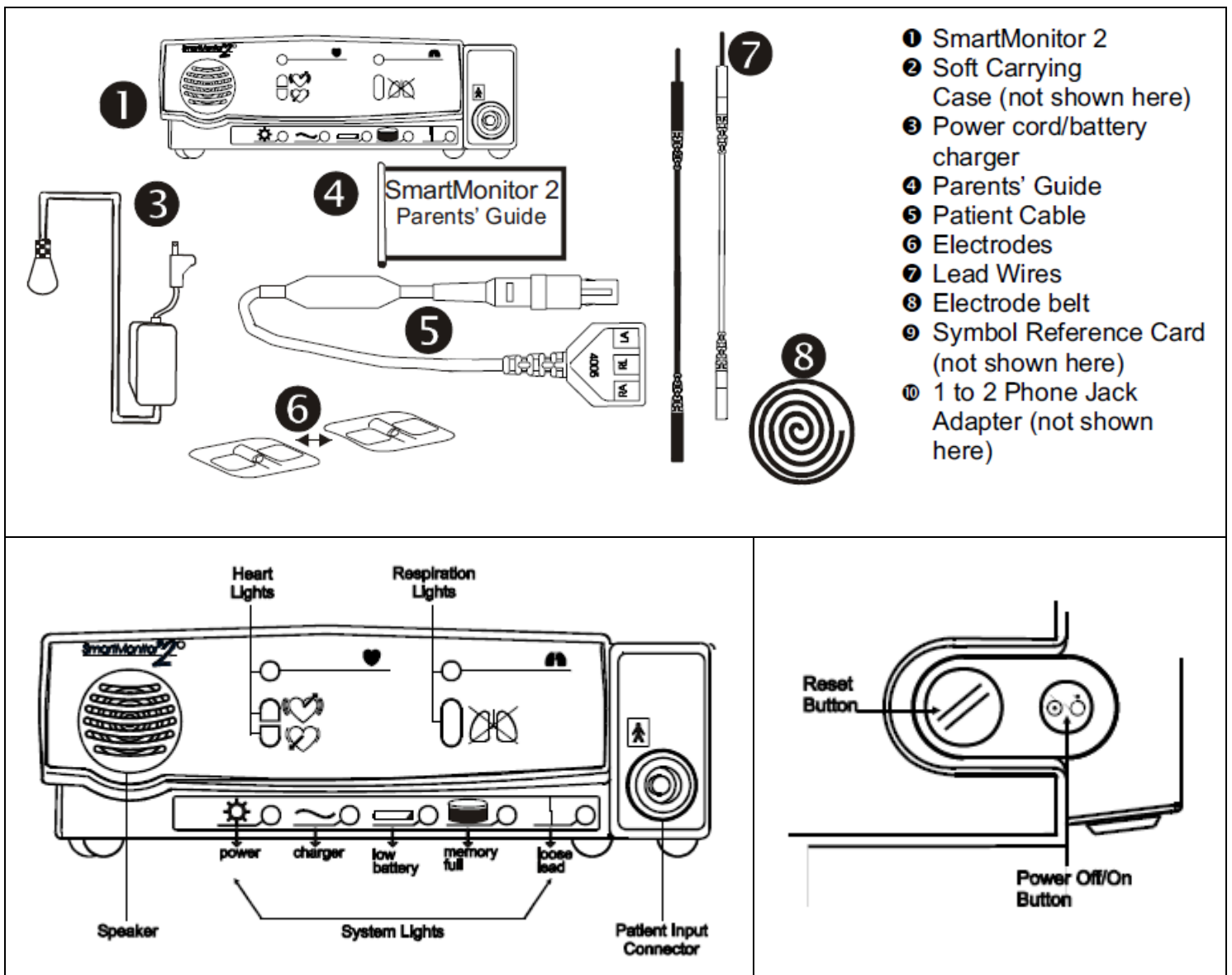
Generally, the monitor is used till the baby has gone two (2) full months without a "true alarm. Downloads are required to confirm the type of event.

### General Precautions

- Read the Apnea Monitor instructions provided. If you have a question concerning the operation, maintenance or safety of the apnea monitor, please call Procure Home Medical at 1-877-274-0770.
- Use this product only for its intended purpose. Do **not** stop using the equipment until directed by your physician.
- Baby should be monitored every time they are in a vehicle, bus, train or airplane. Most events occur during sleep.
- Baby should not sleep with parents and/or siblings. The monitor may detect the body movements of the parents and/or sibling and not alarm correctly.
- The apnea monitor may not be able to detect all episodes of inadequate breathing. If a baby has apnea due to choking (obstructive apnea) or seizures, the monitor could mistake movement caused by choking for breathing.
- The apnea monitor is a monitoring device only. It does not prevent the loss of breathing or heart activity, nor will it restore breathing or heart activity. **It will not prevent death.**
- Anyone using the apnea monitor should be trained in CPR.
- Keep the apnea monitor at least three (3) feet away from oxygen and flammable gases to prevent a fire.
- Do not place the apnea monitor in the crib.
- Do not allow the patient cable, lead wires or power cords to become tangled, coiled, crossed, or wrapped around the baby's neck, arms or legs. **This could result in strangulation.**
- Never use the apnea monitor when bathing you baby.
- Be aware that signal interference can occur from external sources.
  - Keep the apnea monitor at least three (3) feet away from electronic devices i.e. TV, electric blankets, microwave or cellular/cordless phones.
  - Avoid fabrics and rugs that may cause static electricity. Touching a grounded path (wall or crib) will prevent static build up.
  - Avoid transmitter signals i.e. TV, radio police fire and ambulance stations. The monitor may pick up the signal as a breath or heart signals.
  - If monitoring two or more infants in the same area, keep the monitor, patient, patient cables and lead wires at least three (3) feet apart.
- Use only supplies designed for your apnea monitor.
- Keep power cord away from heated surfaces.
- If you live in an area that has frequent power outages, it is recommended that you have a backup generator on hand.
- Never operate equipment if:
  1. It has a damaged cord.

2. It is not properly working.
3. It has been dropped or damaged.
4. It has been dropped into water.

### Important Parts of the Apnea Monitor



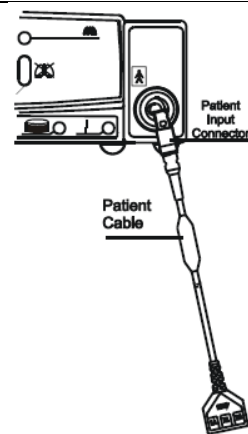
### Placement of the Apnea Monitor

1. Set the apnea monitor on a clean flat surface.
  - Ensure the speaker is not blocked.
  - To avoid interference, keep the apnea monitor at least three (3) feet away from electronic devices i.e. TV, electric blankets, microwave or cellular/cordless phones.
  - Make sure the monitor is close enough to connect to the baby comfortably.
2. Testing the Alarm
  - Turn the monitor on (without the baby attached) to sound the alarm. Make sure you can hear the alarm in different areas of your home.

## Apnea Monitor Operation

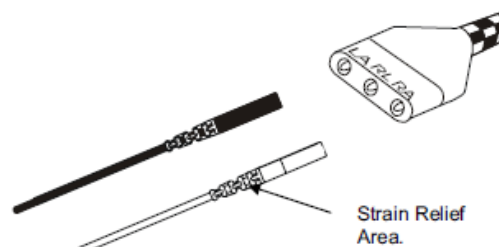
### Step 1: Connect the Patient Cable to the Apnea Monitor.

- Insert the round end of the patient cable into the patient connector on the front of the apnea monitor.
- Line up the notch on the connector and push until you feel the connector snap into place.
- **Note:** to remove the patient cable, grasp at the base and gently pull back. Do **not** pull the cable.



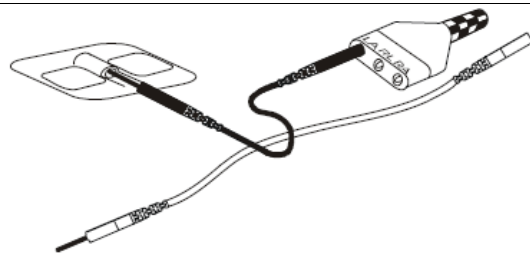
### Step 2: Connect the Lead Wires to the Patient Cable.

- The larger end of the patient cable has three openings, marked **LA** (black), **RL** (green), and **RA** (white).
  - Take the **white** lead wire and insert it into the opening marked **RA**.
  - Take the **black** lead wire and insert it into the opening marked **LA**.
  - Firmly push each lead wire in until the socket snaps into place.
- Note:** to remove a lead wire, grasp and pull at the strain relief area located near the connecting tip. Do **not** grasp the wire.



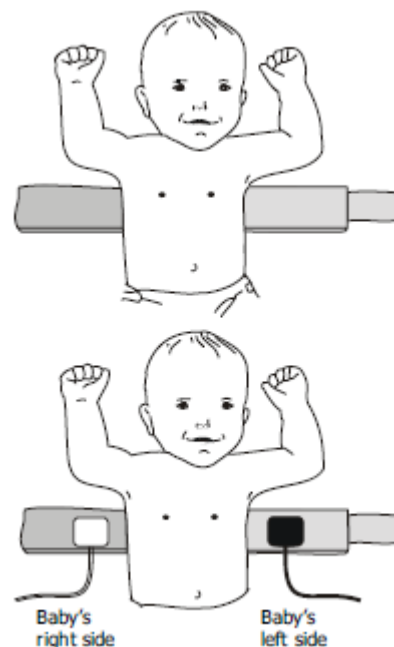
### Step 3: Connect the Lead Wires to the Electrodes.

- Insert the black **LA** lead wire into one electrode.
- Insert the white **RA** lead wire into the other electrode.
- Make sure the metal tips of the lead wires are fully inserted into the electrodes.



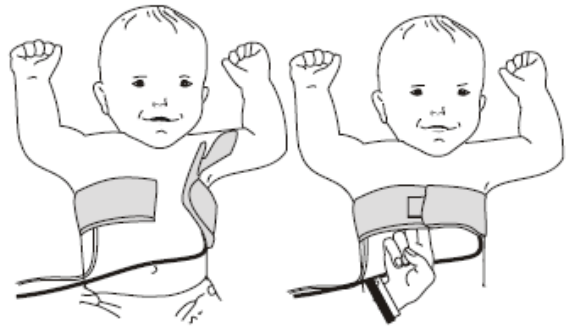
### Step 4: Attach the Electrodes to the Infant Belt.

- Place the electrode belt on a flat surface.
  - Lay the baby on the belt so the belt is aligned with the baby's nipples.
  - Place the electrodes, Velcro-side down, on either side of the belt as follows:
  - Place the electrode with the **white** lead wire on the **baby's right** side.
  - Place the electrode with the **black** lead wire on the **baby's left** side.
  - Place the electrodes far enough apart so that when the belt is wrapped around the baby, the electrode will be located along the mid-line of the side just below or lined up with the nipples.
  - Be sure the lead wires and patient cable are leading down and away from the baby's face and neck
- Note:** if the skin is unusually dry add a few drops of moisture (water) to the baby's skin prior to electrode placement.



### Step 5: Wrap the Electrode Belt around the Baby.

- Wrap the belt around the baby's chest and fasten it with the white velcro tab.
- The belt should be snug enough so that you can only insert two of your fingers (with your hand lying flat against baby) between the belt and the baby.  
**Note:** With newborns and very small babies, you may need to shorten the belt by cutting off a part of it. Be sure to leave enough room to fasten the belt securely.



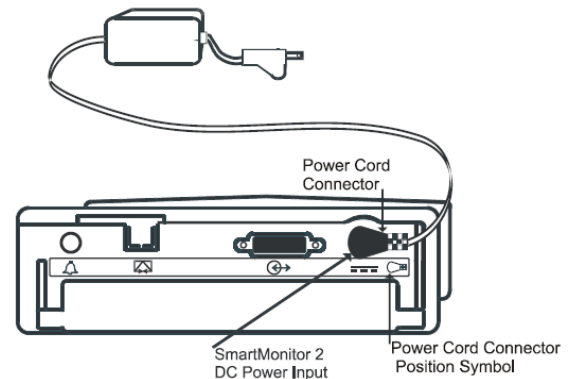
### Disposable Self Adhesive Electrodes

Follow the steps below if you are using disposable electrodes.

- Attach lead wire to the Self Adhesive Electrodes if not pre-attached.
- Ensure the infant's skin is clean and dry.
- Place the electrode with the **white** lead wire on the baby's **right** side, along the mid-line of the side, two finger widths below or lined up with nipples.
- Place the electrode with the **black** lead wire on the baby's **left** side, along the mid-line of the side, two finger widths below or lined up with nipples.
- An electrode belt is not needed when using disposable electrodes.  
**Note:** Do not use oils, lotion, or powder on the area of skin that the electrodes will be placed.

### Step 6: Connect the Power Cord/Battery Charger.

- Insert the round connector of the power cord/battery charger into the socket on the back panel of the apnea monitor.
  - Push until the connector is fully inserted into place.
  - Then plug the power cord/battery charger into a power outlet. The green charger light on the monitor will now come on.
- Note: When the apnea monitor is not operating on battery power it should be plugged into an AC outlet. The battery cannot be overcharged. The green charger light stays on as long as the charger is connected.



### Step 7: Turning the Apnea Monitor On

- Push the **POWER** button.
- The apnea monitor performs a system check. The lights on the front of the apnea monitor and the alarm come on briefly. Within 10 seconds, the green **respiration**, and **heart** lights begin to blink. If the lights do not blink, check that you have attached the electrode belt properly to the baby and that lead wires are pushed in, and that cables are connected.
- Once the baby is properly connected to the apnea monitor and the power is on:
  - The green (battery) **charger** light is on.
  - The green **power** light is on.
  - The green **respiration** light and the green **heart** light are blinking.
  - All other lights should be off.

### Turning the Apnea Monitor Off

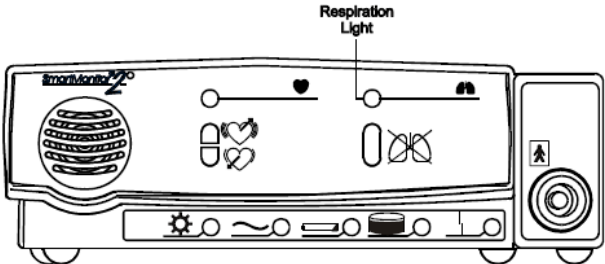
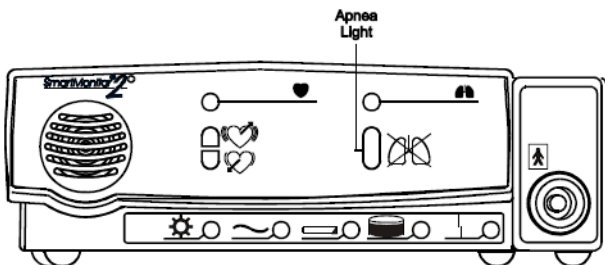
The apnea monitor has a built-in safety feature called a *sibling alarm*. If the monitor is not turned off in a specific sequence, the green power light will remain on and the alarm will sound continuously. This safety feature makes sure the power is not accidentally turned off. To turn the apnea monitor off:

- Press and hold the blue **RESET** button.
- Press and release the gray **POWER** button.
- Wait 2 seconds, and then release the blue **RESET** button.

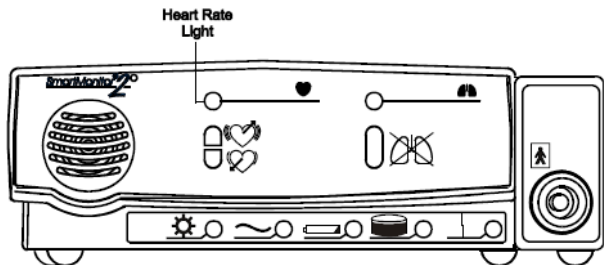
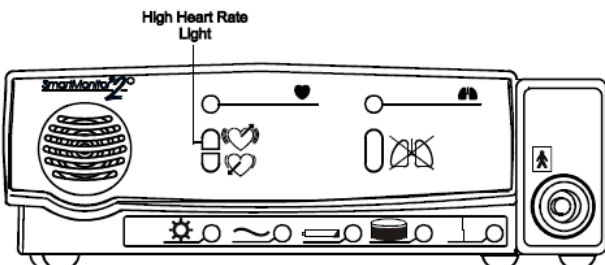
When the apnea monitor is turned off without pushing the **RESET** button first, the green power light will remain on and the Sibling Alarm will sound. To silence the Sibling Alarm:

- Press and hold the blue **RESET** button.
- Press and release the gray **POWER** button.
- Wait 2 seconds, and then release the **RESET** button.
- To **resume** monitoring, press the gray **POWER** button.

### Monitoring Your Baby's Breathing

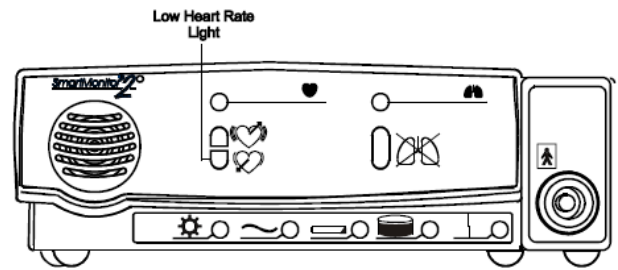
<p><b>Respiration Light</b></p> <ul style="list-style-type: none"> <li>• The green <b>respiration</b> light will blink in rhythm with each breath that the apnea monitor detects. The light should blink only once for each breath, although it may flash more times when the baby is moving.</li> </ul>	 <p>The diagram shows the front panel of the SmartMonitor 220. A line points from the text 'Respiration Light' to a green light indicator on the top right of the panel, which is marked with a breathing mask icon.</p>
<p><b>Apnea Light</b></p> <ul style="list-style-type: none"> <li>• When the apnea monitor detects a pause in breathing longer than the limit set by the physician the following will occur.</li> <li>• The red <b>apnea</b> light will come on and the alarm will beep once every second. When the apnea monitor detects breathing again, the beeping alarm stops. The red light will stay on until you press the <b>RESET</b> button.</li> </ul>	 <p>The diagram shows the front panel of the SmartMonitor 220. A line points from the text 'Apnea Light' to a red light indicator on the top right of the panel, which is marked with a heart icon.</p>

### Monitoring Your Baby's Heart Activity

<p><b>Heart Rate Light</b></p> <ul style="list-style-type: none"> <li>• The green light marked with a <b>heart</b> blinks with each heartbeat the apnea monitor detects.</li> </ul>	 <p>The diagram shows the front panel of the SmartMonitor 220. A line points from the text 'Heart Rate Light' to a green light indicator on the top right of the panel, which is marked with a heart icon.</p>
<p><b>High Heart Rate Light</b></p> <ul style="list-style-type: none"> <li>• When apnea monitor determines that the baby's heart rate is higher than the limit set by the physician. The monitor will alert you by the following: <ul style="list-style-type: none"> <li>○ The red light marked <b>high heart rate</b> will come on and the alarm beeps twice each second.</li> <li>○ The beeping alarm stops when the condition no longer exists.</li> <li>○ The red light stays on until you press the blue <b>RESET</b> button.</li> </ul> </li> </ul>	 <p>The diagram shows the front panel of the SmartMonitor 220. A line points from the text 'High Heart Rate Light' to a red light indicator on the top right of the panel, which is marked with a heart icon.</p>

### Low Heart Rate Light

- When the apnea monitor determines that the baby’s heart rate is lower than the limit set by the physician the following will happen:
  - The red light marked **low heart rate** will come on.
  - The alarm beeps once every second.
  - The beeping alarm stops when the condition no longer exists.
  - The red light stays on until you press the blue **RESET** button.



### Alarms

- Patient Alarms
  - *Apnea* - Baby has stopped breathing for longer than the prescribed limit.
  - *Low Heart* - Heart Rate is lower than the prescribed limit.
  - *High Heart* - Heart Rate is higher than the prescribed limit.
- System Alarms
  - *Loose Lead* – An electrode, cable, or lead wire connection is loose at one of the plu in ports or the electrodes are not making good contact with the patient’s skin.
  - *Low Battery* – Battery power is low and needs to be charged.
  - *Memory Full* (or *Memory Almost Full*) – Memory is full and needs to be downloaded.
  - *Accidental Power Off*
  - *Internal System Error*

**Note:** The blue RESET button resets the alarm lights on the apnea monitor. It will also silence the memory full and low battery alarms. The RESET button will not silence patient or loose lead alarms

### If an Alarm Sounds

If an alarm sounds while you are monitoring your baby, check your baby first. Check the baby’s skin color and breathing. Then follow the instructions below.

Light	Alarms	Check Baby’s Condition	Respond Like This
Red Apnea and/or Low Heart	Intermittent (1 beep/sec.)	Skin color is pale or blue. Baby <b>is not</b> breathing or is choking.	Respond as instructed by the physician or in your <b>CPR</b> class. An <b>example</b> of your response could be as follows: <ul style="list-style-type: none"> <li>• Gently pat the baby. The baby may start breathing and correct the cause of the alarm on his/her own.</li> <li>• If the baby does not start breathing start physical stimulation immediately.</li> <li>• If the baby starts breathing and corrects the cause of the alarm, note it on your log sheet.</li> <li>• Press the <b>RESET</b> button to reset any alarm lights.</li> </ul>
Red Apnea and/or Low (Heart)	Intermittent (1 beep/sec.)	Baby is breathing and is responsive. Color is good.	<ul style="list-style-type: none"> <li>• Wait for a few seconds. Watch to see if the baby’s breathing and color remain normal.</li> <li>• If alarm continues, refer to electrode placement in the operation section.</li> <li>• Check the monitor to see which light is on. Note it on your log sheet.</li> </ul>
Red High (Heart)	Intermittent (2 beeps/sec.)	Baby is crying.	<ul style="list-style-type: none"> <li>• If the baby has frequent high heart rate alarms not associated with crying please</li> </ul>

			notify the physician.
Red Loose Lead	Continuous	Baby is breathing and is responsive. Color is good.	<ul style="list-style-type: none"> <li>• Check the connections between the electrodes lead wires, patient cable, and the monitor.</li> <li>• If something has come loose, reconnect it and press the <b>RESET</b> button. The alarm should stop.</li> <li>• If alarm continues to sound perform a Functional Self-Test.</li> </ul>
Red Loose Lead	Continuous	Baby is breathing and is responsive. Color is good.	<p>If the monitor passed the Functional Self-Test, turn off the monitor. Then, check the following items:</p> <ul style="list-style-type: none"> <li>• The <b>electrodes</b> – They should be clean and there should be no cracks on the surface.</li> <li>• The <b>baby's skin</b> – Make sure that where the electrodes are placed is clean and free from oil, lotions, perspiration.</li> <li>• The <b>electrode belt</b> – Make sure it is snug and is keeping the electrodes in place.</li> </ul>

**Note:** The **RESET** button will not silence patient or loose lead alarms.

If This Light Is On	And This Condition Exists	It Means...
Power	Continuous green light, no alarm.	Normal Operation. The green <b>power</b> indicator light will come on and stay on for as long as the monitor is on.
Charger	Continuous green light, no alarm.	Normal Operation. The green <b>charger</b> light will come on and stay on while the battery charger is plugged into an active outlet and connected to the apnea monitor.
Low Battery	Flashing yellow light, continuous alarm.	This is a warning that the battery voltage is very low and should be recharged soon. Press the <b>RESET</b> button to temporarily silence the alarm. The alarm will resound in two (2) minutes if the monitor has not been plugged in. The yellow light will continue to flash.
	Continuous yellow light, continuous alarm.	This is a warning that the battery is too low for the apnea monitor to operate properly. The apnea monitor must be recharged. Turn the monitor off. Then, recharge the battery.  <b>Note:</b> If you do not recharge the battery, the system will automatically shut down.
Memory Full	Flashing yellow light, continuous alarm	When the apnea monitor's Memory Almost full parameter is reached, the Memory Full light will flash. The alarm will sound continuously. The alarm will sound only if programmed to do so at the 50% full or at 80% full. Press the <b>RESET</b> button to silence the alarm. The light will blink every second.  Memory full is a warning condition. You can continue monitoring. The caregiver should contact Procure Home Medical to schedule a download. This will resolve the alarm.
Memory Full	Continuous yellow light, continuous alarm	Apnea monitor memory is 100% full. Press the <b>RESET</b> button to silence the alarm. The alarm will sound if programmed to do so.  The light will stay on continuously. The caregiver should contact Procure Home Medical to schedule a download. This will resolve the alarm.



Loose Lead	Continuous yellow light and continuous alarm	The yellow loose lead light and the alarm may sound continuously when there is a problem with any of the following: <ul style="list-style-type: none"> <li>• Lead wires</li> <li>• Electrodes</li> <li>• Electrode Belt</li> <li>• Patient Cable, or</li> <li>• Connections between the baby's skin and the electrodes, the lead wires, the patient cable, and the apnea monitor.</li> </ul>
Loose Lead	Continuous yellow light and no alarm	If you correct the problem, the alarm will stop. However, the yellow light remains on until you press the <b>RESET</b> button.
Power	Continuous green light, continuous alarm, with no other lights lit.	Check the display for error messages. If no error messages are displayed, the apnea monitor was turned off improperly causing a sibling alarm. To resolve: <ul style="list-style-type: none"> <li>• Press and hold the blue <b>RESET</b> button.</li> <li>• Press and release the gray <b>POWER</b> button.</li> <li>• Wait two (2) seconds then release the <b>RESET</b> button.</li> </ul>
All	All lights are blinking and the alarm will come on for 3 seconds and then off for 1 second.	Check the display for error messages. If there is an error message, enter it on your log sheet.  Turn the monitor off and then back on. If the monitor functions normally continue to use the monitor.

## Cleaning

### *Apnea Monitor*

- Wipe the apnea monitor with a damp cloth if necessary.

### *Electrodes*

- Do **not** clean the disposable electrodes.
- Clean the carbon electrodes with a mild soap and water.
- Rinse well. **Note:** Soap film can affect signal strength.
- Ensure the electrodes are completely dry before using.

## Functional Self-Test & Maintenance

The apnea monitor functional self-test verifies that all the features of the unit are functioning properly. A functional self-test should be performed at least once a week or according to the instructions given by the health care professional. A test should also be performed:

- After a lead wire is changed.
- After the patient cable is changed.

### *To perform the functional self-test.*

- Insert the patient cable into the socket located on the front of the monitor.
- Connect the lead wires to the patient cable. Insert the white lead wire into the opening labeled **RA**. Insert the black lead wire into the opening labeled **LA**.
- Connect the lead wires to the functional self-test socket on the side panel of the apnea monitor.
- Insert the white lead wire into the **RA** opening and then the black lead wire into the **LA** opening.
- Turn on the monitor. You will hear a short beep and the lights on the front come on briefly then go off.
- After all the alarm lights go out, the green **power** and **charger** lights remain on and the green **heart** and **respiration** lights are blinking.
- The **heart** and **respiration** lights continue to blink for approximately 30 seconds.
- When the green lights stop blinking, the red **low** heart light will come on within approximately 7 seconds and the alarm beeps once every second.

- Next, the red **apnea** light comes on (the amount of time before the red apnea light comes on is determined by the Apnea Delay parameter selected at the time the monitor was set-up) and the **low** (heart) light remains on. (There should be no green **heart** or **respiration** light flashes during this time).
- Remove the lead wires from the **functional self-test** socket.
- The **loose lead** light will come on, and the alarm changes from beeping to continuous. This lets you know the apnea monitor, patient cable, and lead wires are working properly.
- Turn the monitor off.
- Press and hold the blue **RESET** button.
- Press and release the gray **POWER** button.
- Wait 2 seconds, and then release the **RESET** button.

#### *Battery*

- The battery will charge anytime the apnea monitor is plugged in.
- Battery requires six (6) hours to fully charge.
- A fully charged battery will supply approximately 15 hours of backup power.

### **Follow-Up & Memory Download**

We provide follow-up services 72 hours after set-up and every month thereafter until the apnea monitor is discontinued by the physician. The apnea monitor should be downloaded monthly and or when the memory is full. Please contact Procure Home Medical to schedule for the apnea monitor to be downloaded.

#### *Out of Service Area Downloads*

If you live outside of our primary service area, we will need to perform downloads by shipping you a replacement unit. To accomplish this we use Alaska Air Lines Goldstreak and ERA offices. Below is a summary of the replacement process.

1. Call Procure when the memory is full or as you physician has requested.
2. A Goldstreak or ERA office will call you when the package arrives.
3. Take the new monitor out of the box and place it on you baby. The apnea monitor will be preset.
4. Place the old monitor in the new monitor box
5. Give the pre-written slip to the office agent.
  - Use the slip provided.
  - Ensure your baby's name is listed as the shipper.
  - Ensure your name is on the invoice the agent gives back to you.
6. Please ensure that the apnea monitor is returned within three (3) days. Failure to return the apnea monitor will result in the equipment being charged to you.

### **24-Hour Emergency Service**

- If the unit fails and you cannot correct the problem or if you have questions concerning the operation, maintenance or safety of your machine, you may call our office at 1-877-274-0770, ask for the Procure person on call, the on-call person will return your call as soon as possible.
  - Procure Home Medical has trained representatives able to assist you with questions or trouble-shooting your equipment. The goal is to restore your apnea monitor as quickly as possible.
- Note:** If you have started CPR and/or need emergency services call 911.

Name \_\_\_\_\_ D.O.B. \_\_\_\_\_

Date	Time	Apnea	Heart Slow	Simulation Required (Y/N)	Color Change (Y/N)	Feeding Related (Y/N)	Comments



713 Northway Dr. : Anchorage, AK 99508 : Phone: 907-274-0770 : Fax: 907-274-0773

To Whom It May Concern,

This infant has been prescribed an apnea monitor by his/her physician. This equipment monitors the infant for two potential life threatening events: apnea, a respiratory disorder and bradycardia. These events, either occurring together or separately, **could endanger the health of this infant if not detected.**

Due to the computer and memory components of this monitor, we ask that the equipment **not** be exposed to an x-ray machine or magnetic wand. Exposure to such equipment could erase this patient's necessary data and parameters that the physician has prescribed. **We also ask that the monitor be kept with the infant and caregiver while in the passenger section of the airplane.**

This equipment DOES NOT emit or receive any type of signal that would interfere with aircraft instrumentation. **It only records the heartbeat and respiration of the infant and must be kept on at ALL TIME's.**

**If not monitored, this infant could be fatally or seriously harmed.**

We have many children that fly successfully with an apnea monitor all over Alaska. Please feel free to contact our clinical team with any questions or concerns you might have.

Thank you for your support and consideration.

Sincerely,

Procure Home Medical