RFTECHNOLOGIES®

Safe Place®
Smart Sense® Transmitter

User Guide

P/N: 0510-1093-C
Released: 03/12/12

Users must read this Guide before using the Product

Important Warnings

It is important for your facility to implement and enforce the following WARNINGS in order to keep all equipment functioning properly. Disregarding the information and instructions in this document is considered abnormal use and may result in injury or system failure.

WARNING

ACCESSORIES (SUPPLIES)—To ensure patient safety and proper operation of equipment, use only parts and accessories manufactured or recommended by RF Technologies, Inc. Parts and accessories not manufactured or recommended by RF Technologies, Inc. may not meet the requirements of the applicable safety and performance standards.

Failure to use the components and supplies specified by RF Technologies, Inc. may result in equipment and/or system failure.

WARNING

EXPLOSION HAZARD—This device should not be used in the presence of flammable gas mixtures. It should also not be used in oxygen enriched atmospheres.

WARNING

INSTALLATION AND CONFIGURATION—It is the responsibility of the facility to follow the installation instructions carefully, as outlined in the applicable system guides, and to use the components and supplies specified by RF Technologies, Inc. for all installations.

Failure to use the components and supplies specified by RF Technologies, Inc. may result in equipment and/or system failure.

WARNING

INSTRUCTIONS FOR SET UP AND USE—It is the responsibility of the facility to follow the instructions for set up and use carefully, as outlined in this manual, and to use the components and supplies specified by RF Technologies, Inc. for set up and use. Do not attempt to use extension cords or other equipment not supplied by RF Technologies, Inc.

Failure to use the components and supplies specified by RF Technologies, Inc. may result in equipment and/or system failure.

WARNING

MISMATCH ALARM—If you do not already have procedures in place, you must establish procedures for your staff to follow in the event of a mismatch alarm. Existing procedures may require modification to incorporate the Mother-Baby Match feature option.

Failure to create or modify these procedures can result in unnecessary patient agitation.

WARNING

PATIENT GENERATED ALARMS—Do not rely exclusively on patient generated alarms for patient care and safety. The alarm function of equipment in the possession of patients must be verified periodically and regular patient surveillance is recommended**.**

WARNING

PATIENT MONITORING—The most reliable method of patient monitoring combines close personal surveillance with correct operation of monitoring equipment. It is the responsibility of the facility to periodically check on patients in possession of RF Technologies, Inc.'s equipment (i.e. Pendants, Pull Cords, Control Units) to mitigate risk of inappropriate use of equipment or strangulation and stumbling hazards from cables and cords

WARNING

PRODUCT WARRANTIES—Failure to follow the Warnings and Cautions in this guide voids any and all Product Warranties

WARNING

STATIC DISCHARGE—Do not touch the conductor portion of any conductor or port. Damage to the device may result.

WARNING

STRANGULATIONS AND TRIPPING HAZARD—Due to the possibility of strangulation, all cables and cords should be routed away from the patient's throat. Cables and cords must be routed in a way to prevent tripping hazards.

WARNING

SYSTEM INSPECTION—It is the responsibility of the facility to establish and facilitate a regular inspection schedule for your system. RF Technologies, Inc. recommend quarterly inspections of your system for safety and performance by a qualified RF Technologies, Inc. representative.

To arrange for a quarterly inspection by RF Technologies, Inc., call our Technical Support Department at (800)-669-9946 or (262) 790-1771.

Failure to provide regular inspection of these products may result in equipment and/or system failure.

WARNING

SYSTEM MAINTENANCE AND TESTING—It is the responsibility of the facility to establish and facilitate a regular maintenance schedule for your system, as outlined in the applicable system guides. This includes regular inspection, testing, and cleaning. RF Technologies, Inc. recommend monthly maintenance and testing of your system. It is also recommended that your facility keep records of maintenance and test completions.

Failure to provide regular maintenance and testing of these products may result in equipment and/or system failure.

WARNING

SYSTEM WIRING—All permanent supply connections must be done in accordance with National Electric Code, NFPA 70.

WARNING

USER TRAINING—Only users who have received adequate training on the use of the system, as outlined in this manual, should use the system. It is the responsibility of the facility to ensure all users have been trained.

Failure to adequately train employees may cause system failure due to user error. In addition, incorrect use of the equipment may also result in system failure.

WARNING

WORN OR DAMAGED PARTS—If the control unit pads or cables are worn or damaged, you must have the product serviced.

WARNING

All RF Technologies transmitters, pendants and banding material "PRODUCT" have been determined to be MR Unsafe as defined by ASTM F 2503-05. Use of "PRODUCT" in a Magnetic Resonance Imaging system will cause injury to patients and staff, MR system malfunction or "PRODUCT" malfunction. Do not bring "PRODUCT" into the MR system area and follow your facilities policies to classify and label "PRODUCT" as MR Unsafe.

CAUTION

DISPOSAL—At the end of their service life the products described in this manual, as well as accessories (i.e. lithium batteries, banding material, disposable pads, etc.), must be disposed of in compliance with all applicable federal, state and local guidelines regulating the disposal of products containing potential environmental contaminants. Dispose of the packaging material by observing the applicable waste control regulations.

Compliance

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance can void the user's authority to operate the equipment.

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

The term "IC" before the certification/registration number only signifies that the Industry Canada technical specifications were met.

- FCC ID:KXU-CBTX2
- IC:2719A-CBTX2

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Preface

Overview

This guide provides important information about the Smart Sense transmitter, a component of the 9450 System. It provides detailed instructions about using the transmitter as well as specific requirements.

9450 System

The 9450 System monitors doors, elevators, hallways, and stairwells, to assist staff in monitoring patients and assets in a facility. The various transmitters and devices of the system alerts staff if a transmitter's banding material is tampered with, cut or opened without authorization (referred to as Cut Band or Band Off for Infant and/or Emergency Department systems only) or if monitored devices in the system are not functioning properly. An alarm also sounds if a transmitter breaches an Exit Alarm Zone. Additionally, if the system fails to detect a transmitter within its monitored area, a No Signal alarm is issued.

Depending on which equipment options your facility has installed, the 9450 System can automatically lock doors and deactivate elevators. In addition, the system sounds an alarm at the Central Server and its network of Client computers when the event occurs. If configured, alarms are also annunciated at remote notification locations (i.e. pagers, walkie-talkie, Quick Look Interface).

With the Mother/Infant Matching feature activated, an alarm is generated if there is a mismatch, meaning the Infant and Mother transmitters do not match; a linking error, meaning there is a problem linking the Smart Sense transmitter to a Mother transmitter; or if a discharge is attempted without first matching the Smart Sense transmitter with the Mother transmitter.

> **NOTE:** The Mother/Infant Matching feature is included in the software; however, **if your facility is not currently configured for Mother transmitters, the Mother/Infant Matching feature IS NOT ACTIVE.** For more information, contact RF Technologies Technical Support at (800) 669-9946 or (262) 790-1771.

Intended Audience

The *Smart Sense Transmitter User Guide* is intended for caregivers who use the Smart Sense transmitters. It includes detailed information about fastening, care, cleaning, and testing the transmitters, along with transmitter specifications.

Additional Detailed Documentation

Documentation for your system is available in Portable Document Format (PDF) on the System Documentation CD-ROM. Please contact your RF Technologies sales representative for replacement CD ROMs.

Contact Information

For more information about RF Technologies, Inc. products go to www.rft.com. For technical support, contact (800) 669-9946 or (262) 790-1771. For questions or comments about documentation, contact the RF Technologies Technical Publications team at techpubs@rft.com.

Product Warranty

Product Warranty information can be found on the System Documentation CD-ROM or with your original system proposal and invoice.

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Chapter 1

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The Smart Sense Transmitter

</div>

Introduction

When using an Smart Sense transmitter, the transmitter is placed on the ankle of an infant. If the transmitter is detected in an Exit Alarm Zone, for example if a child is being abducted, an alarm sounds at the exit as well as at a Central Server and its network of Client computers. The Central Server and Client computer(s) also identify which infant transmitter sounded the alarm and the exit where the alarm occurred.

The 9450 System provides further security by alerting staff if a transmitter's special banding material is removed, tampered with or cut. If your system is configured for Supervision, and the transmitter fails to regularly communicate to the system, a No Signal alarm will post in the Event List of the computer.

For more information about the computer, Band Off alarms or No Signal alarms, refer to Chapter 2, *Alarms and Troubleshooting* or see your system's *Software User Guide*.

When using the Smart Sense transmitter in conjunction with a Mother transmitter, a Smart Sense transmitter is placed on the ankle or the wrist of an infant and a Mother transmitter is placed on the wrist of a new mother. For more information regarding the Mother transmitter refer to the Mother/Baby Match Mother Transmitter User Guide (PN 0510-1020).

> ⚠ **WARNING:** The 9450 System Mother/Baby Match feature option is designed and intended to work in conjunction with a facility's overall infant identification program, including identification bands and reasonable operating policies and procedures. The 9450 System Mother/Baby Match feature option, by itself, cannot prevent the mismatch, abduction or elopement of patients.

The Smart Sense Transmitter

The Smart Sense Transmitter is lightweight and compact. Each transmitter is stamped with a warranty expiration date. This date indicates the date that RF Technologies' warranty on that transmitter expires (the last day of the month stamped). **If the warranty period has expired, discard the transmitter immediately**.

> **WARNING**: Using a transmitter beyond the printed EXP date can result in system failure and/or an abduction.

The Smart Sense transmitter can be left on the infant during normal bathing; however to prevent damage, avoid prolong exposure to wet conditions.

> **CAUTION**: Complete, prolonged submersion of the Smart Sense transmitter should be avoided as it may result in equipment and/or system failure and voids any and all Product Warranties.

The Smart Sense Transmitter and Banding Material

The combination of the Smart Sense transmitter and Smart Sense banding material has the capability to recognize if the transmitter has been removed from an infant. It will also sense if it is tampered with or is loose.

> **WARNING**: Only Smart Sense banding material can be used to fasten Smart Sense transmitters. Use of any other banding material with the Smart Sense transmitters voids the RF Technologies' Product Warranty and could result in system failure.

The Smart Sense technology combines the Smart Sense transmitter and Smart Sense banding material to give you three additional measurements for tamper detection (referred to as Band Off for Infant systems only).

- Temperature—change in transmitter temperature
- Resistance—banding material no longer stretching with infant's movement
- Capacitance—change in contact between transmitter and infant

Depending on your facility, one, two or all three measures for tamper detection can be configured for activation. Refer to Configure Units in the *Series 7 Software Administrator Guide* (PN 0510-1087).

Required Transmitter Testing

You must test all transmitters prior to use to verify proper operation. This includes every time that the band is replaced.

Required testing prior to placing transmitter on infant.

⚠ **WARNING:** Do not use the transmitter tester on a transmitter with an expiration date that has expired. Results may not be accurate. Do not use a transmitter beyond its expiration date.

⚠ **CAUTION**: Failure to test the transmitters before use can result in system failure and/or an abduction. In addition, failure to test transmitters voids the RF Technologies' Product Warranty.

NOTE: **All of these steps are mandatory.**

1. Verify that the warranty expiration date that is stamped on the transmitter has not expired.

2. Visually inspect the transmitter for damage or loose parts.

3. Test the operation of the transmitter using the transmitter tester. The transmitter tester will detect whether or not a transmitter is emitting a signal, but cannot indicate the strength of the signal.

   a. Band a transmitter on both sides with approved banding material.

   b. Press and hold the button on the left side of the transmitter tester.

   c. The tester beeps once when you initially press the button.

   d. Continue to hold the button for the duration of the process.

   e. Place the transmitter (that is banded on both sides with approved banding material) directly on top of the transmitter tester.

Press and hold the button
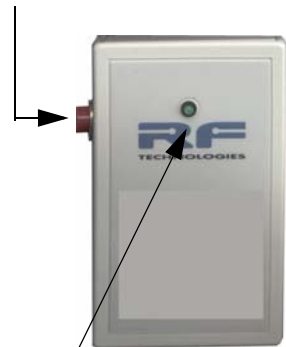
Indicator Light

    f.   The indicator light flashes and a tone sounds once per second, wait for at least 3 flashes of the indicator light and 3 tones from the transmitter tester to verify that the transmitter is functioning correctly.

    a.   If the transmitter fails this test, check the battery in the tester. The transmitter tester requires a 9V battery.

    b.   Retest the transmitter. If it fails a second time, **DO NOT USE THE TRANSMITTER** and contact RF Technologies Technical Support Team at (800)669-9946 or (262) 790-1771.

4.   Test the signal strength of the transmitter.

    a.   Physically enter an Exit Zone with the transmitter and walk through the door

    b.   When the transmitter is within 4-feet of the monitored door, either the alarm will sound because the door is open or the door will lock because the door is closed.

    c.   If an alarm does not occur, **DO NOT USE THE TRANSMITTER** and contact RF Technologies Technical Support Team at (800)669-9946 or (262) 790-1771.

Required weekly testing for transmitters in use

NOTE: Transmitters in use must be tested at least weekly.

1.   Test the operation of transmitters in use weekly using the transmitter tester.

2.   Test the signal strength of the transmitter (see step 4 above).

3.   Visually inspect transmitters in use weekly for damage or loose parts.

4.   Verify on a weekly basis that the warranty expiration date stamped on transmitters in use has not expired. **If the warranty period has expired, discard and replace the transmitter immediately**.

5.   Review the Low Battery report in the software to determine if there are transmitters with low batteries currently in the system. **If a transmitter shows a low battery condition, remove it from service.**

6.   Your facility must keep records of test and transmitter inspection completions, as well as transmitter warranty expiration dates.
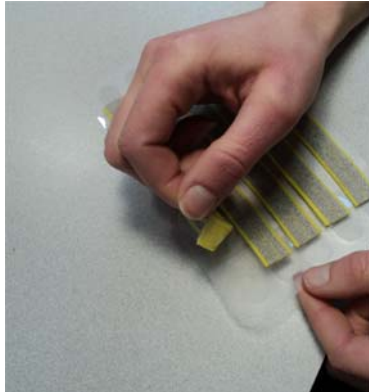
Fastening a Smart Sense Transmitter

⚠ **CAUTION**: You must test all transmitters prior to use to verify proper operation. This includes every time that the band is replaced. Failure to test the transmitters before use can result in system failure and/or a mismatch or abduction. In addition, failure to test transmitters voids the RF Technologies' Product Warranty.

To fasten a Smart Sense transmitter

1. Remove the Smart Sense banding material, with plastic guide tabs attached, from the plastic backing.


⚠ **WARNING**: Only Smart Sense banding material can be used to fasten Smart Sense transmitters. Use of any other banding material with the Smart Sense transmitters voids the RF Technologies' Product Warranty and could result in system failure.

2. With the yellow-side of the banding material facing outwards, use the plastic guides to thread the banding material through the transmitter clamp slot.
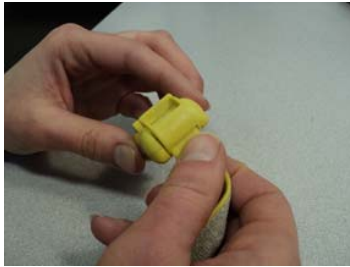
3. Pull the tab until it clears the clamp and push the clamp lever down until it snaps shut.
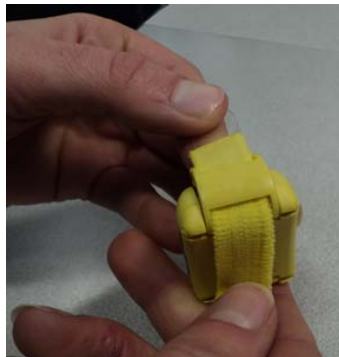
> ⚠ **CAUTION**: Do not thread both sides of the banding material through the clamps until you are ready to secure the transmitter to the infant. Pre-threading may allow the transmitter to auto-enroll and alarm.

4. Place the transmitter with banding material around the infant's ankle and thread the banding material through the second transmitter clamp slot.

   The Smart Sense Transmitter should fit snugly against the infant's skin without a gap between the infant's skin and the transmitter. Do not overtighten the band.

   > **NOTE:** You must ensure transmitter is banded properly-without an air gap between the transmitter and skin, yet allowing the band and transmitter to be turned on the ankle. Over-tightening the band will not reduce the number of alarms and could cause patient injury.

5. Close the second clamp. The transmitter becomes active one minute after the clamps are snapped shut.

6. Remove the plastic guide tabs and discard.

> **NOTE:** The banding material must not remain on a patient for longer than 72 hrs (3 days). If the material is kept on longer than this specified period of time, performance of the transmitter may be compromised. Banding Material is for single use only and should also be replaced if it becomes heavily soiled.

Discharge of the Smart Sense Transmitter

When it is time for an infant to leave your facility, he/she must be discharged from the software. The Smart Sense transmitter must be removed from the infant within the period of time specified in the software by your facility.

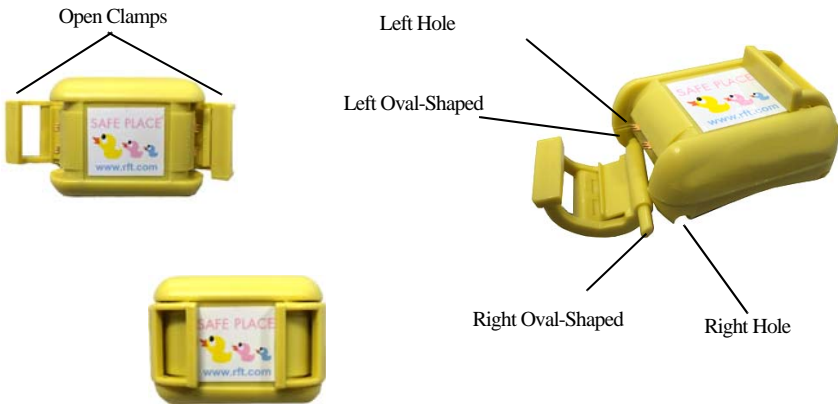### To discharge the Smart Sense transmitter

1. Assure that clamps are firmly closed on both sides with banding material in place.

2. Check census screen to confirm that the transmitter to be discharged is communicating with the system (indicated by Monitored displayed in transmitter Status column).

3. Tend to and clear any alarms displayed on the screen for the transmitter being discharged

4. Request a discharge for the transmitter and complete the action within the allotted time.

   • Open the Smart Sense transmitter clamps to remove the banding material.

   • Do not slip the banding material off infant's extremity; doing so may result in a Band Off alarm.

   • Do not leave the banding material in the Smart Sense transmitter clamps after discharge; doing so may result in the transmitter re-enrolling.

5. Discard the used banding material (refer to the Disposal caution in the Important Warnings section of this guide).

6. Finally, the transmitter must be disinfected in order to be ready to be used again.

Replacing the Clamp

In some cases, you may need to replace damaged Smart Sense transmitter clamps. This is done by opening the existing clamps, snapping them off of the Smart Sense transmitter, and inserting new clamps.

To replace a Smart Sense transmitter clamp

1. Open the clamps all the way and gently remove them from the transmitter.

2. Insert the first clamp into the Smart Sense transmitter by inserting the left oval-shaped pin into the hole on the left of the Smart Sense transmitter.

3. Next, line the right oval-shaped pin up with the hole on the right side of the Smart Sense transmitter.

4. Gently snap the right oval-shaped pin into the hole.

5. Close and secure the clamp.

6. Repeat the previous steps for the second clamp.

Open Clamps

Left Hole

Left Oval-Shaped

Right Oval-Shaped

Right Hole

Transmitter with both Clamps snapped closed.

> ⚠ **WARNING:** Use care around the piercing contacts on the Smart Sense transmitter as they are extremely sharp. Placing your fingers directly on the piercing contact can result in injury.

Cleaning and Caring

This section provides detailed information about cleaning and caring for a Smart Sense transmitter.

To clean a Smart Sense transmitter after use

1. Remove the banding material from the transmitter and dispose of it.

2. Pre-clean the Smart Sense transmitter using an approved cleaner.

   > ⚠ **CAUTION**: Use of non-approved cleaners on Smart Sense transmitters can cause permanent damage to the transmitter and the piercing contacts and will void any and all warranties.

3. Use the provided brush to clean the hard-to-reach areas. Brushes must be disinfected after each use according to the disinfectant manufacturer's instructions and your facility's infection control procedures.

   > **NOTE:** In order to avoid nuisance alarms, cleaning procedures must be performed at least 100 feet from any Exit Alarm Zone.

4. Disinfect the Smart Sense transmitter by spraying it with an approved cleaner.

   > ⚠ **CAUTION**: Using an approved cleaner does not confirm the suitability of the cleaner to meet your infection control standard; it only indicates that the Smart Sense transmitter will not be harmed by the cleaner.

5. Allow the cleaner to remain on the Smart Sense transmitter for the amount of time specified by the cleaner manufacturer. When using surface disinfectants and decontaminate cleaners, always follow the cleaner manufacturer's instructions.

   > ⚠ **CAUTION:** Use care around the piercing contacts on the Smart Sense transmitter as they are extremely sharp. Placing your fingers directly on the piercing contact can result in injury.

6. Wipe the transmitter with a clean cloth or towel, and then allow the transmitter to air-dry. The transmitter can also be rinsed with water, if required in the cleaner manufacturer's instructions.

7. Inspect the piercing contacts on the transmitter. The contacts must be gold in color and not bent or out of alignment. If the piercing contacts are NOT gold in color or are bent out of alignment, discard the transmitter.

8. Close the clamps on the transmitter.

9. Place the clean transmitter in a storage container for future use.

> ⚠️ **CAUTION**: The transmitters may be sprayed or rinsed with water or the approved cleaners during cleaning, but must not be soaked. Soaking transmitters may result in equipment and/or system failure.

Piercing Contacts

Brush

Approved Cleaners

Following is a list of a approved cleaners recommended for use when cleaning the Smart Sense transmitter.

Approved Cleaners		
Airex 109A	Isopropyl Alcohol	Quest 256
Cavicide™	Neutral Quat 128™	Virex II-256
Health-Tec™	Quik Fill 920™	Sani-cloth HB (wipes)
Hi-Tor Plus™		
NOTE: Some agents are intended for topical, antimicrobial use only and will not destroy viruses such as Hepatitis B and HIV		

Alarms and Troubleshooting

Alarms

Cut Band

When the banding material on a patient's alarming band transmitter is cut, tampered with or opened without authorization (which includes opening the transmitter when a timed event has expired), an alarm is sounded on the computer configured to monitor the unit, a message is displayed in the Event List, and the location of the Alarming Band Receiver that detected the event is indicated on the map on the computer(s).

How to Respond

1. Always follow your facility's policies/procedures to ensure patient safety and secure the area.

2. Verify transmitter is applied correctly and without signs of damage to banding material or transmitter piercing contacts. Ensure that both clamps are securely fastened with banding material in place on both sides.

3. Clear alarm at Client computer.

   a. Click anywhere in the Cut Band alarm message box.

   b. Select event cause from Event Information window.

   c. If necessary, use your access card or enter your login/password.

   d. Select OK or ENTER.

4. Proceed to any doors that reported Perimeter alarms associated with the Cut Band. Reset each door with the four-digit security code or use your card reader access card (if applicable). **Cut Band alarms must be cleared at the computer before you reset the doors**.

   > NOTE: You **must** ensure transmitter is banded properly following every Cut Band alarm. If you are experiencing multiple Cut Band alarms for a particular transmitter in use, request and perform an Adjust for the transmitter.

Check Band

Initially, when the Smart Sense banding material on a Smart Sense infant transmitter is removed, tampered with or comes off of the infant's extremity, a Check Band alarm is sounded on the computer configured to monitor the unit, a message is displayed in the Event List, and the location of the Alarming Band Receiver that detected the event is indicated on the map on the computer(s).

How to Respond

1. Always follow your facility's policies/procedures to ensure patient safety and secure the area.

2. From the Client computer, click anywhere in the Check Band Alarm Message Box to access the Event Information window.

3. Select one of the following options:

    a. **Start Adjust**—this option opens the Adjust confirmation window. Click Confirm to start the Adjust for this patient and follow the Adjust procedure.

    b. **Close**—this option closes the dialog window but does not clear the alarm. The Check Band alarm will persist until it is addressed. To address the Check Band you must perform an Adjust within the Event Information window or an Adjust or a Discharge from the Function/Login menu.

    NOTE: If Band Off Escalation is enabled, the Check Band alarm will escalate to a red Band Off alarm if it is not addressed (by requesting an Adjust or a Discharge).

Band Off

When the Smart Sense Banding Material on a Smart Sense Infant Transmitter is removed, tampered with or comes off of the infant's extremity, an alarm is sounded on the computer configured to monitor the unit, a message is displayed in the Event List, and the location of the Alarming Band Receiver that detected the event is indicated on the map on the computer(s).

How to Respond

1. Always follow your facility's policies/procedures to ensure patient safety and secure the area.

2. Verify transmitter is applied correctly and without signs of damage to banding material or transmitter piercing contacts. Ensure that both clamps are securely fastened with banding material in place on both sides.

3. Clear alarm at Client computer.

   c. Click anywhere in the Band Off alarm message box.

   d. Select event cause from Event Information window.

   e. If necessary, use your access card or enter your login/password.

   f. Select OK or ENTER.

4. Proceed to any doors that reported Perimeter alarms associated with the Band Off. Reset each door with the four-digit security code or use your card reader access card (if applicable). **Band Off alarms must be cleared at the computer before you reset the doors**.

5. If the transmitter is loose or off, an Adjust must be requested and completed in order to refasten the transmitter.

   NOTE: You **must** ensure transmitter is banded properly following every Band Off alarm. If you are experiencing multiple Band Off alarms for a particular transmitter in use, request and perform an Adjust for the transmitter.

No Signal

A No Signal alarm occurs when the Safe Place system has not received a check in signal from the transmitter within the required supervision time. A Troubleshooter dialog box appears after three consecutive No Signal alarms have been received and cleared (if enabled). Follow the directions on the applicable action button in the Troubleshooter dialog box.

> **NOTE:** A No Signal alarm is a critical alarm that must be responded to by trained staff based on the facility's response policy and procedures.

The Safe Place system may encounter a No Signal alarm when the patient is being safely monitored within the controlled area. User troubleshooting will be required to resolve the cause of these No Signal alarms. These No Signal alarms fall into three categories: Transmitter Issue(s), Environmental Issue(s), and User Issue(s).

Troubleshooting

Transmitter Issues

A Transmitter is activated when the conductive material that is embedded in the banding material is pierced by both sets of the transmitter's metal prongs and secured by both of the transmitter clamps. The metal prongs must be in good condition.

Inspect the Metal Prongs

- Prongs must be clean
- No lint adhering to the prongs
- No bent prongs
- No broken prongs
- No discolored prongs
- All of the metal tips on the prongs are intact

Verify that the transmitter is properly applied to the patient without signs of damage to either the transmitter or the banding material. Verify that the clamps and clamp guides are not damaged.

If multiple No Signal alarms occur for the same transmitter and you cannot determine the cause, i.e. failure to re-band a transmitter following a Cut Band or Band Off event or failure to return a patient in allotted Escort time, that transmitter needs to be removed from service (contact a superuser to request a "Hard" removal of the transmitter from the system).

Environmental Issues

The Safe Place system uses "Radio Frequency Identification Technology." When a Safe Place transmitter is activated, it emits a non-audible sound (Radio Frequency Identification) every ten seconds that is heard by the Safe Place antennas located in your ceilings. The antennas then report the transmitter check-in to the Safe Place software.

If your facility is getting multiple No Signal alarms, it is possible that there may be some source of environmental radio frequency noise in your facility that is making it difficult for the Safe Place system antennas to hear the activated transmitter signals. Radio Frequency Noise is defined as the non-audible sound produced as a by-product of an electrical process. Some of the things that cause excessive radio frequency noises are poorly grounded devices, medical devices with LED panels, or devices that audibly "hum" or "buzz."

Possible Environmental Causes for Multiple No Signal Alarms

- Radio frequency noise
- Inadequate antenna coverage

> **NOTE:** Radio frequency noise issues and inadequate antenna coverage will usually require a Service Call by RF Technologies.

User Issues

An issue created by the user. A No Signal alarm may occur when:

- A patient does not return to the unit from an Escort or Transfer in the allotted time.
- Failure to re-band a transmitter with banding material following a Cut Band or Band Off alarm.
- Incorrect sequence of operations for a function(s), such as Discharge.

Troubleshooting Guidelinese

Random, Single No Signal Alarm	1. Ensure that the patient is safe and within the Safe Place monitored area. 2. Assess the banding material and clamps to determine if either are worn. If so, replace them. 3. Clear No Signal alarm at the Safe Place computer
Multiple No Signal Alarms - Transmitter NOT in use (un-banded)	1. Locate transmitter in alarm. 2. Clear No Signal alarm at the Safe Place computer. 3. Band transmitter with approved banding material on both sides and securely clamp. 4. Wait 60 seconds. 5. Request Discharge. 6. Remove banding material. 7. If discharge expires after following steps 3-6, contact a superuser to perform "Hard" removal of transmitter.

Multiple No Signal Alarms - Transmitter IN use (applied to a patient)	1. Ensure that the patient is safe and within the Safe Place monitored area. If patient is not within the area - see the last section below for Escort and Transfer, or return the patient to the monitored area.
	2. Clear No Signal alarm at the Safe Place workstation.
	3. Request an Adjust at the Safe Place workstation.
	4. Obtain a new piece of approved banding material and return to the bedside.
	5. Replace banding material during the Adjust period and ensure that clamps are securely fastened on both sides.
	6. If a new No Signal alarm occurs for the same patient, following steps 1 and 2, obtain a new transmitter.
	7. Band the patient with the new transmitter.
	8. Re-band the transmitter removed from patient with a piece of approved banding material, ensuring that both clamps are securely fastened.
	9. Wait 60 seconds.
	10. Request Discharge
	11. Remove banding material
	12. If Discharge expires after following steps 8-11, contact a superuser to perform "Hard" removal of transmitter.13.
	13. Admit the transmitter applied in step 7.

Multiple No Signal Alarms following a Discharge Request	1. Locate transmitter that is in alarm.
	2. Clear all existing alarms for this transmitter.
	3. Re-band with a piece of approved banding material, ensuring that both clamps are securely fastened.
	4. Wait 60 seconds.
	5. Request a Discharge from the Safe Place workstation.
	6. Remove banding material.
	7. If new No Signal alarms occur - contact Technical Support (1-800-669-9946).
Multiple No Signal Alarms following an Escort or Transfer	1. Determine location and safety of patient.
	2. If patient is out of the monitored area in an Escort—contact a superuser to request a "Hard" removal of the transmitter from the system. Tag will alarm at the door upon return to the unit and doors with locks will lock. Tag will re-enroll upon return to the unit and a Door alarm may sound. Patient will have to be re-entered (admitted) in the system.
	3. If patient is out of the monitored area in process of a Transfer—contact a system superuser to manually Transfer the patient through the system maintenance menu.

Specifications

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Size	1.63 x 1.18 x .625 inches
Weight	.71 oz
Color	Yellow
Operating Temperature	32–122° Farenheit (0–50° Celsius)
Composition	Latex Free Co-polyester Plastic
Battery Life	1 year
Frequency	66 kHz or 262 kHz and 318 MHz
Certification	FCC Part 15, Class B
Part Number	9450-6066 (66 kHz) 9450-6262 (262 kHz)
Transmitter Tester	9450-0050

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