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NOTES:

LIFELINE APPROVES THE FIRST SAMPLE.

MANUFACTURER		MANUFACTURER P/N			
ADEMCO		ANY APPROVED SOURCE ADEMCO USES.			
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Title					
INSTALLATION INSTRUCTION SA400					
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SA400 Wireless Smoke Detector

INSTALLATION INSTRUCTIONS

GENERAL INFORMATION

The SA400 is a Photoelectric Smoke Detector with a RF transmitter that sends alarm, supervisory and battery condition messages to LifeLine Systems communicators. The detector is powered by two 3V lithium batteries for extended battery life. The SA400 is listed to UL 217 and UL1637 for residential applications.

FEATURES

Self-Diagnostics and Automatic Sensitivity Testing

The SA400 monitors its smoke detection sensitivity and operational status. A full diagnostic test that includes a dynamic test of the sensing chamber and internal electronics is performed daily and at power up. If the detector fails internal diagnostics, or drifts out of its UL Listed sensitivity range, the alarm LED extinguishes to indicate trouble. This meets the NFPA 72 requirements for field sensitivity testing.

Automatic Drift Compensation

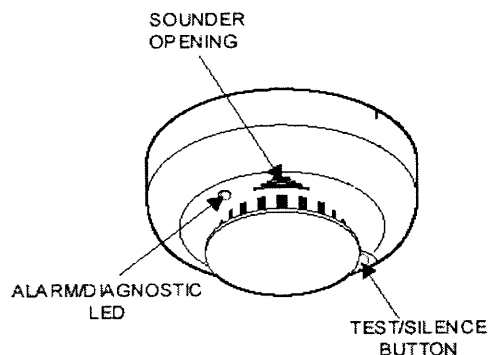
The detector automatically adjusts its sensitivity as it becomes dirty, up to a maximum of 0.5%/ft. This feature increases immunity to dust and dirt by 30-50%. A diagnostic mode allows service personnel to determine sensitivity by counting LED blinks and referring to Table 1.

85dB Temporal Sounder

The SA400 includes an 85dB sounder, which will sound the ANSI temporal pattern until smoke has cleared or the detector has been silenced.

Mounting Base

The mounting base included with each detector allows easy installation and removal. The detector head simply twists on or off the base.



PULSING EVERY 9 SECONDS: ...NORMAL
ON STEADY:ALARM
OFF:TROUBLE

Figure 1. Features

Test/Silence Button

This button has three functions:

1. When pushed for 2 seconds while not in alarm, the detector performs a sensitivity test (see Table 1), sends a RF test signal, then activates the sounder. The sounder is delayed to allow you to hear the confirmation beep from the communicator.
2. If the button is pushed while the detector is in alarm, the sounder will silence. The sounder will again alarm after a few minutes if smoke remains.
3. If the button is pushed while the detector is chirping to indicate a low battery, the low battery chirp will be silenced for 24 hours.

INSTALLATION

General Information

THIS EQUIPMENT SHOULD BE INSTALLED IN ACCORDANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION'S STANDARD 72 (National Fire Protection Association, Batterymarch Park, Quincy, MA 02269). For your information, the National Fire Protection Association's Standard 72, reads as follows:

2-2.1.1.1 Smoke Detectors shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms and on each additional story of the family living unit including basements and excluding crawl spaces and unfinished attics. In new construction, a smoke detector shall also be installed in each sleeping room.

A-2.5.2.1 Smoke Detection – Are more Smoke Detectors Desirable? The required number of smoke detectors might not provide reliable early warning protection for those areas separated by a door from the areas protected by the required smoke detectors. For this reason, it is recommended that the householder consider the use of additional smoke detectors for those areas for increased protection. The additional areas include the basement, bedrooms, dining room, furnace room, utility room, and hallways not protected by the required smoke detectors. The installation of smoke detectors in kitchens, attics, (finished or unfinished), or garages is not normally recommended, as these locations occasionally experience conditions that can result in improper operation.

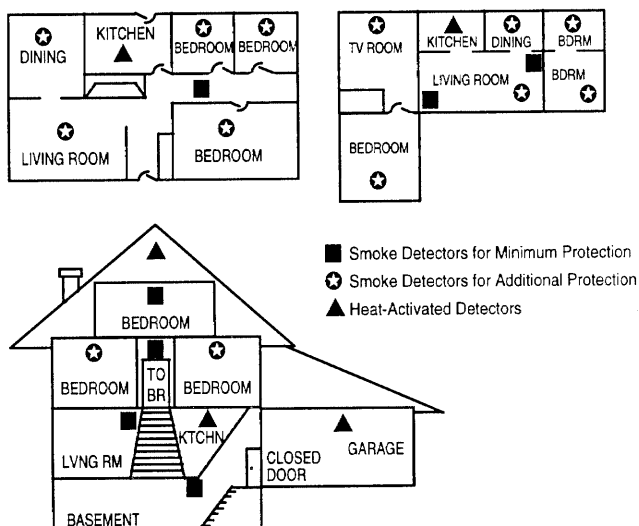
Important: Regulations pertaining to detector installation vary from state to state. For more information, contact your local fire department or local authority having jurisdiction.

RECOMMENDED LOCATIONS FOR SMOKE DETECTORS

To minimize the risk of fire causing injury, loss of life or loss of property, detectors should be located on every level of a residence – basements, first floor, second floor, and attic if it is furnished – and in every separate sleeping area. More specifically, detectors should be located:

1. In every bedroom.

2. Between sleeping areas and potential sources of fire such as kitchen, garage, basement or utility room. In homes with only one sleeping area on one floor, a detector should be put in the hallway outside the bedrooms as shown below. In single floor homes with two separate sleeping areas, **two** detectors are required; one outside each bedroom area as shown below. In multi-level homes, detectors should be located in bedroom areas and at every finished level of the home as shown below. Basement level detectors should be located at the bottom of basement stairwells. Second floor detectors should be located at the top of the first-to-second floor stairwell so long as no door or other obstruction blocks the path of smoke.
3. At each end of a hallway serving bedrooms if the hallway is in excess of 40 feet (12m) in length.



- **NEAR FLUORESCENT LIGHT FIXTURES:** Noise generated by these fixtures may cause a nuisance alarm.
- **THE PEAK OF AN "A" FRAME TYPE OF CEILING:** Dead air at the top may prevent smoke from reaching the detector.
- **UNHEATED BUILDINGS:** Detector temperature limits are 40° to 100°F (5–38°C). The detector will not function properly in locations where the normal ambient temperature exceeds these limits.
- **INSECT INFESTED AREAS:** Insects entering the sensing chamber may cause a nuisance alarm.

If nuisance alarms are experienced, carefully check the detector's location for possible causes as listed previously. Relocate and clean the detector if necessary. Remember that the major causes of nuisance alarms are dirty or improperly located detectors. **Selecting Mounting Locations (see Fig. 2)**

Detectors should be located close to the center of the ceiling. If this is not practical, detectors may be located on the ceiling at least 4 inches (10cm) from the ceiling-wall junction. Do not install near forced air heating or air conditioning ducts (outlets or returns). For sloped, gabled or high-peaked ceilings, detectors must be mounted from 4 to 6 inches (10 to 15 cm) (vertical) from the highest point in the ceiling.

Detectors may also be wall-mounted if permitted by local and state codes. Check with your local Fire Department about code requirements. Wall-mounted detectors should be located 4 to 6 inches (10 to 15 cm) from the ceiling. In mobile homes built before 1978, which may have little or no ceiling insulation, mount detectors **ONLY** on an interior wall 4 to 12 inches below the ceiling.

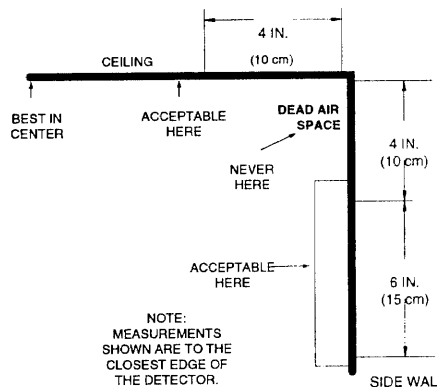


Figure 2. Mounting Location Guide

When you have selected a suitable mounting location, mount the detector base in that location, using the two screws and anchors supplied. **IMPORTANT:** Do not attach the detector to removable ceiling panels.

Detectors are shipped with a plastic dust cover for use in areas under construction. Remove the dust cover just prior to testing. The detector will not work with this cover in place. Note that two 3V lithium batteries are attached to the cover, and should be removed.

WHERE NOT TO LOCATE DETECTORS

To avoid false alarms and/or improper operation, avoid installation of smoke detectors in the following areas:

- **KITCHENS:** Smoke from cooking may cause a nuisance alarm. **LOCATE DETECTORS AT LEAST 20 FEET (6m) FROM KITCHENS IF POSSIBLE.**
- **IN AIRSTREAMS PASSING BY KITCHENS:** Smoke from room cooking may enter normal air movement paths between outlets and returns if these paths run by kitchens, causing a nuisance alarm. **LOCATE DETECTORS AWAY FROM SUCH AIRSTREAMS IF POSSIBLE.**
- **BATHROOMS:** Excessive steam from a shower may cause a nuisance alarm. **LOCATE DETECTORS AT LEAST 10 FEET (3m) FROM BATHROOMS IF POSSIBLE.**
- **NEAR FORCED AIR DUCTS:** Used for heating or air conditioning. Air movement may prevent smoke from reaching the detector.

BATTERY INSTALLATION

1. Remove the smoke detector from its mounting plate by twisting the detector counterclockwise. See Figure 3.

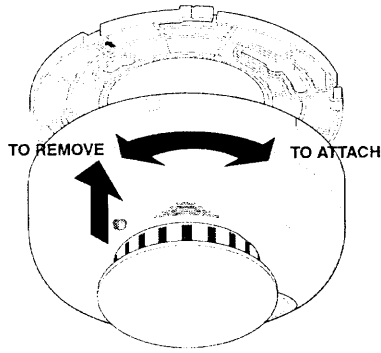


Figure 3.

To Attach or Remove Detector from Mounting Base

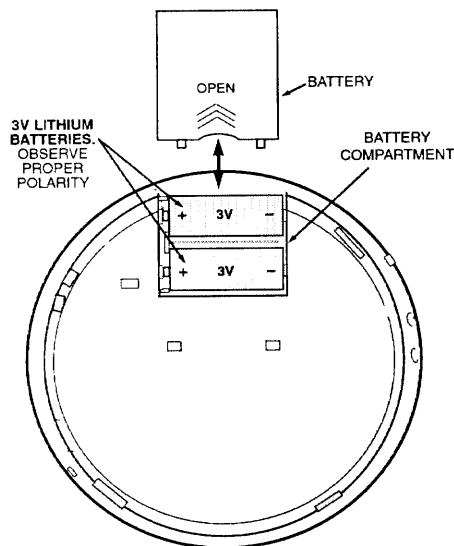


Figure 4. Battery Installation

2. Slide the battery cover plate on the underside of the detector in the direction shown by the arrow. This exposes the battery compartment. See Figure 4.
3. Install the two 3V lithium batteries (be sure to observe correct polarity, as indicated in the compartment). **Important:** When installing replacement batteries, do not mix battery types. Refer to the SPECIFICATIONS section for recommended battery types.
4. Slide the battery cover plate back into place.
5. The LED indicator should flash about once every 9 seconds, indicating normal operation. If the batteries are not installed correctly, the smoke detector will not function. If the unit appears not to be sending a signal during any of the tests that follow later, check for correct battery installation.

AUTOLEARNING

The smoke detector ID must be enrolled in the communicator after the batteries are installed.

1. Press and hold the communicator RESET button. The unit will beep when the RESET button is first pressed. Continue to hold the RESET button. The communicator will beep again and the yellow Test LED will light. The unit is now in TEST mode. **Continue to hold the RESET button depressed.**
2. While still holding the RESET button, press the Test/Silence button on the SA400 for 2 seconds. This will force an alarm transmission then an audible alarm. The communicator will generate a constant tone while "learning". When learning is complete (0.7 seconds), the communicator will beep. Voice units will also announce "BUTTON LEARNED". Any other RF transmitters may also be learned now, or as a separate transaction.
3. Release the RESET button. The communicator should now beep when any of the learned RF transmitters are pressed while in TEST mode.

If a "battery low" message is annunciated during autolearning or any tests, and you suspect that the batteries are not actually low, remove both batteries, wait 20 seconds, re-insert them, and re-test the detector.

ATTACHING AND REMOVING THE DETECTOR

Line up the raised tab on the detector with the left side of the slot on the mounting base. See Figure 3. Push the detector up against the base and rotate detector clockwise approximately 15 degrees. To detach the detector, turn counterclockwise.

LOW BATTERY INDICATION

If a low battery condition is detected, a low battery signal will be sent to the monitoring center, the detector's LED will extinguish, and the detector will chirp about every 30 seconds. The sounder can be silenced for 24 hours by pushing the **Test/Silence** button. Be sure to replace BOTH batteries with fresh batteries of the type listed. Batteries are widely available where camera batteries are sold.

TESTING

NOTE: THE FOLLOWING TEST PROCEDURE SHOULD BE PERFORMED AT INSTALLATION AND AT LEAST ONCE A WEEK.

1. Press and hold the RESET button on the communicator. The unit will beep when the RESET button is first pressed. Continue to hold the RESET button until it beeps again and the Test LED lights. The communicator is now in TEST mode.
2. Push and hold the **Test/Silence** button located on the SA400 for 2 seconds. This activates a special sensitivity test mode.
3. The LED on the detector should blink several times, then light steady. Then the communicator should beep and the SA400 sounder will be activated for 5 seconds.

MAINTENANCE AND CLEANING

Clean the detector cover with a dry or damp (water) cloth as needed to keep it free from dust and dirt. If the SA400 fails to activate, the smoke chamber may require cleaning. Press the **Test/Silence** button for 2 seconds. The alarm LED will flash one to nine times. Count the number of flashes and refer to Table 1 to determine detector status and what action to take.

The sensing chamber of the photoelectric detector unsnaps for easy field cleaning and service. If the status LED indicates cleaning is necessary, clean interior as follows:

1. Remove the detector from its mounting base.
2. Remove the batteries.
3. Use a flat-blade screwdriver to pry off the detector cap. See Fig. 5.
4. Press in on the sides of the smoke chamber and pull it up and away from the detector. See figure 6.
5. Blow out or use a soft-bristled brush to remove dust and dirt from the base and chamber.
6. Snap smoke chamber back in place.
7. Replace the detector cap as follows:
 - Line the cap up with smoke detector.
 - Insert cap and rotate clockwise 15 degrees. It should snap firmly in place.
8. Test detector per above procedure.

Table 1. Sensitivity Tests

Approximate Obscuration (%/Ft)	Blinks	Indication	Remedial Action
NA	0	No operation	Replace batteries
NA	1	Unserviceable hardware fault is detected	Repeat sensitivity test. If indication remains the same, replace unit.
4.35	2	The detector is not sensitive enough	Clean per instructions and repeat sensitivity test. If sensitivity remains low, replace unit.
3.85	3		
3.60	4	Detector is within sensitivity limits	None.
3.10	5		
2.60	6		
2.10	7		
1.85	8	Detector is too sensitive	Check to be sure that optical block cover is snapped down completely. Clean per instructions.
1.35	9		

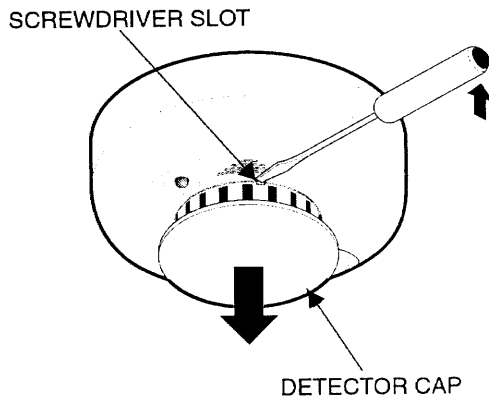


Figure 5. Removing the Detector Cap

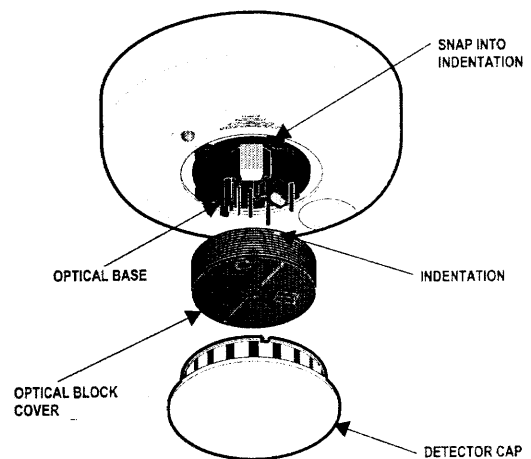
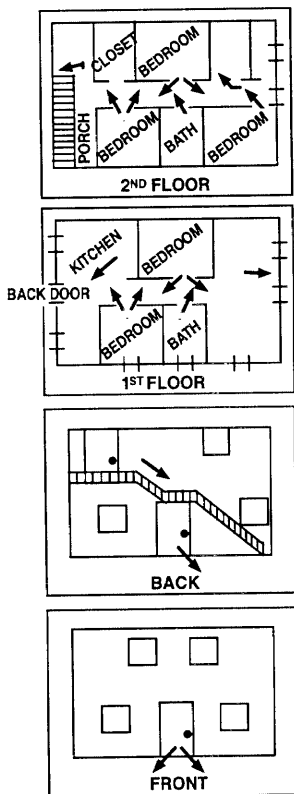


Figure 6. Removing or Replacing the Optical Block Chamber

SPECIFICATIONS

Sensitivity	2.3% ± 0.8%	Drift compensation adjustment	0.5%/ft. max
Voltage	3V DC	Low battery beep rate	30 sec.
Typical standby current	25µA	Operating temperature	32°F to 100°F (0°C to 49°C)
Typical test current	70mA	Operating humidity range	0 to 95% Non-condensing
Typical alarm current	70mA	RFI Immunity	20V/m min; 0–1000MHz
Low battery threshold	2.75V	Detector head dimensions	5.5" x 2.3" (14 cm x 5.6 cm)
Sounder	85dB at 10 ft, temporal pattern	Mounting base dimensions	4-7/8" x 3/8" (101.6mm x 9.5mm)
Battery type	(2) Lithium: Duracell DL123A, Panasonic or Sanyo CR123A.	Agency Listings	UL 217 and UL1637

EMERGENCY EVACUATION



- Establish and regularly practice a plan of escape in the event of fire. The following steps are recommended by the National Fire Protection Association:
 - Position your detector or your interior and/or exterior sounders so that they can be heard by all occupants.
 - Determine two means of escape from each room. One path of escape should lead to the door that permits normal exit from the building. The other may be a window, should your path be unpassable. Station an escape ladder at such windows if there is a long drop to the ground.
 - Sketch a floor plan of the building. Show windows, doors, stairs and rooftops that can be used to escape. Indicate escape routes for each room. Keep these routes free from obstruction and post copies of the escape routes in every room.
 - Ensure that all bedroom doors are shut while you are asleep. This will prevent deadly smoke from entering while you escape.
 - Try the door. If the door is hot, check your alternate escape route. If the door is cool, open it cautiously. Be prepared to slam the door if smoke or heat rushes in.
 - When smoke is present, crawl on the ground. Do not walk upright, since smoke rises and may overcome you. Clearer air is near the floor.
 - Escape quickly; don't panic.
- Establish a common meeting place outdoors, away from your house, where everyone can meet and then take steps to contact the authorities and account for those missing. Choose someone to assure that nobody returns to the house — many die going back.

FCC STATEMENT

This equipment has been tested and found to comply with FCC Part 15 rules for a Class B digital device. These limits are designed to provide reasonable protection against harmful interference in a residential installation. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

This equipment generates radio frequency (RF) energy and may cause interference to radio and TV reception. If you suspect interference, try one or more of the following measures:

- Increase the separation between the detector and the radio or television receiver.
- If using an indoor antenna, have a quality outdoor antenna installed.
- Reorient or relocate the radio/TV antenna until interference is reduced or eliminated.
- Consult the dealer or an experienced radio/TV technician for help.

FCC ID: BDZSA400

LIMITATIONS OF THIS SMOKE DETECTOR/TRANSMITTER

While this smoke detector/transmitter is a highly reliable device that is part of an advanced wireless security system, it does not offer guaranteed protection against fire. While smoke detectors have played a key role in reducing residential fire deaths in the United States, they may not activate or provide early warning for a variety of reasons in as many as 35% of all fires, according to data published by the Federal Emergency Management Agency. Some of the reasons smoke detectors used in alarm systems may not work are as follows:

- Smoke detectors will not work without power. Battery operated devices will not work without batteries or if the batteries are not put in properly.
- Smoke detectors may have been improperly installed and positioned. Smoke detectors may not sense fires that start where smoke cannot reach the detectors, such as in chimneys, in walls, or roof, or on the other side of closed doors. Smoke detectors also may not sense a fire on another level of a residence or building. A second floor detector, for example may not sense a first floor fire or basement fire. In addition, smoke detectors have sensing limitations. No smoke detector can sense every kind of fire every time. In general, detectors may not always provide adequate warning about rapidly spreading fires caused by carelessness and safety hazards like smoking in bed, violent explosions, escaping gas, improper storage of flammable materials, children playing with matches, or arson. Depending on the nature of the fire and/or location of the smoke detectors, the detector, even if it operates as anticipated, may not provide sufficient warning to allow all occupants to escape in time to prevent injury or death.
- Alarm signals sent by the wireless transmitter in this device may be blocked or reflected by metal before they reach the alarm receiver. Even if the signal path has been recently checked during a weekly test, blockage can occur if a metal object is moved into the path.

- Alarm warning devices such as sirens, bells or horns may not alert people or wake up sleepers if they are located on the other side of closed or partly open doors. If warning devices are located on a different level of the residence from the bedrooms, then they are less likely to waken or alert people inside the bedrooms. Even persons who are awake may not hear the warning if the alarm is muffled by noise from a stereo, radio, air conditioner or other appliances, or by passing traffic. Finally, alarm warning devices, however loud, may not warn hearing impaired people or waken deep sleepers.
- This smoke detector/transmitter, like other electrical devices, is subject to component failure. Even though this device is designed to last as long as 20 years, the electronic components in it could fail at any time. We recommend that smoke detectors be replaced every 10 years as a precautionary measure against component failure.

The most common cause of an alarm system not functioning when a fire occurs is inadequate maintenance. The alarm system should be tested weekly to make sure all smoke detectors and their transmitters are working properly. Detectors must be repaired or replaced when they do not function properly.

Installing an alarm system may make the owner eligible for lower insurance rates, but an alarm system is not a substitute for insurance. Homeowners, property owners and renters should continue to act prudently in protecting themselves and continue to insure their lives and property.

LIMITED WARRANTY

Lifeline Systems, Inc., Seller, warrants that the SA400 smoke detector, but not the batteries, is free from defects in materials and workmanship under normal use and service for 90 days from the date of shipment to the original customer. During the warranty period, Lifeline Systems will, at its option, either repair or replace products which prove to be defective. The repaired or replaced equipment is then warranted for ninety days from the date of repair or replacement. Equipment which has been subject to abuse, misuse, alterations or unauthorized repair, is not covered by warranty. Lifeline Systems shall have the right of final determination of the existence and cause of defect.

In order to obtain service under the warranty the customer must notify in writing, Lifeline Systems, Inc. 111 Lawrence Street, Framingham, MA 01702-8156, of any defect before the expiration of the warranty period. The customer shall prepay shipping charges for the return of the product to Lifeline Systems for warranty service and Lifeline Systems shall pay for the return of the product to the customer.

Lifeline Systems may elect to have its representative service the product at the customer's location. If this should be the case, the customer will provide Lifeline Systems with access to the equipment covered by the warranty, adequate working space and facilities, and access to and use of all information and facilities determined necessary to service the product.

THE REMEDIES PROVIDED HEREIN ARE THE CUSTOMER'S SOLE AND EXCLUSIVE REMEDIES. LIFELINE SYSTEMS SHALL NOT BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, AND IN NO EVENT WILL LIABILITY EXCEED THE PURCHASE PRICE OF THE PRODUCT. NO AGENT, EMPLOYEE OR REPRESENTATIVE OF LIFELINE SYSTEMS, NOR ANY OTHER PERSON IS AUTHORIZED TO MODIFY THIS WARRANTY IN ANY RESPECT.