SpreadNet®
Model SN950-GLASS
RF Glassbreak Transmitter Installation Instructions

The SN950-GLASS combines a Spread Spectrum wireless RF transmitter with dual technology glassbreak detection. Spread Spectrum technology provides higher power, lower noise, less interference, and longer range than is obtainable with most single-frequency RF transmitters. The result is increased reliability.

The glassbreak detector features separate microphones for detecting flex and audio frequencies. The flex microphone is also equipped with an advanced acoustic filter specially designed to prevent microphone overload caused by very loud sounds. Each microphone is sensitive to different frequencies. The flex microphone responds to ultra low frequencies; the kind generated by a blow to a glass window. The audio microphone detects the higher frequencies of breaking glass.

The detector's audio technology remains inactive until the flex technology detects a blow to the glass. For an alarm condition to occur, the audio must detect the frequency of breaking glass within a defined time-window *after* the flex detects a blow to the glass.

Features

- Spread Spectrum Technology
- Simple Installation
- EEPROM Memory
- 100 mW Transmitter Power
- Easy Access to Batteries
- Separate Microphones for Audio and Flex detection
- All Acoustic Sensing (not shock pick up)
- Advanced Acoustic Filter (prevents microphone overload)
- Lithium Batteries included (5 year expected life)
- Tamper Switch

Mounting Location

The SN950-GLASS can be mounted on flat surfaces, such as ceilings and walls. The detector is not orientation sensitive. Observe the following guidelines when selecting a location to mount the detector:

- The detector must have a direct line-of-sight to, and a clear view of, the protected glass.
- Locate the detector within 25 feet (7.6 meters) from glass to be protected.
- Mounting on free-standing posts and pillars is not recommended.
- Do not mount the detector in front of air ducts or forced air fans, or close to bells *larger* than 2 inches in diameter.

Mounting Location (continued)

- Curtains, blinds, and other window coverings will absorb energy from breaking glass. Heavy curtains, or example, will effectively block the sound signal. In these cases, mount the detector on a **non-metallic** window frame behind window covering, or above window.

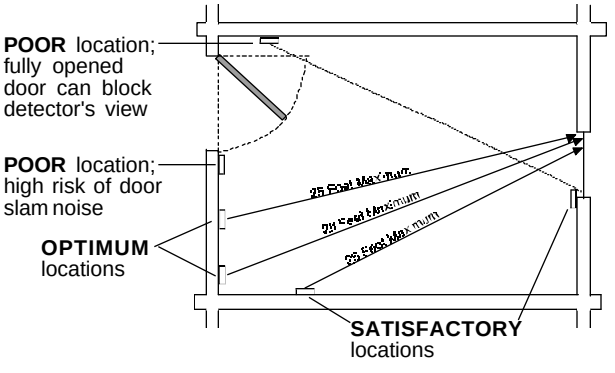
Do NOT mount the detector in the following locations:

- On metal window frames or any metal surfaces.
- Near doors and windows that can be slammed.
- Where furniture can be placed between the detector and the glass.
- Where a door can be closed between the detector and the glass, or where an open door can obstruct the detector's view (see Figure 1).
- So low that it can be accidentally impacted. Most detectors will alarm if hit by a broom handle, for example.

Wall Mounting:

For optimum performance, mount the detector 7 feet or higher, on a wall facing the window to be protected (see Figure 1).

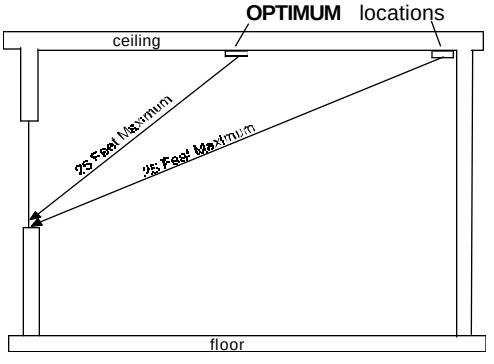
Figure 1 Wall Mount (Top View)



Ceiling Mounting:

For optimum performance, mount the detector on the ceiling with a clear line-of-sight to all protected glass (see Figure 2).

Figure 2 Ceiling Mount (Side View)



Temporary Mounting Procedure

Before *permanently* mounting the detector, verify the selected mounting location is practical:

1. Temporarily mount detector with double sided tape.
2. Adjust flex sensitivity as described below.
3. Test the detector as described below.
4. Test the Signal-to-Noise Ration of the Transmitter as outlined in the SN900-PROG Programming Manual.
5. If detector passes all tests, permanently mount it as described below. If the detector fails any test, relocate the detector closer to the window and repeat all tests.

Battery Activation

Just prior to initial adjustment, apply power to the detector by removing the battery activation tab (shown in Figure 3).

Enabling the LED's

During test and adjustment, enable the LED indicators by sliding the LED ENABLE switch in the direction the arrow is pointing (see Figure 3). The orange flag protrudes from the side of the detector when the LED's are enabled.

Flex Sensitivity Adjustment

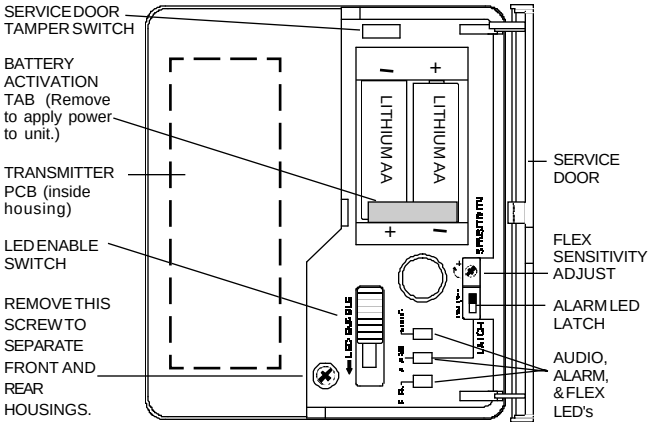
The flex SENSITIVITY adjustment is accessed at the front of the detector, behind the service door as shown in Figure 3. Adjust flex sensitivity as follows:

1. If the front housing is attached, carefully open the Service Door.

Note: Opening & closing the service door too far or too fast can cause the detector to alarm. An alarm can also occur when the LED ENABLE switch is moved in or out too forcefully.

2. Enable the LED's.
3. Use a small screwdriver to turn the SENSITIVITY control clockwise as far as it will go (MAXIMUM).
4. Turn on any heating/air conditioning system in the vicinity, and observe the FLEX (yellow) LED for approximately 1 minute. Excessive subsonic (inaudible) noise typically produced by air handling systems may cause the FLEX LED to flash randomly. Operate *all* equipment within the detector's vicinity, and make sure FLEX LED does not flash.
5. If FLEX LED flashes randomly, turn SENSITIVITY control counterclockwise just until the flashing stops.

Figure 3 SN950-GLASS with Service Door Open



Testing

Prepare the SN950-GLASS for testing by enabling the LED's and closing the service door. Using the FG-700 or FG-701 Glassbreak Simulator (from C&K Systems), test the SN950-GLASS as follows:

WARNING

Sound from the glassbreak simulator may be hazardous to hearing at close range. Do not point at head while using.

Flex Range Test

Test the flex technology by carefully striking the glass with a cushioned tool. If FLEX (yellow) LED flashes, the flex technology is sensitive enough to detect a blow to the glass at this distance. If FLEX LED does not flash, relocate the SN950-GLASS closer to the glass.

Audio Range Test

Set FG-700 simulator for the appropriate type of glass and select MANual mode. On the FG-701 simulator, set switches to ACTIVATE and MANual mode.

While standing at the farthest point of the glass to be protected, aim the simulator at the detector, then activate the simulator by pushing the red button. If the detector AUDIO (green) LED flashes, the audio technology will detect breaking glass at this distance. If the AUDIO LED does *not* flash, relocate the SN950-GLASS closer to the glass.

Alarm Detection Test

Switch the FG-700/701 simulator to FLEX mode and push the red button to arm the simulator. Generate a flex signal by carefully striking the glass with a cushioned tool a short time after arming the simulator. The simulator will automatically generate a burst of glassbreak sound, and the detector ALARM (red) LED should illuminate indicating detection of an alarm condition. For more information, refer to the FG-700/701 Operating Instructions.

Final Test

To ensure maximum protection against false alarms, activate any device in the area that may automatically cycle: pumps, generators, heating/air conditioning units, etc. If the cycling devices trigger an alarm, mount the detector in a different location.

Note: There is no need to relocate the detector if the cycling only briefly triggers the flex technology (the yellow LED flashes).

Important: Test for normal operation *at least once each year.*

Recommendation: To guarantee the integrity of the whole system, disable the LEDs and test the detector and transmitter to the control panel.

Permanent Mounting

After determining the location is appropriate, permanently mount the detector as follows:

1. Separate the front and rear housings by removing the screw located behind the service door. (See Figure 3.)

Important: Be careful **not to bend** the transmitter antenna as RF output may be reduced. (See Figure 4.)

2. Using the rear housing as a template, mark two mounting holes on the wall or ceiling.
3. Drill holes and insert appropriate screw fasteners part way into the wall or ceiling.
4. Hang the rear housing on the screws, then tighten the screws to secure the unit.
5. Replace and refasten the front housing.
6. To ensure proper detection, re-test the detector and make any necessary adjustments.

Important: Make certain to disable the LED's after permanently mounting and final testing the detector. If the LED's are enabled during normal operation, battery life will be shortened significantly.

Alarm LED Latch

The SN950-GLASS is equipped with a latching circuit that keeps the ALARM (red) LED on until you clear the latch circuit. This feature is helpful during testing, and is particularly helpful in determining which detector alarmed in a multiple detector installation. When the latching circuit is activated, an alarm condition will set the latch. When the latch is set, and the LEDs are enabled, the ALARM LED will stay on until you clear the latch circuit.

Important: The Alarm LED Latch circuitry effects the ALARM LED only; it has *no effect* on the alarm output signal.

To activate the Alarm LED Latch circuit, use a small screwdriver to move the LATCH switch to the ON position (see Figure 3).

To determine if the detector is Latched in a condition, the LED Enable Flag must be activated.

To clear the Alarm LED Latch circuit, move the LATCH switch to the OFF position (see Figure 3). If further ALARM LED latching is desired, set the LATCH switch back to ON.

Disabling the LED's

After testing, you can disable the LED's without opening the Service Door. Simply push the orange LED ENABLE flag gently back into the detector. The detector will alarm if the flag is pushed in too forcefully.

Note: Before disabling the LED's, make sure the ALARM (red) LED is not latched on. Disabling the LED's turns off the LEDs but does not clear the latch circuit. To clear the ALARM LED latch, set the LATCH switch to the OFF position (see Figure 3).

U.L. Compliance

For Grade A household burglar alarm system applications using the System 2316 Control Panel:

All transmitters must be programmed as supervised devices.

Only one transmitting device per zone.

Programming

Program the SN950-GLASS transmitter parameters as described in the SN900-PROG Programming Manual (P/N 5-051-136-00). Connect SN900 programmer cable to J1 on the transmitter PCB (see Figure 4). The transmitter PCB is located inside the SN950-GLASS housing.

Transmitter Device ID Label

After the SN950-GLASS has been programmed and tested, make sure to fill out the Transmitter Device I.D. Label (included in the installation package). Mount the label *inside* the housing. The following procedure is recommended for mounting the label:

1. Separate front and rear housings by removing the screw located behind service door (see Figure 3).
2. Peel-off the adhesive backing from the label and stick the label on the inside of the *front* housing in the area above the transmitter PCB.
3. Replace and refasten the front cover and close the service door.

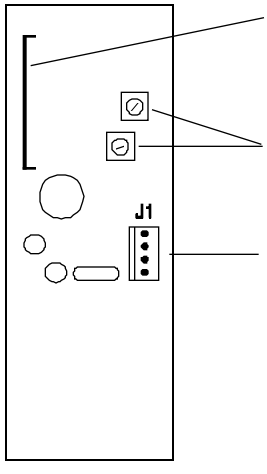
A *sample* of a completed Transmitter Device ID Label is shown below:

P. CODE	0253
CHANNEL	2
ZONE	01
DEVICE	01
CHECK-IN	30
BATTERY	4/27/96

P. CODE - The System Property Code.
CHANNEL - Spread Spectrum selected by the system.
ZONE - Control panel zone number associated with the transmitter.
DEVICE - The number of the device associated with the zone.*
CHECK-IN - Supervisory interval (in seconds)
BATTERY - Date batteries activated.

* For systems using the SN912-RCV and SN913-I/O, this value must be 1.

Figure 4 RF Transmitter PCB



ANTENNA
Important: Be careful not to bend the transmitter antenna as RF output may be reduced.

FACTORY ADJUSTMENT ONLY!
There are NO field adjustments on the transmitter PCB.

Connect SN900-PROG programmer to J1. See SN900 Programming Manual to program the detector.

SN950-GLASS Specifications

Range:
25' (7.6 m) maximum, omnidirectional

Glass types:
1/8" and 1/4" plate; 1/4" tempered;
1/4" laminated; 1/4" wired;
single pane
minimum size: 10-7/8" x 10-7/8",
(280 mm x 280 mm)

Input power:
two 3.6VDC AA lithium batteries

Replacement batteries:
C&K: Model # SN33L-BAT
SAFT: Model # LS14500
Tadiran: Model # TL-2100 /S

Note: Replace Batteries following a Low Battery indication or every 5 years, whichever occurs first.

RF output power:
100 mW (max.)

Transmitting period:
7.6 mSec

Operating frequency:
902MHz - 928 MHz Spread

Operating temperature:
-4° F to 131° F
(-20° C to 55° C)

Relative humidity:
0% to 95% (non-condensing)

Housing material:
Flame-retardant ABS plastic

Dimensions:
4.75" x 4.13" x 1.25"
(122 mm x 105 mm x 33 mm)

Weight (including batteries):
8.5 oz (240 g)
packaged product: 10.6 oz (300 g)

RF emission standards:
USA: FCC Part 15
CANADA: IC

Approvals/listings:
UL listed

Note: The SN950-GLASS is designed for primary perimeter security. For a complete security system, additional interior protection devices are recommended.

FCC Notice

The Model SN950-GLASS generates and uses radio frequency energy. If not installed and used in accordance with the manufacturer's instructions, it may cause interference to radio and television reception. The Transmitter has been tested and found to comply with the specifications in Part 15 of FCC Rules for Class B Computing Devices and FCC Part 15 Subpart C, Specifications for Intentional Spread Spectrum Radiators.

If this equipment causes interference to radio or television reception - which can be determined by turning the equipment on and off - the installer is encouraged to correct the interference by one or more of the following measures: 1) Reorient the antenna of the radio/television. 2) Connect the AC transformer to a different outlet so the control panel and radio/television are on different branch circuits. 3) Relocate the control panel with respect to the radio/television.

If necessary, the installer should consult an experienced radio/television technician for additional suggestions, or send for the "Interference Handbook" prepared by the Federal Communications Commission. This booklet is available from the U.S. Government Printing Office, Washington D.C., 20402, stock number 004-000-00450-7.

CAUTION: C&K does not support field changes or modifications to any of the SpreadNet RF equipment unless they are specifically covered in this manual. All adjustments must be made at the factory under the specific guidelines set forth in our manufacturing processes. Any modification to the equipment could void the user's authority to operate the equipment and render the equipment in violation of FCC Part 15, Subpart C, 15.247.

This device complies with Part 15 of the FCC Rules. 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.

P/N 5-051-267-00 Rev C

http://www.cksys.com

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