NAPCO GEM-GB Wireless Glass-Break Detector

 WI816A 3/96

GENERAL DESCRIPTION

The GEM-GB is an advanced wireless acoustic glass-break detector for use with all Gemini-Series control panels and receivers. Each transmitter has a unique RF ID code (printed on the sensor module and on the rear case) that distinguishes itself to the receiver. Refer to control-panel instructions for entering this code and its checksum digit into the panel. Be sure to enter all numbers and/or letters, including leading zeros, if any.

The detector is powered by two type DL123A 3-volt lithium batteries, which are factory installed. To energize the unit, simply install the supplied Power-Up Jumper across pins JP1 near the positive terminals of the batteries.

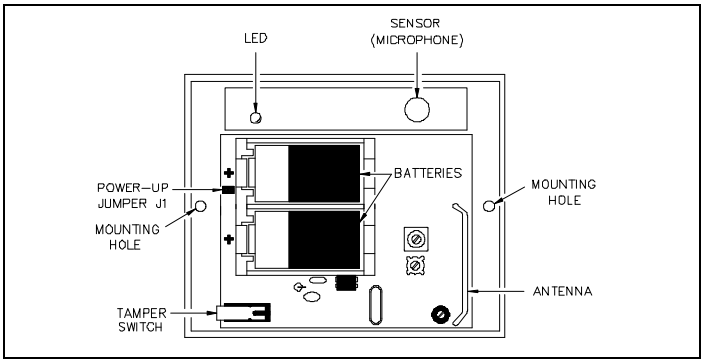

Fig. 1. GEM-GB detector, cover removed.

SPECIFICATIONS

Microphone: Electret, omnidirectional
Temperature Range: 32°F to 120°F (0°C to + 50°C)
Range of Coverage (radius distance from sensor)**:**
Plate Glass, 25' (7.6m)
Tempered, Wired, or Laminated Glass, 20' (6m)
Note: (1) Use 20' (6m) radius if unsure of glass type. (2) If not using a Sentrol 5709-C Tester to verify range, reduce range to 15' (4.5m) for windows with blinds or unlined drapes. (3) Reduce coverage 50% for armor-coated glass.
Glass Thickness:
Plate Glass, 3⁄32 to 1⁄4" (2.4 to 6.4mm)
Tempered Glass, 1⁄8 to 1⁄4" (3.2 to 6.4mm)
Wired Glass, 1⁄4" (6.4mm)
Laminated Glass, 1⁄8 to 1⁄4" (3.2 to 6.4mm)
Dimensions: 3.13 x 4.24 x 1.7" (8.0 x 10.8 x 4.3cm) (h x w x d)
Shipping Weight: 7.5oz (213gm)

FEATURES

- Superior immunity to false alarms
- Excellent detection, even through blinds and light drapes
- 25' radius
- Automatic test for easy installation
- "Hand-clap" test for sensor verification
- Includes lithium batteries

MOUNTING

Note: The GEM-GB may be mounted in any position with no degradation in performance. However, for reference purposes in this text, the unit will be considered oriented with the antenna at the right, as shown above.

The detector mounts with two #6 screws (supplied). The rear case may be used as a template to mark mounting holes on the wall.

The sensor must be in direct line of sight of all windows being protected. Reliable detection cannot be expected around corners, in other rooms, etc.

For optimum false-alarm immunity, avoid installing the unit

- in rooms with lined, insulating, or sound-deadening drapes;
- in rooms with closed wooden window shutters inside;
- in rooms smaller than 10' x 10' (3m x 3m), and in rooms with multiple sounds, such as kitchens, glass booths, noisy areas, garages, etc.
- within 4' (1.2m) of noise sources such as televisions, speakers, sinks, doors, etc.
- on ceilings higher than 15' (4.5m), if mounting on ceiling;
- on 24-hour loop applications (perimeter loop okay);
- where white noise (such as air compressor noise) is present. (May cause false alarms by saturating glass-break frequency spectrum.)

Wall Mounting

Since the sound of breaking glass travels outward from the source, the best location for the GEM-GB detector is on the wall opposite the windows being protected (assuming, of course, that the wall is within the sensor's range). Detection is reduced with same-wall mounting since such detection is partially dependent upon sound reflected off the opposite wall.

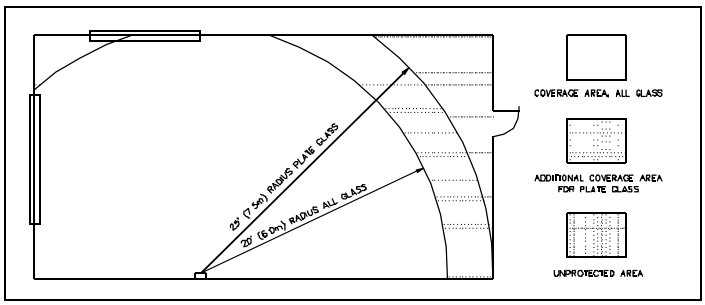

Fig. 2. Typical coverage pattern for wall-mounted units.

Ceiling Mounting

Similarly, a ceiling-mounted sensor will detect better if mounted 6' to 10' (2–3m) away from the glass, rather than directly above it. Mount the detector on any type of ceiling in direct line of sight of the windows being protected, at least 1' (0.3m) and preferably 3' (1m) from the glass.

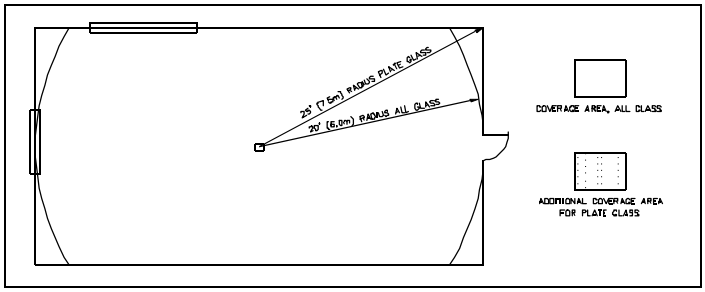

Fig. 3. Typical coverage pattern for ceiling-mounted units.

Installation Notes

1. The GEM-GB is designed to detect the shattering of framed glass mounted in an outside wall. Testing the sensor with unframed glass, broken bottles, etc. may not trip the sensor. The GEM-GB typically does not trip to glass-break tests in the middle of a room, as such breaks are false alarms.

2. False alarms are most likely to occur when installed on a 24-hour loop in glass airlocks and glass vestibule areas, when mounted above sinks, when used in residential car garages, and in other small, acoustically live rooms and rooms where multiple sound can reflect and eventually duplicate the glass-break frequency pattern. For occupied-area glass-break protection in such applications, the use of shock sensors is recommended.

3. Installing the GEM-GB on 24-hour loops will increase false alarms. The GEM-GB is recommended for perimeter loops and is designed to function without false alarms in occupied areas. On a 24-hour loop, which is armed all day, all night, every day, the false alarm technology will be pushed to its limit since some sounds in some conditions can duplicate the points on the glass-break pattern that the GEM-GB detects. Install the GEM-GB on a perimeter loop, which is armed whenever the door and window contacts are armed. For occupied-area installations, the GEM-GB's false-alarm immunity is best in rooms with only moderate noise.

4. The GEM-GB detects the shattering of glass. As with all glass-break detectors, it may not consistently detect cracks in glass or bullets that break through the glass or break out the glass. Glass-break detectors should always be backed up by interior protection.

TESTING

Preliminary

Use a Sentrol Model 5709-C hand-held tester (available separately) to place the GEM-GB detector into its test mode and for all functional testing.

Set the tester for tempered glass. Holding the tester speaker directly over

the sensor, activate the tester. The detector will go into alarm (LED will come on for about 4 seconds), then go into the test mode for one minute. While in the test mode, the detector's LED will blink continuously. Extend test-mode time by firing the tester at least once a minute.

Testing the Sensor

The 5709-C tester has a setting for each type of glass. The tester should always be set for Tempered or Laminated glass (either is correct and both have the same range) unless the installer is certain that the glass to be protected is plate glass.

Holding the tester near the surface of the glass, aim the tester at the detector and hold down test button. If drapes or blinds are present, test with the hand-held tester behind the closed drapes or blinds (do not use detector with heavy or lined drapes). If the detector is mounted on the same wall as the glass, point the tester at the opposite wall.

If the LED on the detector comes on for about 4 seconds when the tester is triggered, the glass is within detection range. If the LED does not come on but just continues to blink, reposition the detector closer to the windows and retest. This may require the use of additional detectors in order to achieve the desired coverage. In the unlikely event that the detector does not respond within its stated range of coverage, check the battery in the tester; a new battery will likely restore range.

The GEM-GB detector will automatically revert to its normal operating mode approximately 1 minute after the last test.

Note: Room acoustics can artificially extend the range of a glass-break sensor. The specified range of the GEM-GB detector has been established for worst-case conditions. While the sensor will likely function at additional range, it may miss a minimum output break, or room acoustics may be changed at some future time, bringing sensor range back into normal 20' (6m) conditions. Do not exceed the rated range of the sensor, regardless of what the tester shows.

Test-Mode Operation

The GEM-GB ignores most false alarm sounds, including glass-break testers. In order to test the GEM-GB detector, a test mode is used. In its test mode, sensor processing of the glass-break pattern in the upper and lower frequencies is disabled, thus the sensor is listening only for the midrange frequencies, which the tester produces. It is the midrange frequencies that determine sensor range.

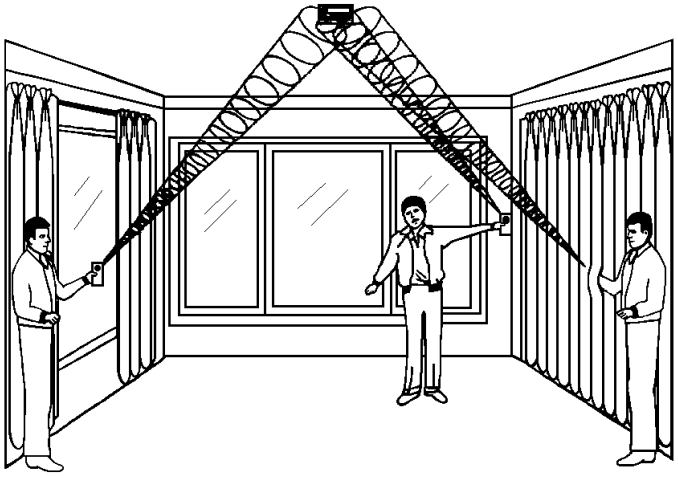

Fig. 4. Testing the sensor.

In the normal operating mode, the LED does not blink unless the sensor hears a loud sound. In normal operation, the GEM-GB detector will not be tripped by the tester unless the tester is held right up against the sensor.

Note: Each time the detector goes into alarm, it also goes into the test mode for one minute.

Hand-Clap Test

The GEM-GB can be tested by the installer or the end user while in its normal mode simply by clapping loudly under the sensor. The LED will blink twice, but the detector will not trip. This verifies visually that there is power to the detector and that the microphone and circuit board are functioning. The hand-clap activation is momentary so there is no appreciable effect on battery life.

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NAPCO RECOMMENDS THAT THE ENTIRE SYSTEM BE COMPLETELY TESTED WEEKLY.

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