Wireless ShatterPro Acoustic Sensor
Installation Instructions

Introduction

This is the GE *Wireless ShatterPro Acoustic Sensor Installation Instructions* for models 584503-W (3 V) and 584509-W (9 V). The sensor is designed to detect breaking glass from framed windows in the perimeter of a building.

Install the sensor on a perimeter loop armed whenever the door and window contacts are armed. Avoid 24-hour loop applications where the sensor is armed all day and all night. The false-alarm technology will be pushed to its limit in a 24-hour loop.

The sensor's false-alarm immunity is best in rooms with only moderate noise. Some sounds can duplicate the points on the glassbreak pattern the sensor detects.

The sensor may not consistently detect cracks in glass, or bullets which break through the glass. Glassbreak sensors should always be complemented with interior protection.

Connect the sensor to a UL listed control panel, or a power supply that provides at least four hours of standby power.

Use a 9-volt battery if longer life is needed in the 584509-W.

Mounting location

The sensor must always be in direct line of sight of all windows to be protected. The sensor cannot consistently detect glass breaking around corners or in other rooms. There is no required front, back, up or down orientation.

Wall mount. The best wall-mount location is on the opposite wall, assuming the glass to be protected is within the sensor's range and line of sight. The adjoining wall can also be used.

Ceiling mount. Mount the sensor in a location that is in direct line of sight of the glass to be protected. However, since sound travels directionally out from a broken window, a position 8 ft. (2.4 m) into the room provides better detection.

Use the following guidelines to determine the best mounting location:

- Mount the sensor at least 3.3 ft. (1 m) from the windows being protected and at least 4 ft. (1.2 m) from noise sources such as TVs, speakers, sinks, and doors.
- Mount the sensor in the direct line of sight of the glass to be protected.
- Avoid rooms smaller than 10 x 10 ft. (3m x 3m).
- Avoid locations where lined, insulating, or sound-deadening drapes or closed wooden shutters are used.
- Mount the sensor in a suitable environment: temperature between 0 and 120°F (-18 and 50°C); and humidity between 10 and 90% noncondensing. Do not install the sensor in humid rooms. Excess moisture on the circuit board can eventually cause a short and a false alarm.
- Mount the sensor on a stable surface up to 25 ft. (7.6 m) from the farthest point on the glass surface.
- Avoid locations that expose the sensor to possible false-alarm sources such as:
  - glass airlocks and vestibule areas;
  - kitchens;
  - corner mounting;
  - residential car garages;
  - small utility rooms;
  - stairwells;
  - bathrooms; and
 - small acoustically live rooms.

Coverage range

The sensor is omni-directional, providing 360° coverage. Coverage is measured from the sensor to the point on the glass farthest from the sensor. The sensor can be mounted as close as 3.3 ft. (1 m) from the glass. The maximum range depends on the type of glass being protected:

Armor-coated glass. Mount sensor no more than 12 ft. (3.6 m) from the glass.

Plate, tempered, laminated, and wired glass. Mounted on the ceiling or the opposite or adjoining wall, (*Figure 1*) maximum range is 25 ft. (7.6 m).

Figure 1. Maximum coverage range
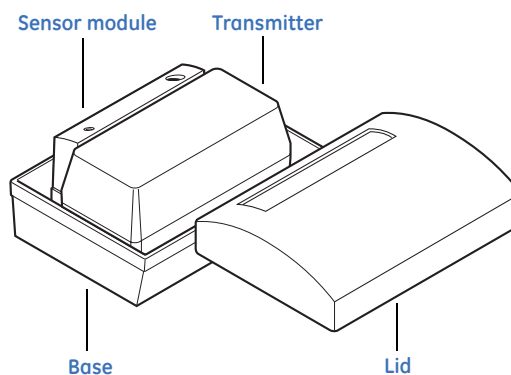

25 ft. (7.6 m)

25 ft. (7.6 m)
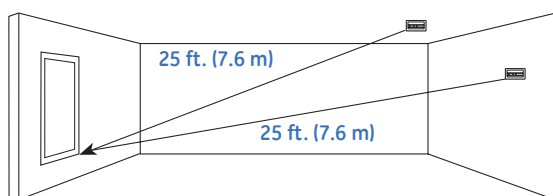
Installation

The sensor has two mounting options.

Sensor base housing. You can place the wireless transmitter inside the sensor's base housing (*Figure 2*). For some large transmitters, it will be necessary to remove the transmitter board from its housing.

Figure 2. Sensor base housing

Sensor module   Transmitter

Base   Lid

Transmitter bracket. For large transmitters that do not fit into the sensor base, or for a smaller appearance with a standard size transmitter, use the transmitter bracket.

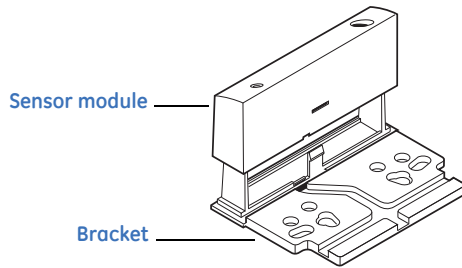To mount the sensor on the transmitter bracket, do the following:

1. To remove the sensor module from the base, depress the catch in the center of the sensor module (*Figure 3*) and rock the module up off the posts.

Figure 3.   Removing the sensor module
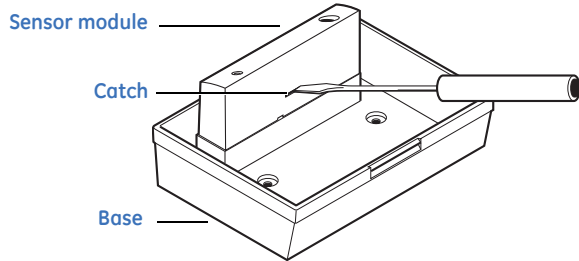
2. Snap the sensor module unto the bracket (*Figure 4*).

Figure 4.   Snapping the sensor module onto the bracket

3. Run the wires to the transmitter and attach the transmitter to the bracket (*Figure 5*). Use the punched double-stick tape provided to hold the wire in the bracket's wire channel, and to hold the transmitter to the bracket.

Figure 5.   Attaching the transmitter to the bracket
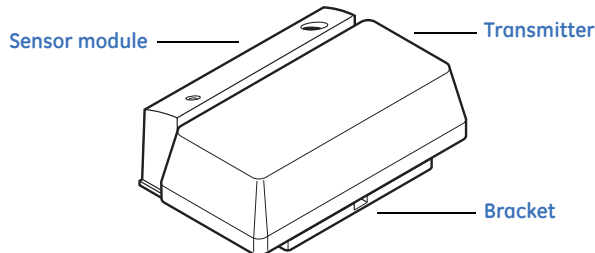
4. Mount the sensor/transmitter/bracket assembly. If the transmitter's mounting holes don't fit the bracket's hole pattern, you will have to mount the bracket to the wall or ceiling before attaching the transmitter.

Wiring

All wiring must conform to the National Electric Code (NEC) and/or local codes having jurisdiction.

584503-W Wiring

Figure 6 shows the 584503-W wiring (shares transmitter battery). The wires are:

Red. To battery +.

Black. To battery -.

White. Normally open (closes on alarm to battery -).

Green. Normally closed (to battery -).
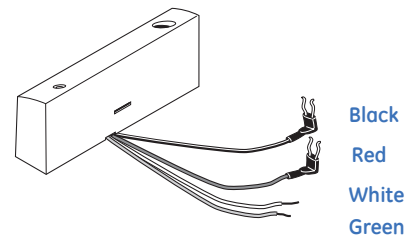
Figure 6.   584503-W wiring

Figure 7 shows the 584503-W connections to the Ademco 5816 transmitter.

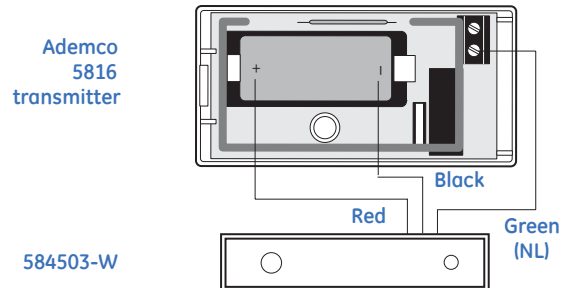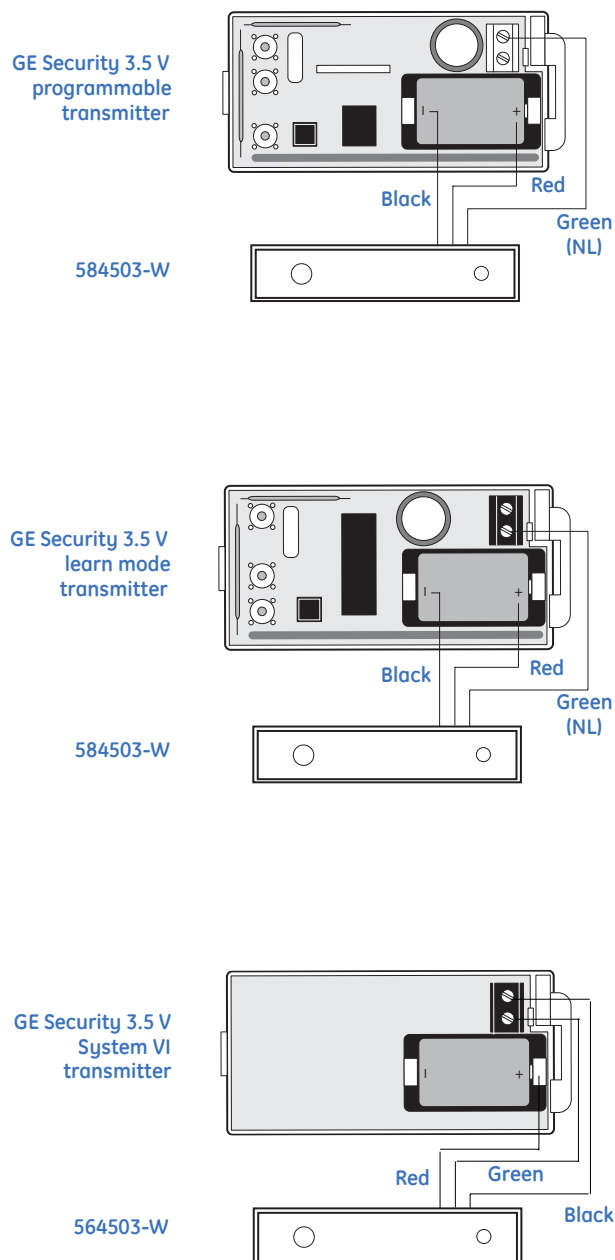*Figure 7.   584503-W connections to the Ademco 5816 transmitter*

Figure 8 shows the 584503-W connections to GE Security transmitters.

Figure 8. *584503-W connections to GE Security transmitters*

GE Security 3.5 V
programmable
transmitter

Black

Red

Green
(NL)

584503-W

GE Security 3.5 V
learn mode
transmitter

Black

Red

Green
(NL)

584503-W

GE Security 3.5 V
System VI
transmitter

Red

Green

Black

564503-W

To connect the 583403-W to the transmitter, do the following:

1. Program the learn mode transmitter into the MCA.
2. Connect the sensor to the transmitter as shown in *Figure 8*.
3. Solder the red lead to the positive battery terminal on the underside of the circuit board.
4. Put the cover on the transmitter and put it back into the base. Snap the sensor cover in place.
5. Test with the 5709C tester. (See .)

584509-W Wiring

Figure 9 shows the 584509-W wiring (shares transmitter battery). The wires are:

Red. To battery +.

Black. To battery -.

White. Normally high.

Green. Normally low.
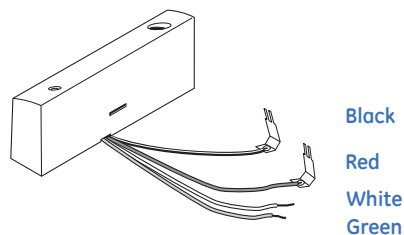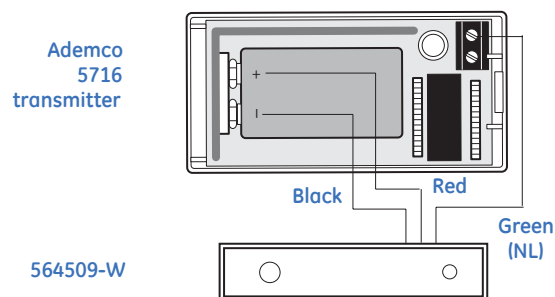
Figure 9. *584509-W wiring*

Black

Red

White

Green

Figure 10 shows the 584509-W connections to the Ademco 5716 transmitter.

Figure 10. *584509-W connections to the Ademco 5716*

Ademco
5716
transmitter

Black

Red

Green
(NL)

564509-W

To connect the 584509-W to the Ademco 5716 transmitter, do the following:

1. Remove the battery.
2. On SW3, set switch 6 to Off (down). On SW4, set switch 1 to ON (up). Do not use a magnet.
3. Connect loop wires (green).
4. Connect 9-V battery terminals and install the battery observing polarity.

Figure 11 shows the 584509-W connections to the Honeywell 10-6506 (T-8803) transmitter.

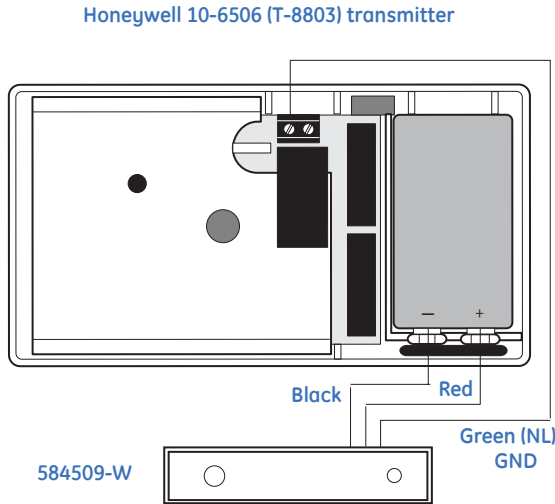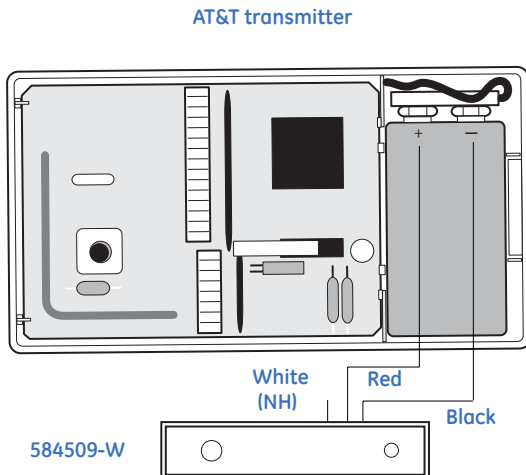Figure 11. 584509-W connections to the 10-6506 transmitter

Honeywell 10-6506 (T-8803) transmitter

Figure 12 shows the 584509-W connections to the AT&T transmitter.

Figure 12. 584509-W connections to the AT&T transmitter

AT&T transmitter

To connect the 584509-W to the AT&T transmitter, do the following:

1. Splice the white wire from the sensor to the green wire from the transmitter.
2. Connect the black wire from the sensor to the battery -.
3. Connect the red wire from the sensor to the battery +.
4. On the 12-position DIP switch, set switch 6 to OFF for CL. Set switch 7 to ON for PIR or glassbreak.

If you use this transmitter inside the back box, the circuit board must be removed from the housing. You can secure it with the double-stick tape provided. For the most secure connections, it is better to solder the battery connector terminals instead of using the *buddy-up* clips.

Testing

The sensor is designed to detect the breaking of framed glass mounted in an outside wall. Testing the sensor with unframed lass, broken bottles, etc., may not trip the sensor. The sensor typically does not trip to glass breaking in the middle of the room.

The Pattern Recognition Technology of the sensor ignores most false alarm sounds, including glassbreak testers. To test the sensor, use test mode. Test mode disables glassbreak pattern processing in upper and lower frequencies. The sensor is then listening only for the mid-range frequencies that the GE Security 5709C hand-held tester reproduces. It's the mid-range frequencies that determines sensor range.

Test mode

To put the sensor in test mode, do the following:

5. Use the 5709C handheld tester to put the sensor into test mode. Set the tester to tempered glass and hold the tester on top of the sensor.
6. Activate the tester. The sensor will alarm, then go into test mode for one minute. In test mode, the LED will blink continuously. To extend test time, fire the tester at the sensor at least once a minute.

Sensor test

The sensor must be in test mode (blinking). To test the sensor, do the following:

1. The tester has a different setting for each type of glass. Set the tester for tempered or laminated glass unless you are certain that all the glass to be protected is plate glass.
2. Hold the tester near the surface of the glass to be protected and aim the speaker at the sensor. Be sure the tester is at the point on the glass farthest from the detector. If closed drapes or curtains are present, hold the tester behind them (*Figure 13*).

Figure 13. Testing behind curtains
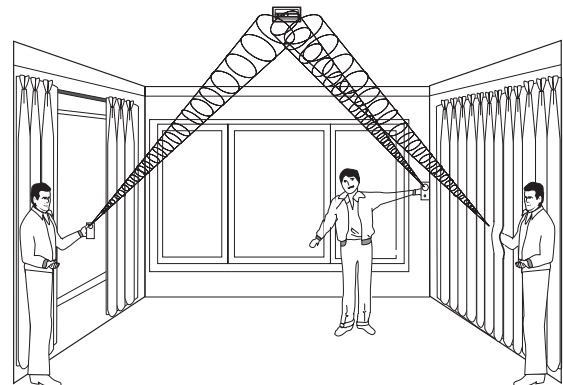
3. Press the test button on the tester. The LED on the sensor should stay on for 4 seconds to indicate the glass is within detection range of the sensor. If the LED does not stay on for 4 seconds, move the sensor and retest.

If the sensor will not activate within its stated range of coverage, check for battery strength in the tester. A new tester battery will likely restore range. You may need to use additional sensors to achieve adequate coverage.

The sensor will automatically change from test mode to normal mode approximately one minute after it last hears the tester. In normal mode the LED does not blink unless it hears a loud

sound. In normal mode, the sensor will not trip to the tester, unless the tester is held next to the sensor. Each time the sensor alarms, it also goes into test mode for one minute.

Room acoustics can artificially extend the range of a glassbreak sensor. The specified range of the sensor 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 change at some future time, bringing the sensor range back into normal 20 ft. (6 m) conditions. Do not exceed the rated range of the sensor, regardless of what the tester shows.

Hand clap test

You can check the sensor while in normal mode, simply by clapping your hands loudly under the sensor. The LED will blink twice, but the sensor will not trip. This verifies visually that there is power to the sensor, and that the microphone and circuit board are functioning.

The hand clap activation is only momentary, so there is no appreciable effect on battery life.

To disable this custom test function, remove the circuit board from the housing and clip one of the wires on the LED. The LED will no longer be operational, but the sensor can still be tested using the transmitter and the control panel.

Maintenance

When installed and used properly, the sensor provides years of service with minimal maintenance. You should test the sensor annually to ensure proper operation.

Clean the cover with a damp (water) cloth as needed to keep it free of dust and dirt. Always test the sensor after cleaning it.

FCC compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions may cause harmful interference to radio communications. There is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from the one where the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

Under FCC rules, Part 15 for Class B digital devices, operation is subject to the following conditions:

1. This device may not cause harmful interference.
2. 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 could void the user's authority to operate the equipment.

Specifications

Operational voltage	
584503-W	2.8 to 4.5 VDC
584509-W	6 to 16 VDC
Current draw	
584503-W	17uA typical average
584509-W	23 uA typical average, 5 mA with LED momentarily on
Alarm duration	Four seconds
Output	
584503-W	Normally closed output and normally open output with open drain MOSFETs; 700 Ohm max. closed resistance; 10 Mohm min. open resistance. Output voltage must be less than or equal to supplied battery voltage
584509-W	Normally low output with NPN transistor and 10M pull-up resistor and normally high output with PNP transistor to power + 16 VDC max. output voltage
RF immunity	20 V/m, 1 MHz to 1000M Hz
Microphone	Omnidirectional electret
Recommended glass thickness	
Plate	3/32 to 1/4 in. (2.4 to 6.4 mm)
Tempered	1/8 to 1/4 in. (3.2 to 6.4 mm)
Wired	1/4 in. (6.4 mm)
Laminated	1/8 to 1/4 in. (3.2 to 6.4 mm)
Operating temperature	14 to 120°F (-10 to 50°C)
Dimensions	4.25 × 3.13 × 1.70 in (108 × 80 × 43 mm)
Housing material	Flame-retardant ABS
Color	White
Wiring	22 AWG UL stye 1061, CSA T2, color-coded wire, passes VW-1 flame test

Note: The 584503-W typically works down to 2.1 VDC and the 584509-W typically works down to 3.0 VDC, which allows most transmitters to send low battery trouble alarms.

Product ordering

Product	Description
584503-W	Wireless ShatterPro, 3-V model with optional bracket
584509-W	Wireless ShatterPro, 9-V model with optional bracket
Accessories	
5709C-W	Glassbreak hand-held tester, white

Technical support
Toll-free: 888.GESECURity (888.437.3287 in the US, including Alaska and Hawaii; Puerto Rico; Canada).
Outside the toll-free area: Contact your local dealer.

www.gesecurity.com