AC-500 Glassbreak Detector

Installation Instructions

The Acuity AC-500 is a glassbreak detector designed to provide reliable protection for residential and commercial applications.

The AC-500 is integrated with an advanced microprocessor based glassbreak sensor, designed to detect the sounds produced by the shattering of framed glass. The glassbreak detection scheme used on the AC-500 is a result of an extensive research program, which studies the properties of glass as well as the properties of sounds produced by the shattering of framed glass.

Features

- Omnidirectional microphone
- High level static and transient protection
- Excellent RF immunity
- Microcontroller-based digital signal processing technology
- Dynamic Signal Processing* provides accurate detection of plate, float, laminated, wired and tempered glass types, while rejecting common “bell” or “ringing” type sounds
- White noise rejection mechanism
- Installer test mode for glassbreak sensor
- Alarm memory (latching LED) for glassbreak sensor
- 1 year warranty

**** Patented***

Specifications

- Input Voltage ..... 9 - 14.5 VDC
- Current ..... 24mA standby/32mA max.@12VDC
- Alarm Relay: Contact Rating ..... 1.0A@24VDC
- Tamper Switch: Contact Rating ..... 0.1A@24VDC
- Microphone Type ..... Omnidirectional Electret
- Size (diameter x height) ..... 4.6" x 1.4" / 117 mm x 36 mm

Glassbreak Detector Range

Glass Type	Thickness	Sizes L x W	Max. Range Level 1 Detection	* Max. Range Level 2 Detection
Plate/Float/ Tempered	1/8"/3.17mm to 1/4"/6.35mm	18"x18"/ 0.45x0.45m and up	25ft./7.5m	15ft./4.6m
		12"x12"/0.3x0.3 m to 18"x18"/0.45x0.45m	15ft./4.6m	10ft./3m
Wired/ Laminated	1/4"/ 6.35mm	18"x18"/ 0.45x0.45m and up	20ft./6m	Do not use
		12"x12"/0.3x0.3 m to 18"x18"/0.45x0.45m	10ft./3m	Do not use

Jumper Setting

- J1 Installer Test Mode
- J2 Alarm Memory
- J5 Glassbreak Detection Level*

Jumper	ON	OFF
J1	Glassbreak range test (AFT-100)	Normal operation
J2	LED latch for glassbreak	Normal operation
J5 *	Level 2 detection with lower glassbreak sensitivity	Level 1 detection with high glassbreak sensitivity

***** *For UL Installations,* ***only*** *Level 1 detection must be used.*

Environmental/Immunity

- RF Immunity *(Not verified by UL/ULC)*:
  Radiated -10V/m +80% AM (@1KHz) from 80MHz to 1GHz
  Conducted -10V +80% AM (@1KHz) from 150KHz to 80MHz
- Transients @ wiring terminal: 2.4KV @ 1.2joules
- Operating temperature: 32 -122°F / 0 - 50°C
- Humidity 5 - 95% RH non-condensing

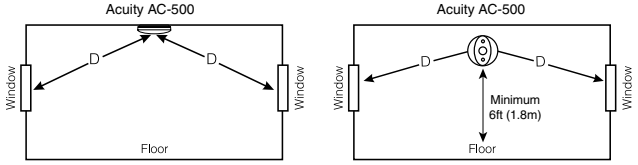
Product Information

AC-500: Form 'A' alarm contact.

AC-501: Form 'A' alarm contact with tamper switch

AC-502: Form 'C' alarm contact with tamper switch

Locating the Detector



NOTE: Maximum distance 'D' is limited by the range (refer to the Glassbreak Detector Range chart)

For optimum glassbreak protection, the detector should have a clear view of the protected glass. Curtains, blinds, and other window coverings will absorb sound energy from the shattering glass. In these cases, mount the detector as close as possible to the protected glass.

NOTE: Do not mount the detector on the same wall as the protected glass.

Avoid installation near noise sources, such as speakers or other objects, which produce sounds continuously. Do not install the detector beyond the maximum recommended range, even if the AFT-100 shows additional range - future changes in room acoustics could reduce that additional range.

NOTE: The AFT-100 Glassbreak Simulator will provide the most reliable and accurate indication of the correct mounting location for the detector. Other simulators may trip the unit, but will not provide accurate indications.

Test for false alarm immunity by creating any sounds in the room which will likely occur when the detector is armed. Consider the following to reduce false alarms:

Noise Sources

Although the Acuity AC-500 is designed to be immune from ringing, bell and white noise sounds, avoid mounting the detector near such sources (e.g., telephones, doorbells, alarm bells/sirens, air conditioner units, water pipes, etc.).

NOTE: Application on 24 hr loops should be avoided unless th premises are unoccupied.

Mounting

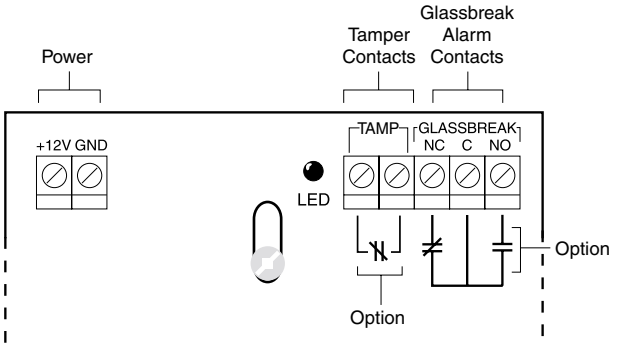
To open the case, gently twist the top cover counter-clockwise and lift it up from the bottom cover. Use a small screwdriver to remove the appropriate knockouts for wiring. Mount the bottom cover using the screws supplied.

To close the case, use the locating line on the bottom cover to align the tab on the top cover. Once the top cover is engaged, twist the top cover clockwise to lock it in place. Use the securing screw provided for Listed installations.

NOTE: Since no adjustment is necessary for the circuit board, it is not recommended that the installer remove the circuit board from the case. The microphone should **NOT** be touched.

Wiring

Refer to the following diagram for wiring instructions:



Contacts shown with power applied in the non-alarm state

NOTE: The unit must be connected to a Listed power supply capable of providing 4 hours of standby power.

NOTE: After installation, the detector should be tested annually by the installer.

Setting up the Level of Detection (Jumper J5)

The Acuity AC-500 comes with a detection level jumper setting (Jumper J5), which allows the selection of one of 2 levels of detection, depending on the size and acoustics of the room in which the detector will be installed. This feature allows better selection of the required sensitivity, thereby improving the overall false alarm immunity of the detector.

The detector is factory preset for level 1 detection (Jumper J5=OFF). This is the highest sensitivity setting of the detector, and is designed for applications requiring high sensitivity and range, such as larger rooms, or rooms which contain a significant amount of sound-absorbing surfaces (such as carpets, furniture, drapes, etc.).

For rooms which are smaller, and contain a significant amount of hard, sound-reflective surfaces (such as kitchens, bathrooms, entrance vestibules, etc.), level 2 detection (Jumper J5=ON) provides a lower sensitivity setting which is more appropriate for these environments.

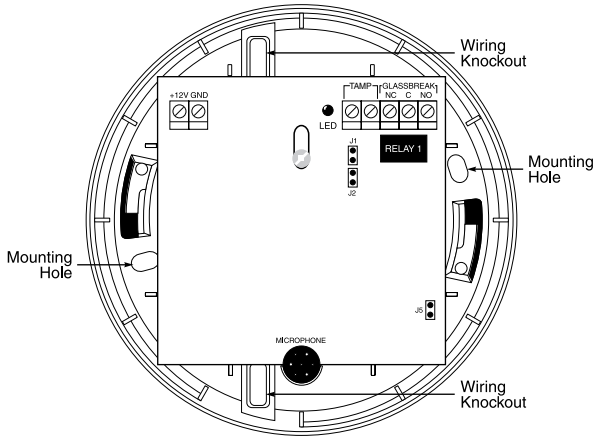
For most applications, the default setting of level 1 detection (Jumper J5=OFF) will be the best choice.

Testing

IMPORTANT NOTE: Upon installation, the unit should be thoroughly tested to ensure proper working order.

Glassbreak Test

1. Set the test mode jumper J1 to the ON position. The alarm relay will latch into the alarm state, and will remain so until the jumper J1 is restored to the OFF position after testing.
   NOTE: The detector will not respond to the glassbreak simulator unless the test mode jumper J1 is in the ON position.
2. If Alarm Memory operation is desired (latching LED), set jumper J2 to the ON position.
   NOTE: The Alarm Memory indication is cleared by disconnecting the supply voltage for at least one second.
3. Close the top cover.
4. Set the AFT-100 Glassbreak Simulator to generate appropriate glassbreaking sound; use the plate glass setting if the glass type is unknown. To manually generate the sound, press the Single end of the rocker switch. For automatic or continuous operation, press the Continuous end of the rocker switch. The AFT-100 will generate the sound once every 10 seconds.
5. Hold the tester near the surface of the glass to be protected and aim it towards the detector.
6. The correct mounting location is indicated when the device detects glassbreaking three successive times. If the detector does not respond each time, relocate the detector and repeat the test.
   NOTE: If the windows in question are covered by drapes or blinds, place the tester behind the closed window coverings.



Limited Warranty

Digital Security Controls Ltd. warrants that for a period of 12 months from the date of purchase, the product shall be free of defects in materials and workmanship under normal use and that in fulfilment of any breach of such warranty, Digital Security Controls Ltd. shall, at its option, repair or replace the defective equipment upon return of the equipment to its repair depot. This warranty applies only to defects in parts and workmanship and not to damage incurred in shipping or handling, or damage due to causes beyond the control of Digital Security Controls Ltd. such as lightning, excessive voltage, mechanical shock, water damage, or damage arising out of abuse, alteration or improper application of the equipment.

The foregoing warranty shall apply only to the original buyer, and is and shall be in lieu of any and all other warranties, whether expressed or implied and of all other obligations or liabilities on the part of Digital Security Controls Ltd. Digital Security Controls Ltd. neither assumes responsibility for, nor authorizes any other person purporting to act on its behalf to modify or to change this warranty, nor to assume for it any other warranty or liability concerning this product.

In no event shall Digital Security Controls Ltd. be liable for any direct, indirect or consequential damages, loss of anticipated profits, loss of time or any other losses incurred by the buyer in connection with the purchase, installation or operation or failure of this product.

Warning: Digital Security Controls Ltd. recommends that the entire system be completely tested on a regular basis. However, despite frequent testing, and due to, but not limited to, criminal tampering or electrical disruption, it is possible for this product to fail to perform as expected.

Important Information: Changes or modifications not expressly approved by Digital Security Controls Ltd. could void the user's authority to operate this equipment.

This Class B digital apparatus meets all requirements of the Canadian interference-causing equipment regulations.
Cet appareil numérique de la Classe B respecte toutes les exigences de règlement sur le matériel brouilleur du Canada.

FCC Compliance Statement

CAUTION: Changes or modifications not expressly approved by Digital Security Controls Ltd. could void your authority to use this equipment.

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. However, 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 off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

The user may find the following booklet prepared by the FCC useful: "How to Identify and Resolve Radio/Television Interference Problems". This booklet is available from the U.S. Government Printing Office, Washington D.C. 20402, Stock # 004-000-00345-4.

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