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**

<table>
<thead>
<tr>
<th>Glass Type</th>
<th>Thickness</th>
<th>L x W</th>
<th>Max. Range 1 Detection</th>
<th>* Max. Range 2 Detection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate/Float</td>
<td>1/16”/3.17mm to 1/4”/6.35mm</td>
<td>18”x18”/0.45x0.45m and up</td>
<td>250’/7.5m</td>
<td>150’/4.6m</td>
</tr>
<tr>
<td>Tempered</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wired/</td>
<td>1/8”/6.35mm</td>
<td>18”x18”/0.45x0.45m and up</td>
<td>200’/6m</td>
<td>Do not use</td>
</tr>
<tr>
<td>Laminated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* 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**

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.

**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.

**Wiring**
Refer to the following diagram for wiring instructions:

**Contacts shown with power applied in the non-alarm state**
- The unit must be connected to a Listed power supply capable of providing 4 hours of standby power.

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 24hr loops should be avoided unless premises are unoccupied.
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 fulfillment 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 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.

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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