

# BRAVO™ 5GB

Ceiling Mount PIR and Glassbreak Detector

## INSTALLATION INSTRUCTIONS

The Bravo5GB is a ceiling mount motion and glassbreak detector in one housing designed to provide reliable protection for residential and commercial applications.

The Bravo5GB uses a special Fresnel lens made for 360° detection in conjunction with a quad element PIR sensor optimized for uniform detection all around its field of view. Special attention is given to false alarm immunity against RF, static, electrical transient to ensure trouble free operation for many years.

The Bravo5GB 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 Bravo5GB is a result of an extensive research program, designed to study the properties of glass as well as the properties of sounds produced by the shattering of framed glass. The Bravo5GB offers a benefit of having motion and glassbreak detectors in one housing for many applications where both protections are required in the same room.

### Features

- 360° coverage
- High level static and transient protection
- Excellent RF immunity
- 5 YEAR Warranty

### Motion Detection

- Multi-Level Signal Processing \*
- Quad element PIR sensor
- Temperature compensation
- Fast/Slow detection jumper J3
- LED ON/OFF jumper J4
- Super quiet operation

### Glassbreak Detection

- Microcontroller-based Digital Signal Processing technology
- Dynamic Signal Processing\* provides accurate detection of plate, 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

\* Patented

## Specifications

### Electrical

- Input Voltage: 9 - 14.5 Vdc
- Current (typical): 38/35 mA (alarm on/off) @12Vdc

### Contact Rating

- Alarm Relay (PIR): 0.1A @24Vdc
- Alarm Relay (Glassbreak): 1.0A @24Vdc
- Tamper Switch: 0.1A @24Vdc

### Size (diameter x height)

4.6" x 1.4" / 117 mm x 36 mm

### Motion Detector Range (diameter)

- Detector placed 8 ft./ 2.4 m from floor: 24 ft./ 7.3 m
- Detector placed 10 ft./ 3.0 m from floor: 30 ft./ 9.2 m
- Detector placed 12 ft./ 3.6 m from floor: 40 ft./ 12.2 m

### Glassbreak Detector Range

Glass Type	Thickness	Sizes L x W	Max. Range Level 1 Detection	Max. Range Level 2 Detection
Plate/ Tempered	1/8"/3.17mm	18"x18"/ 0.45x0.45m and up	25ft./7.5m	15ft./4.6m
	to 1/4"/6.35mm	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
- J3 PIR Sensitivity
- J4 Motion LED ON/OFF
- J5 Glassbreak Detection Level

Jumper	ON	OFF
J1	Glassbreak range test (AFT-100)	Normal operation
J2	LED latch for glassbreak	Normal operation
J3	Fast detection (motion)	Slow detection (motion)
J4	LED enabled (motion)	LED disabled (motion)
J5	Level 2 detection with lower glassbreak sensitivity	Level 1 detection with high glassbreak sensitivity

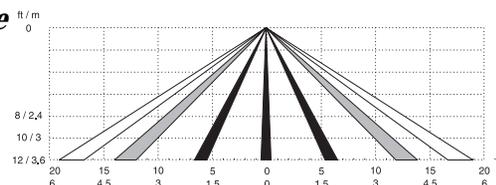
### Environmental/Immunity

- RF Immunity:  
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

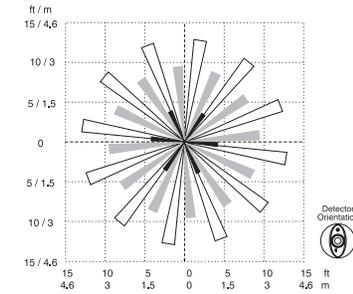
### Product Information

- BV-500GB: Form 'A' alarm contact (motion), form 'C' alarm contact (glassbreak)
- BV-501GB: Form 'A' alarm contact (motion), form 'C' alarm contact (glassbreak) and tamper switch
- BV-502GB: Form 'C' alarm contact (motion and glassbreak) and tamper switch

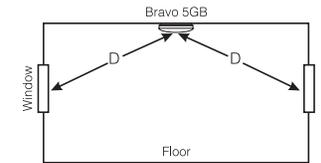
### Coverage Side View



### Top View (at 8 ft./ 2.4 m height)



### Locating the Detector



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

The Bravo5GB is designed to be mounted on the ceiling of a dry indoor location for 360° coverage. Ensure that the expected path of an intruder must be perpendicular to the beam path. Use the coverage pattern indicated on the diagram to determine the best sensor location.

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.

Avoid installation near noisy 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.

Survey the mounting location and the area being protected for the following potential problems. For the glassbreak sensor, test false alarm immunity by creating any sounds in the room which will likely occur when the detector is armed. Avoid following sources of false alarms:

### Reflective Surfaces

Do not aim the detector at reflective surfaces such as mirrors or windows as this may distort the coverage pattern or reflect sunlight directly onto the detector.

### Air Flow

Avoid locations that are subject to direct high air flow such as near an air duct outlet.

### Moisture

Do not locate the detector near sources of steam or oil.

### The Sun

Do not aim the detector such that it will receive direct sunlight.

## Obstructions

Do not limit the coverage by placing large objects within the detection area (such as plants, high shelves, filing cabinets etc.).

## Noise Sources

Although the Bravo5GB is designed to be immune from ringing, bell and white noise sounds, avoid mounting the detector near such sources (i.e. telephones, doorbells, alarm bells/sirens, air conditioner units, water pipes, etc.).

## Mounting

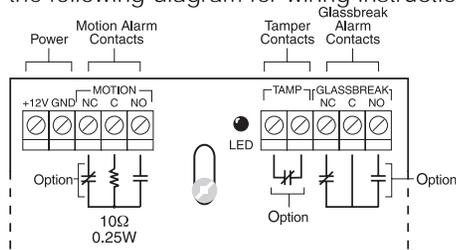
To open the case, gently twist the top cover counter-clockwise and lift it up from the bottom cover. Using a small screwdriver to remove the appropriate knockouts for wiring. Mount the bottom cover using the screws supplied.

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.

**NOTE:** Since no adjustment is necessary for the circuit board, it is not recommended that the installer remove the circuit board from the case. Also, **do not touch the microphone.**

## Wiring

Refer to the following diagram for wiring instructions:



## Setting up the Level of Detection (Jumper J5)

The Bravo5GB 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.

## Power Up

Upon application of power, the LED will be on for approximately 90 seconds to indicate that the unit is warming up (Jumper J4=ON). After the 90 second warm-up period, the LED will turn off and the unit will respond to motion in the protected area.

## Testing

**IMPORTANT NOTE:** Upon installation, the unit should be thoroughly tested to ensure proper working order. The end user should be instructed on how to perform walk tests, and should walk test the detector weekly.

## Walk Test

1. Set PIR LED jumper J4 to the ON position.
2. Close the top cover.
3. Create movement in the entire area where coverage is desired. The LED on the unit will turn on whenever motion is detected. Should the coverage be incomplete, relocate the unit. Minor adjustment can be made by rotating the detector several degrees (use the detection pattern as a reference) to enhance detection at certain point in the protected area.
4. If desired, the alarm LED may be disabled by setting J4 to OFF after the completion of the walk test.
5. For typical operation the unit should be set on FAST (J3 ON). If the environment presents potential disturbances that cannot be avoided, set J3 to OFF for SLOW operation.

## Glassbreak Test

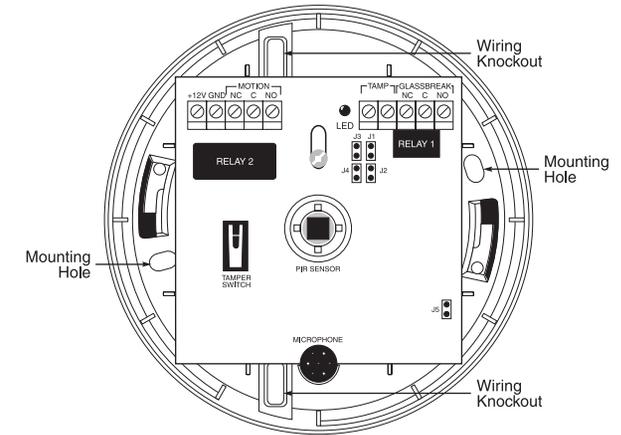
1. Set the test mode jumper J1 to the ON position and PIR LED jumper J4 to the OFF position. This will disable the LED for motion detection. In addition, the alarm relay will latch into the alarm state, and will remain so until the jumper J1 is restored to the OFF position after testing.
- NOTE:** The 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 five years 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 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, 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.

Motion detectors can only detect motion within the designated areas as shown in their respective installation instructions. They cannot discriminate between intruders and intended occupants. Motion detectors do not provide volumetric area protection. They have multiple beams of detection and motion can only be detected in unobstructed areas covered by these beams. They cannot detect motion which occurs behind walls, ceilings, floor, closed doors, glass partitions, glass doors or windows. Any type of tampering whether intentional or unintentional such as masking, painting, or spraying of any material on the lenses, mirrors, windows or any other part of the detection system will impair its proper operation.

Passive infrared motion detectors operate by sensing changes in temperature. However their effectiveness can be reduced when the ambient temperature rises near or above body temperature or if there are intentional or unintentional sources of heat in or near the detection area. Some of these heat sources could be heaters, radiators, stoves, barbecues, fireplaces, sunlight, steam vents, lighting and so on.

**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.

DSC © 1999 Digital Security Controls Ltd.

Security Products Toronto, Canada • Tech Line: 1-800-387-3630

www.dscgrp.com

29002463 R003