# BRAVO™

## BRAVO Series
## PIR Motion Detectors


## FEATURES

- Multi-level PIR signal processing†
- Single/dual element low noise sensor
- High level static and transient protection
- Exceptional white light immunity
- Excellent RF immunity
- Temperature compensation
- LED on/off jumper
- Vertical adjustment
- Super quiet operation
- Wall, corner, or ceiling mounting
- Attractive styling for any decor
- 5 year warranty

### BRAVO2
- Ideal for normal home, office, and industrial settings

### BRAVO3
- Accurate coverage of large 50' x 60' (15 x 18m) areas

### BRAVO4
- Quad design sensors for severe environments

### BRAVO5
- 360° ceiling-mount motion detector with optional integral glass break detector

### BRAVO6
- Dual PIR sensors with High Density Digital Analysis* and multi level signal processing for better intruder catch and immunity to pets weighing up to 85lbs/38kg
- Digital temperature compensation

DSC®
Security Products

## BRAVO

Simply the best passive infrared motion detectors available in the industry! Backed by years of research and exhaustive testing, Bravo series motion detectors take advantage of microprocessor-based multi-level signal processing software and specially designed lenses to deliver superior intruder detection and reliable long-term operation while minimizing false alarms.

For normal home and office environments, the Bravo2 is the efficient choice. For larger spaces, the Bravo3 provides expanded coverage, while the Bravo4 is especially suited for use in highly changeable conditions. The ceiling-mounted Bravo5 provides the dual benefit of uniform 360° motion detection and optional glass break detection in one housing. And Bravo6 is not only immune to large pets – its intruder detection is the best in the field.

The Bravo series takes motion detectors to a new level of detection sensitivity, stability and false alarm immunity in residential, commercial and industrial settings.

* patent pending † patented

# BRAVO

# BRAVO2™

Bravo2 is especially suitable for residential security systems, and all normal office and commercial applications.

## *MODELS*

| | |
|---|---|
| BV-200 | Form 'A' alarm contact |
| BV-201 | Form 'A' alarm contact & tamper switch |
| BV-202 | Form 'C' alarm contact & tamper switch |

## *LENS COVERAGE*

| | | |
|---|---|---|
| Wall-to-Wall lens | (BV-L1) | 40'L x 40'W (12.2 x 12.2m) |
| Corridor lens | (BV-L2) | 70'L x 6'W (21.3 x 1.8m) |
| Curtain lens | (BV-L3) | 40'L x 3.5'W (12.2 x 1.1m) |
| Pet Alley lens | (BV-L4) | 40'L x 40'W (12.2 x 12.2m) |

## *SPECIFICATIONS for BRAVO2, 3, & 4*

### Operational :

| | |
|---|---|
| Coverage angle (wall to wall lens) | 90° minimum |
| Vertical adjustment | +5 to -10° |
| Mounting height. | 6' to 12' (2 to 3.5m) nominal 7.5' (2.3m) |
| Walk detection speed | 0.5 to 10ft/s (0.15 to 3.0m/s) |
| Alarm duration | 2 to 3 seconds |

### Environmental/Immunity :

| | |
|---|---|
| Operating temperature | 32 to 122°F (0 to 50°C) |
| Operating humidity | 5% to 95% non-condensing |
| RF immunity | Bravo2 & 3 ...50V/m from 0.01 to 1,200MHz<br>Bravo4 ...20V/m from 0.01 to 1,200MHz |
| Transient immunity | 2.4kV @ 1.2 joules |
| Static immunity | 25kV |
| White light immunity | 20,000Lux at the detector |

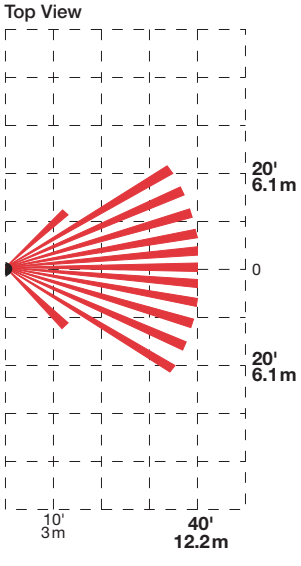
### Electrical :

| | |
|---|---|
| Operating voltage | 9.5 to 14.5VDC |
| Ripple tolerance | 3Vpp at 12VDC |
| Standby current | 16mA at 12VDC |
| Alarm current | 20mA at 12VDC |
| Contact ratings | 100mA at 24VDC |
| Alarm contact series resistance | 10ohm 0.25W |

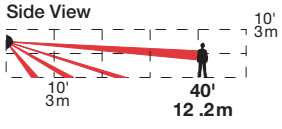
### Physical :

| | |
|---|---|
| Dimensions | 3.5"H x 2.5"W x 1.87"D<br>(8.9 x 6.4 x 4.8cm) |
| Mounting | wall or corner |
| Color | designer white, with light grey lens |

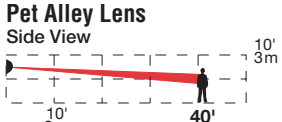
**Wall to Wall & Pet Alley Lens**



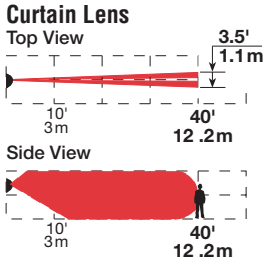

**Wall to Wall Lens**



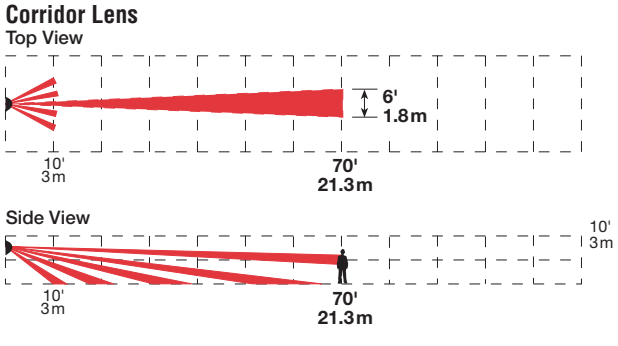

**Pet Alley Lens**




**Curtain Lens**




**Corridor Lens**



# BRAVO 3™

Bravo 3 can be used for all residential, commercial and industrial applications requiring longer range sensing capability without compromising accuracy.

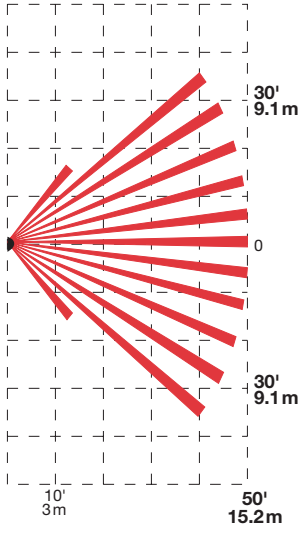
### *MODELS*

| | |
|---|---|
| BV-300 | Form 'A' alarm contact |
| BV-301 | Form 'A' alarm contact & tamper switch |
| BV-302 | Form 'C' alarm contact & tamper switch |

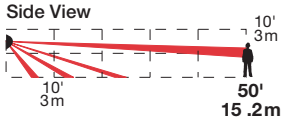
### *LENS COVERAGE*

| | | |
|---|---|---|
| Wall-to-Wall lens | (BV-L1) . . . . . .50'L x 60'W | (15.2 x 18.3m) |
| Corridor lens | (BV-L2) . . . . . .120'L x 10.5'W | (36.6 x 3.2m) |
| Curtain lens | (BV-L3) . . . . . .50'L x 4.4'W | (15.2 x 1.3m) |
| Pet Alley lens | (BV-L4) . . . . . .50'L x 60'W | (15.2 x 18.3m) |

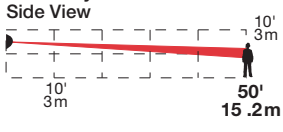
**Wall to Wall & Pet Alley Lens**
Top View



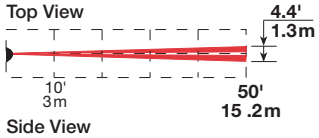

**Wall to Wall Lens**
Side View




**Pet Alley Lens**
Side View



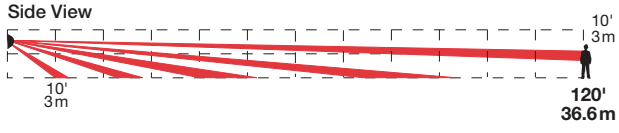

**Curtain Lens**
Top View




Side View


**Corridor Lens**
Top View


Side View




# BRAVO 4™

Bravo 4 has a quad design, suitable for commercial, institutional, and industrial applications where abnormally severe or highly changeable environmental conditions are present.

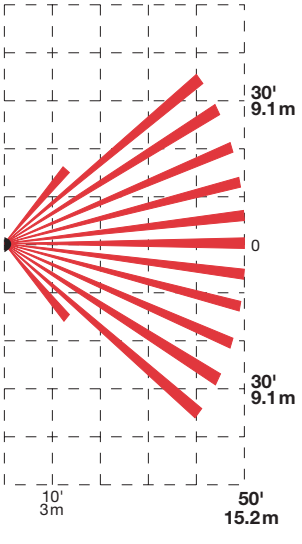
### *MODELS*

| | |
|---|---|
| BV-400 | Form 'A' alarm contact |
| BV-401 | Form 'A' alarm contact & tamper switch |
| BV-402 | Form 'C' alarm contact & tamper switch |

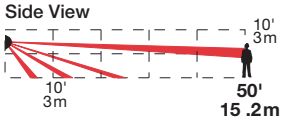
### *LENS COVERAGE*

| | | |
|---|---|---|
| Wall-to-Wall lens | (BV-L1) . . . . . .50'L x 60'W | (15.2 x 18.3m) |
| Corridor lens | (BV-L2) . . . . . .60'L x 5'W | (18.3 x 1.5m) |
| Curtain lens | (BV-L3) . . . . . .50'L x 4.4'W | (15.2 x 1.3m) |
| Pet Alley lens | (BV-L4) . . . . . .50'L x 60'W | (15.2 x 18.3m) |

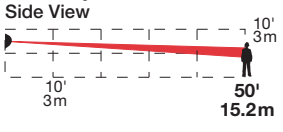
**Wall to Wall & Pet Alley Lens**
Top View



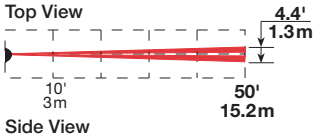

**Wall to Wall Lens**
Side View




**Pet Alley Lens**
Side View

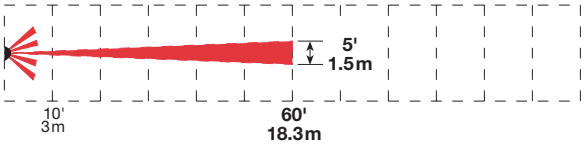



**Curtain Lens**
Top View

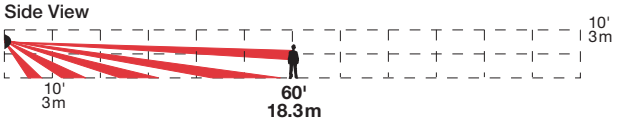



Side View


**Corridor Lens**
Top View



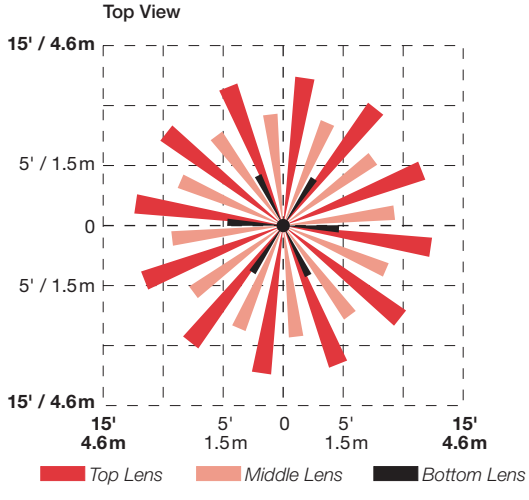

Side View

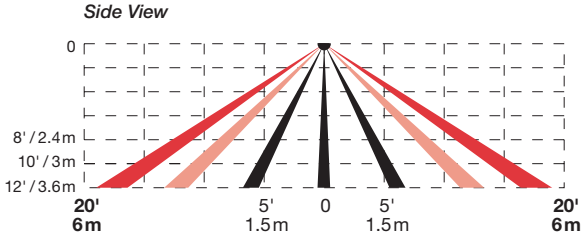


# BRAVO5™

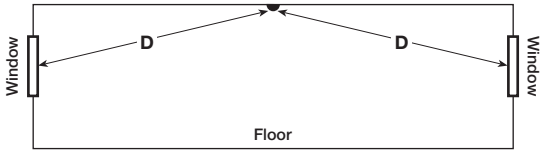
A 360° ceiling-mount quad element PIR motion detector with optional integral glass break detector, Bravo5 is ideal for rooms requiring a uniform 360° detection pattern *or* for rooms requiring the benefit of having both motion and glass break detectors in one housing.

### 360° QUAD Element PIR... *at 8' (2.4m) height*




### 360° Glass Break Detector




### *MODELS...Motion Alone*

| | |
|---|---|
| BV-500 | Form 'A' alarm contact |
| BV-501 | Form 'A' alarm contact & tamper switch |
| BV-502 | Form 'C' alarm contact & tamper switch |

### *MODELS...Motion & Glass Break*

| | |
|---|---|
| BV-500GB | Form 'A' alarm contact (motion), form 'C' contact (glass break) |
| BV-501GB | Form 'A' alarm contact (motion), form 'C' contact (glass break) & tamper switch |
| BV-502GB | Form 'C' alarm contact (motion), form 'C' contact (glass break) & tamper switch |

### *SPECIFICATIONS*

**Electrical :**

Input voltage . . . . . .9 to 14.5VDC
Current (typical with glass break) . . .38/35mA (alarm on/off) @ 12VDC
Current (typical without glass break) . .18/15mA (alarm on/off) @ 12VDC

**Contact Rating :**

Alarm relay (PIR) . . . . . .0.1A @ 24VDC
Alarm relay (glass break) . . . . . .1.0A @ 24VDC
Tamper switch . . . . . .0.1A @ 24VDC

**Environmental/Immunity :**

Operating temperature . . . . . .32 to 122°F (0 to 50°C)
Operating humidity . . . . . .5% to 95% non-condensing
Radiated immunity . . . .10V/m +80% (AM @ 1kHz) from 80MHz to 1GHz
Conducted immunity . . .10V +80% (AM @ 1kHz) from 150kHz to 80MHz
Transient immunity . . . . . .2.4kV @ 1.2 joules

**Physical :**

Dimensions . . . . . .4.6"Ø x 1.4"H (11.7 x 3.6cm)
Color . . . . . .designer white

### *360° PIR DETECTOR RANGE*

| *Mounting height* | *8' (2.4m)* | *10' (3.0m)* | *12' (3.6m)* |
|---|---|---|---|
| Detection diameter at floor | 24' (7.3m) | 30' (9.2m) | 40' (12.2m) |

### *360° GLASS BREAK DETECTOR RANGE*

| *Glass Type & Thickness* | *Sizes* | *Maximum 'D' Detection Range Level 1†* | *Level 2†* |
|---|---|---|---|
| *Plate/Tempered* | | | |
| 1/8" - 1/4" thick (3 - 6mm) | 18" x 18" and up (46 x 46cm) | 25' (7.6m) | 15' (4.6m) |
| | 12" x 12" to 18" x18" (30 x 30 to 46 x 46cm) | 15' (4.6m) | 10' (3m) |
| *Wired/Laminated* | | | |
| 1/4" thick (6mm) | 18" x 18" and up (46 x 46cm) | 20' (6m) | DO NOT USE |
| | 12" x 12" to 18" x18" (30 x 30 to 46 x 46cm) | 10' (3m) | |

†Jumper selectable

# BRAVO6™

Bravo6 features dual PIR sensors incorporating High Density Digital Analysis* and multi-level signal processing with a vertically interleaving beam pattern for superior intruder detection while being immune to pets weighing up to 85lbs/38kg.


## SPECIFICATIONS

### Operational :

| | |
|---|---|
| Mounting height | 6' to 10' (2 to 3m) |
| Lens horizontal pattern angle | 100° maximum |
| Vertical adjustment | from +5 to -10° |
| Alarm duration | 2 to 3 seconds |
| Walk speed | 0.5 to 10ft/s (0.15 to 3.0m/s) |

### Environmental/Immunity :

| | |
|---|---|
| Operating temperature | 32 to 122°F (0 to 50°C) |
| Operating humidity | 5% to 95% non-condensing |
| RF immunity | 10V/m 80% A.M., from 80 to 1,000MHz |
| Transient immunity | 2.4kV at 1.2 joules |
| Static immunity | 15kV |
| White light immunity | 4kLux |

### Electrical :

| | |
|---|---|
| Operating voltage | 9.5 to 14.5VDC |
| Ripple tolerance | 3Vpp at 12VDC |
| Standby current | 17.5 mA at 12VDC |
| Alarm current | 25 mA at 12VDC |
| Contact ratings | 100mA at 24VDC |
| Alarm contact series resistance | 10ohm 0.25W |

### Physical :

| | |
|---|---|
| Dimensions | 4.9"H x 2.76"W x 1.75"D (12.5 x 7.0 x 4.5cm) |
| Mounting | wall or corner |
| Color | designer white, with white lens |

* patent pending

## MODELS

BV-600 Form 'A' alarm contact

BV-601 Form 'A' alarm contact & tamper switch

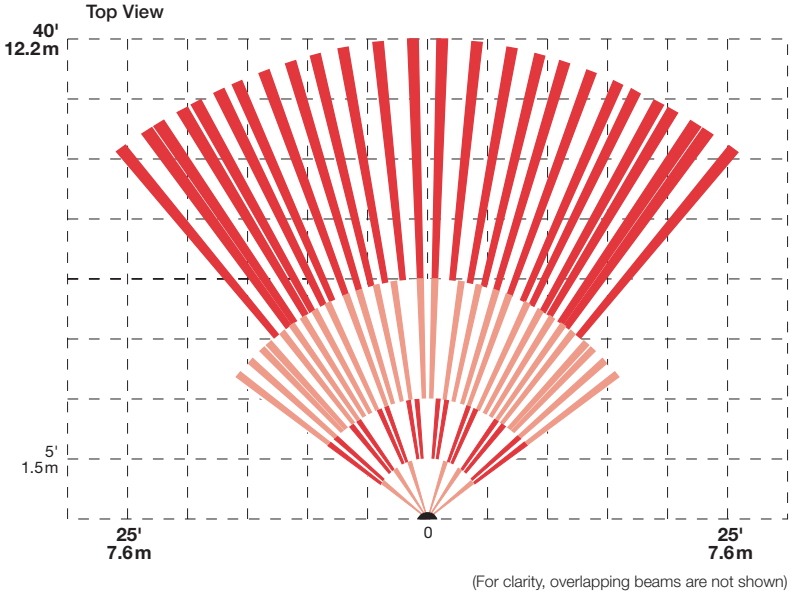
BV-602 Form 'C' alarm contact & tamper switch

## LENS COVERAGE

Dual sensor PIR lens pattern . . .40' L x 50' W (12.2 x 15.2m)

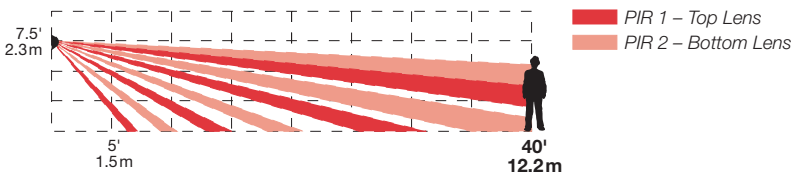
### Multi-Level Dual Sensor PIR Lens

Top View




(For clarity, overlapping beams are not shown)

*Side View*




*Multi-level signal processing with a vertically interleaving beam pattern*

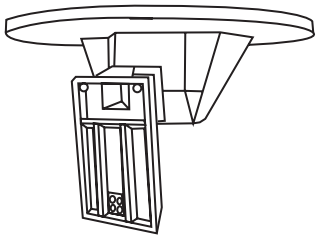


North American # 29002336 Rev.2

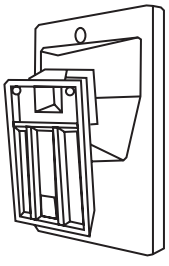
International # 29002340 Rev.2

## Mounting Brackets for BRAVO2, 3, 4, & 6

**DM-C**
**Ceiling Mounting Bracket**



**DM-W**
**Wall Mounting Bracket**



Both brackets allow detectors to be tilted up or down and rotated through 90° to obtain an ideal position for optimal coverage.

## AFT-100 Glass Break Simulator for BRAVO5

The AFT-100 Glass Break Simulator is a portable, battery operated tester that ensures reliable locating and testing of the Bravo5 with integral glass break detector.

- **generates Plate or Tempered Glass sound samples**
- **3" full range speaker accurately reproduces the full range of frequencies generated by shattering glass**
- **single or automatic/continuous sound (sound every 10sec) operation**

## Architects' Specifications

The contractor shall provide infra-red motion detectors in the areas specified on the drawings. Contractor shall be responsible for determining the best mounting location in each area to provide full coverage while minimizing false alarms. Wall mount detectors shall in addition be ceiling, or corner mountable, and shall share common mounting brackets so that they are interchangeable. Mounting position shall be adjustable both vertically and horizontally so that final position may be fine tuned as required during walk-testing.

Detectors shall employ multi-level signal processing and temperature compensation for accurate detection, "even in warm environments". They shall have high immunity to false alarms from RF, static, electrical transients, and white light.

All detectors shall carry a 5 year manufacturer's warranty.

Motion detectors for each area shall be selected from the following to best match the coverage requirements of each area:

### Bravo2

For small areas, detectors shall have 4 interchangeable lenses to provide 40'L x 40'W (12.2 x 12.2m) wall to wall coverage with or without pet alley, 70'L x 6'W (21.3 x 1.8m) corridor coverage, and 40'L x 3.5'W (12.2 x 1.1m) curtain coverage.

### Bravo3

For larger commercial/residential areas, detectors shall have 4 interchangeable lenses to provide 50'L x 60'W (15.2 x 18.3m) wall to wall coverage with or without pet alley, 120'L x 10.5'W (36.6 x 3.2m) corridor coverage, and 50'L x 4.4'W (15.2 x 1.3m) curtain coverage.

### Bravo4

For areas where there are abnormally severe or highly changeable environmental conditions, detectors shall have a quad element low noise sensor. Detectors shall have 4 interchangeable lenses to provide 50'L x 60'W (15.2 x 18.3m) wall to wall coverage with or without pet alley, 60'L x 5'W (18.3 x 1.5m) corridor coverage, and 50'L x 4.4'W (15.2 x 1.3m) curtain coverage.

### Bravo5

For areas requiring a circular detection pattern, motion detectors shall be dual element ceiling-mount type with 360° detection pattern up to 40' (12.2m) in diameter. If area also requires glass break detection, motion detectors shall include integral glass break detectors. Glass break detectors shall have a 360° detection range of 25' (7.6m) from detector to glass and shall be able to detect breakage of plate, tempered, wired, and laminated glass.

### Bravo6

For areas where maximum immunity to false alarms caused by pets is required, without a reduction in the ability to detect people, detectors shall have dual PIR sensors employing high density digital analysis and multi-level signal processing with a vertically interleaving beam pattern. Detector shall provide 40'L x 50'W (12.2 x 15.2m) wall to wall coverage.

*Information in this brochure is subject to change without notice*

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