PARADOX®
SECURITY SYSTEMS

MOTION DETECTORS

The Paradox series of motion detectors combines advanced features and patented technologies to provide a high level of detection and false alarm prevention. Whatever the application, from outdoor, to pet-friendly, to patented 100% Digital detection, there's a Paradox motion detector that will suit your needs and surpass your expectations.

Digital Motion Detectors

Features and Specifications Common to All Digital Motion Detectors

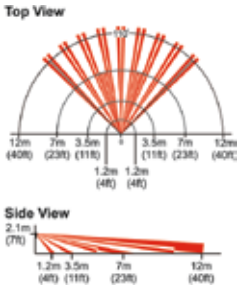
- Patented Digital Motion Detection
- Patented Auto Pulse Signal Processing
- Digital Shield algorithm software with adjustable sensitivity
- Single or Dual Edge Processing (Except DG466)
- Automatic Temperature Compensation
- Metal shield maximizes protection from EMI and RFI signals (Except DG466 and 525D)
- Solid-state relay

Specifications: operates at 11Vdc to 16Vdc; 0.2m to 3.5m/s (0.6ft to 11.5ft/s) walk speed; anti-tamper switch (150mA/28Vdc, N.C.); operates at -20°C to +50°C (-4°F to +122°F) except DG85W see page 3; maximum current consumption 15mA (DG85W and 525D 30mA); 10V/m (525D: 3V/m) rejection from 10MHz to 1GHz; 2.1m to 2.7m (7ft to 9ft) installation height; alarm output (form A relay 100mA/28Vdc, N.C. or optional form C relay 5A/28Vdc, N.C./N.O.); flat-strip microwave antenna with FET oscillator (525D only). DG466 specifications see page 3

DG55

Dual Element Digital Motion Detector

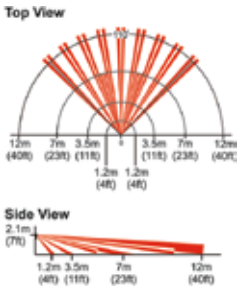
- Dual element sensor
- 12m x 12m (40ft x 40ft); 110° viewing angle
- See Features and Specifications Common to All Digital Motion Detectors above



DG65

Quad Element Digital Motion Detector

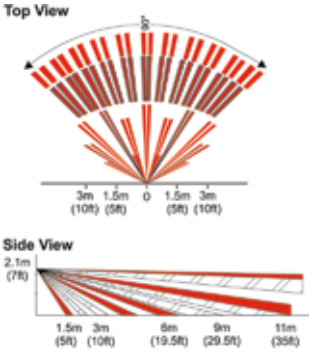
- Digital Dual Opposed Detection
- Interlock Sensor Geometry
- Quad element sensor
- 12m x 12m (40ft x 40ft); 110° viewing angle
- See Features and Specifications Common to All Digital Motion Detectors above



DG75

Digital Dual-Optic High-Performance PIR (40kg/90lb True Pet Immunity)

- Extremely reliable and false-alarm free
- Dual optics (2 dual opposed element sensors)
- Provides superior pet immunity using a patented combination of advanced optics and digital processing technologies
- Immune to pets weighing up to 40kg (90lb)
- Digital Dual Opposed Detection
- 11m x 11m (35ft x 35ft); 90° viewing angle
- See Features and Specifications Common to All Digital Motion Detectors above
- Wireless model also available, MG-PMD75. See Wireless Security Systems technical brochure for details.



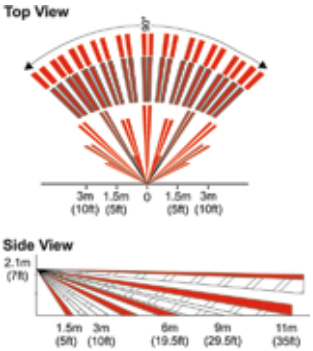
Digital Motion Detectors

DG85W

Outdoor Digital Dual-Optic High-Performance PIR (40kg/90lb True Pet Immunity)

Same features as the DG75 plus a special weatherproof design:

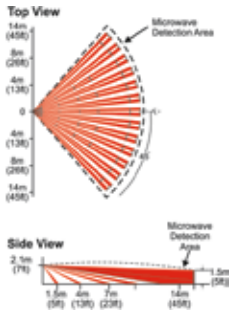
- Impact and temperature resistant casing
- Operates at -35°C to +50°C (-31°F to +122°F)
- Casing lined with an injected rubber gasket
- UV protected lens
- Dual Optical Filtering System
- Metal shield maximizes protection from EMI and RFI signals
- Multi-level sensitivity adjustment
- Two operational modes (addressable for the Digiplex series or conventional relay operation)
- See Features and Specifications Common to All Digital Motion Detectors on page 2.
- Wireless model also available, MG-PMD85W. See the Wireless Security Systems technical brochure for details.



525D

Microwave and Infrared Digital Motion Detector

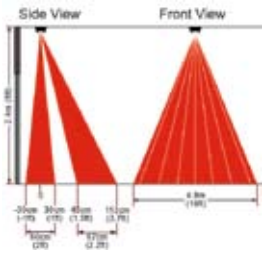
- Digital microwave detection
- 3 LED indicators display type of movement
- Once the PIR validates that a signal meets alarm conditions, Digital Vision uses microwave signals to confirm the results before generating an alarm
- Adjustable microwave range
- 14m x 14m (45ft x 45ft); 90° viewing angle
- See Features and Specifications Common to All Digital Motion Detectors on page 2.



DG466

Directional Ceiling-Mounted Digital Motion Detector

- Two dual element sensors (determine if movement is incoming or outgoing)
- Ideal for protecting open balconies and patio doors
- One incoming detection relay output
- One outgoing detection relay output
- Adjustable return delay timer (exit and re-enter without causing an alarm)
- 67cm x 4.8m (2.2ft x 16ft) and 60cm x 4.8m (2ft x 16ft)
- See Features and Specifications Common to All Digital Motion Detectors on page 2, except dual edge processing and metal shield



Specifications: 15mA maximum current consumption; 2m to 4m (7ft to 14ft) installation height; two alarm outputs (form A relay 100mA/28Vdc, N.C.)

Analog Motion Detectors

Features and Specifications Common to All Analog Motion Detectors

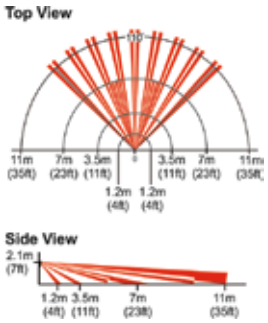
- Patented Auto Pulse Signal Processing
- Automatic Temperature Compensation
- Metal shield maximizes protection from EMI and RFI signals
- Dual element sensor

Specifications: anti-tamper switch (150mA/28Vdc, N.C.); alarm output (form A relay 100mA/28Vdc, N.C. or optional form C relay 500mA/30Vdc, N.C./N.O.)

476+

PIR with High EMI and RFI Rejection

- Extremely high EMI and RFI rejection
- PCB uses only surface mount components
- Solid-state relay
- 11m x 11m (35ft x 35ft); 110° viewing angle
- See Features and Specifications Common to All Analog Motion Detectors above

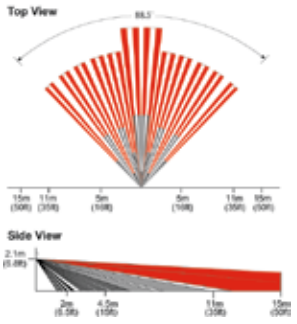


Specifications: operates at 11Vdc to 16Vdc; 31mA maximum current consumption; 10V/m rejection from 10MHz to 1GHz; 2.1m to 2.7m (7ft to 9ft) installation height; 0.2m to 3.5m/s (0.6ft to 11.5ft/s) walk speed; operates at -20°C to +50°C (-4°F to 122°F)

476PET

Analog Single-Optic PIR (18kg/40lb Pet Immunity)

- Immune to animals weighing up to 18kg (40lb)
- When a higher level of immunity is required, such as when animals are constantly in the detection area, consider using DG75
- 11m x 11m (35ft x 35ft) and up to 15m (50ft) for center beams with 88.5° viewing angle
- Extremely high EMI and RFI rejection
- PCB uses only surface mount components
- Solid-state relay
- See Features and Specifications Common to All Analog Motion Detectors above

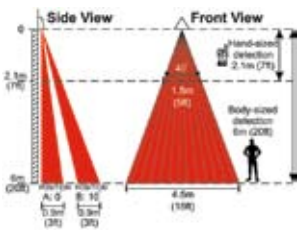


Specifications: same as 476+

460

Vertical View Motion Detector

- Adjustable lens position (0° or 10°)
- Selectable operational voltage (12Vdc or 24Vdc)
- Adjustable alarm signal duration
- Detects hand-sized objects for card access applications: 2.1m x 1.5m (7ft x 5ft)
- Detects body-sized objects for security applications: 6m x 4.5m (20ft x 15ft)
- See Features and Specifications Common to All Analog Motion Detectors above



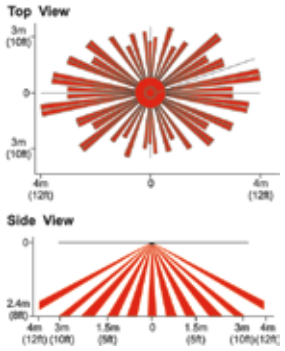
Specifications: operates at 9Vdc to 16Vdc or 20Vdc to 27Vdc (selectable); 18mA maximum current consumption; hand-sized detection from 2.1m (7ft); body-sized detection from 6m (20ft); 0.2m to 3.5m/s (0.6ft to 11.5ft/s) walk speed; operates at -10°C to +50°C (14°F to 122°F)

Analog Motion Detectors

465

360° Ceiling-Mounted Motion Detector

- 7m x 6m (24ft x 20ft) at 2.4m (8ft)
- 11m x 6m (35ft x 20ft) at 3.7m (12ft)
- 360° viewing angle
- See Features and Specifications Common to All Analog Motion Detectors on page 4



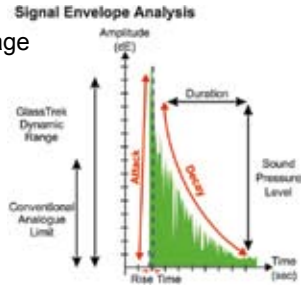
Specifications: operates at 9Vdc to 16Vdc; 18mA maximum current consumption; 2m to 4m (7ft to 14ft) installation height; 0.2m to 3.5m/s (0.6ft to 11.5ft/s) walk speed; operates at -10°C to +50°C (14°F to 122°F)

Specialized Detectors and Accessories

456

Glassbreak Detector

- Precise detection of plate, tampered and laminated glass breakage
- Full audio and infrasonic spectrum analysis
- 7 frequency digital filters, digital amplifier gain and frequency fluctuation assessment
- Impact and shock wave analysis
- High-immunity to RFI and EMI signals
- Sensitivity: High 9m (30ft) or Low 4.5m (15ft)
- TestTrek (459) for testing available separately



Specifications: operates at 9Vdc to 16Vdc; 17mA max current consumption; 10V/m rejection from 10MHz to 1GHz; anti-tamper switch (150mA/28Vdc, N.C.); alarm output (form A relay 150mA/28Vdc) N.C.; operates at -20°C to 50°C (4°F to 122°F)

950

Safe Protector

- High-sensitivity piezoelectric element
- Five sensitivity settings
- 2.5m (8ft) protection range

Specifications: operates at 10Vdc to 16Vdc; 16mA typical current consumption; adjustable sensitivity (100%, 70%, 50%, 40% or 30%); anti-tamper switch (200mA/24Vdc, N.C.); alarm output (form A relay 150mA/28Vdc, N.C.); operates at -20°C to 50°C (-4°F to 122°F)

469

Swivel Mount Bracket

- 3 in 1: ceiling, wall or corner mount bracket
- Ensures optimal coverage

MG-SB85W

Heavy Duty Outdoor Swivel Bracket

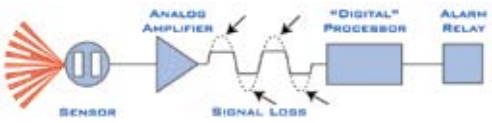
- For use with the MG-PMD85W and DG85W outdoor digital PIRs
- Innovative T-joint allows for movement along two axes for better maneuverability and better detector positioning
- 3 in 1: ceiling, wall or corner mount bracket
- Cap lock prevents unauthorized repositioning of outdoor detector

100% Digital Motion Detection (Patented)

100% Digital Detection:

Completely software-driven, true 100% digital motion detection completely converts, amplifies and processes the sensor's low-level signal in the digital domain without any analog circuitry. The sensor's entire signal is processed without any saturation or noise, which provides increased accuracy, reliability and superior false alarm immunity.

Conventional "Digital" Motion Detection:



Conventional "digital" motion detectors have an analog stage that is used to amplify the sensor's signal. The analog circuitry causes most of the signal to be lost due to the saturation of the amplifier. Therefore, there is no real benefit in adding a processor to an analog motion detector since most of the signal is lost in the amplifier stage and there is no data to process over a conventional analog decision-making circuit.

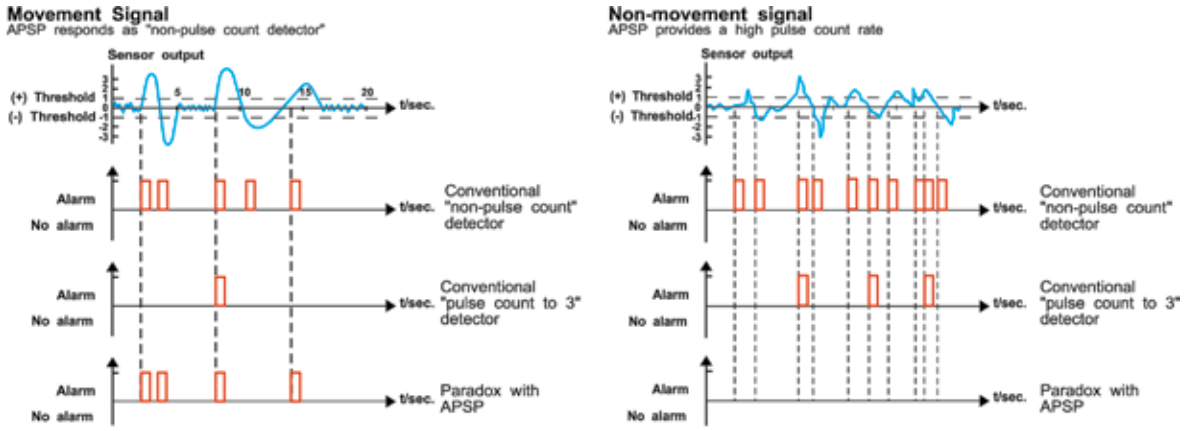
Digital Shield Algorithm

Shield is a software algorithm that is comprised of three major parts:

Real Time DSP (Digital Signal Processing):
The DSP portion of the software digitally amplifies and filters the sensor signal in real time. Unlike analog filtering, digital filters are accurate, unaffected by temperature levels, have no phase distortion and do not add cost or hardware components. The result is a clean and accurate digital signal with maximum S/N ratio.
Movement Analysis:
Movement generates a unique sequence of signals. For each signal, Shield measures and calculates the signal's parameters (amplitude, duration, peak level, polarity, rise time and shape) in real time and then stores them in memory. Each signal is compared with a reference bank of movement and non-movement signals. If the signal does not meet movement criteria, it is immediately rejected.
RFI/EMI Protection:
The high dynamic range of the digital samples and high sampling rate allow high level RF signals to be recorded without clipping or any other distortion. Shield recognizes RFI/EMI conditions and effectively distinguishes interference signals from movement signals without compromising the detection of movement.

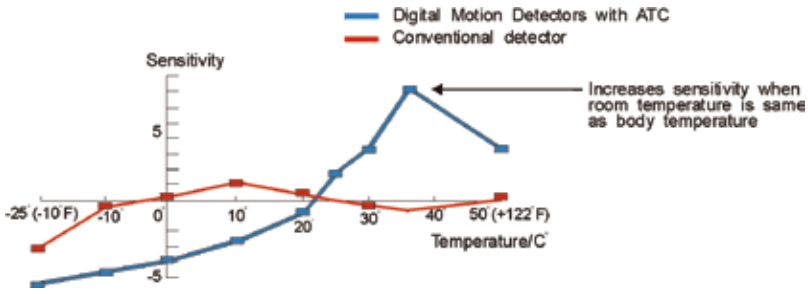
Auto Pulse Signal Processing (Patented)

Auto Pulse Signal Processing (APSP) measures energy from each detected signal and stores it in memory. To generate an alarm, the memory must reach a required minimum level. Thus, in the presence of high-level signals (very low risk of false alarms) the detector immediately generates an alarm, functioning as a "non-pulse count" detector, while low level signals (presenting a high risk of false alarms) will cause the detector to automatically switch to a very high pulse count mode - resulting in excellent protection against false alarms. Pulse counting rate depends on signal energy levels and can go much higher for RFI signals.



Automatic Temperature Compensation (ATC)

ATC automatically adjusts the motion detector's sensitivity according to the difference between the room temperature and body temperature. This helps maintain the same operation in its operational temperature range without any loss of coverage or decrease in false alarm rejection.

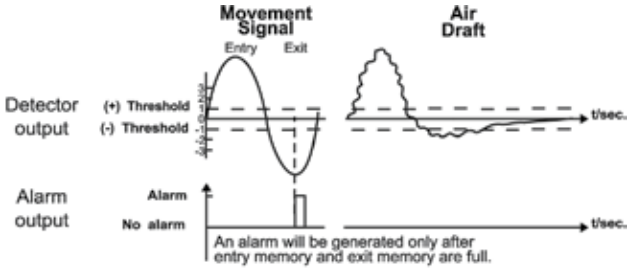


Interlock Sensor Geometry (Patented)

The Interlock Sensor Geometry's (ISG) interlaced pattern provides greater coverage over longer distances more effectively than conventional sensors. Standard quad detectors lose effectiveness as they reach their maximum coverage since a human body will not cross both detector beams at the same time.

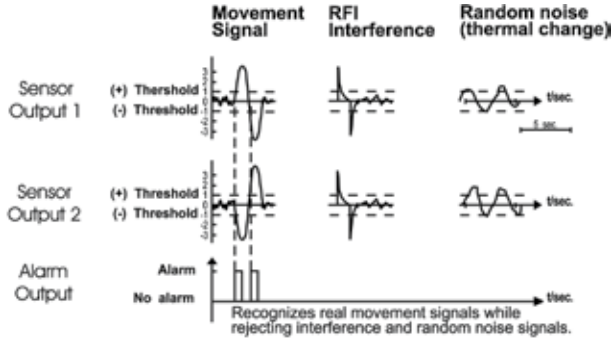
Dual Edge Processing (Entry and Exit Analysis)

Dual edge processing separates the entry and exit signals so each signal must reach the required level. If the entry and exit signals do not reach required energy levels, an alarm is not generated thus dramatically increasing false alarm immunity. Single edge processing (found in most PIRs) adds the entry and exit signals until the required energy levels are reached before an alarm is generated.



Dual Opposed Detection (DOD)

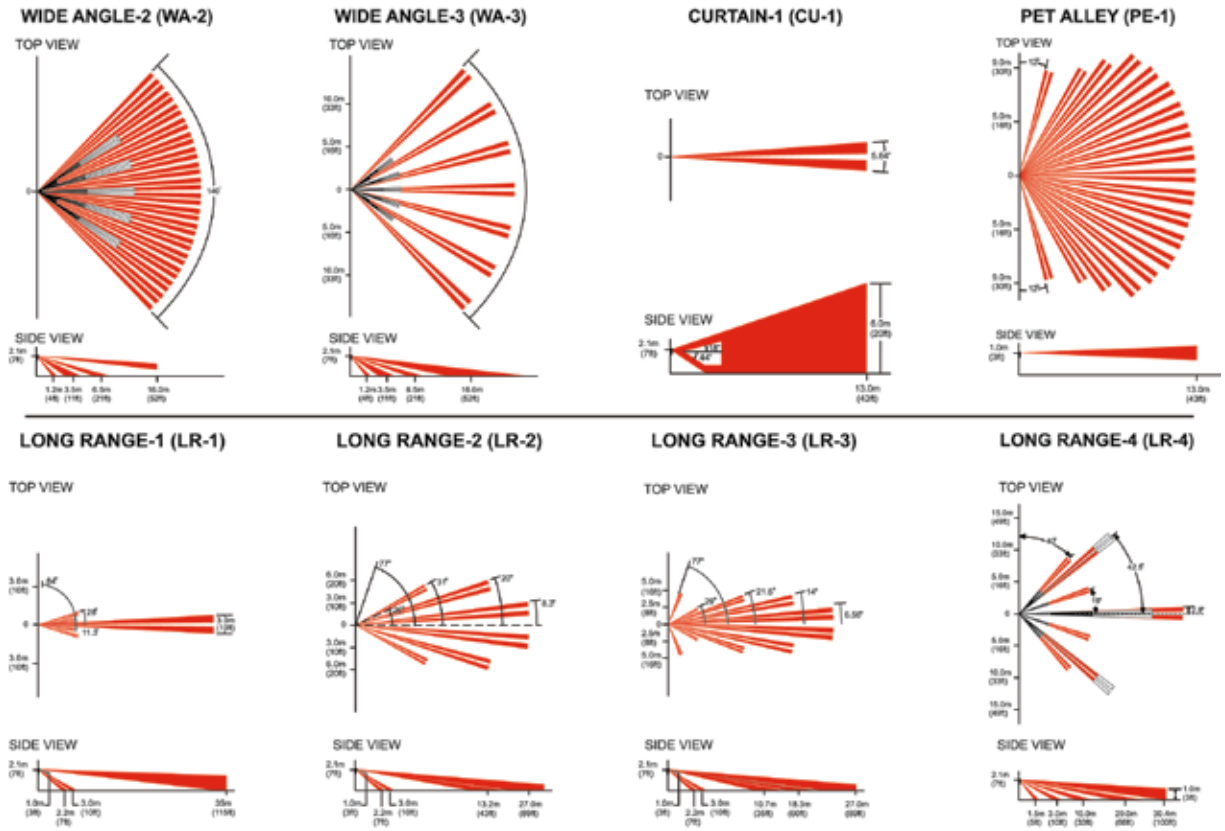
Compares the entry and exit signals' polarity. Only movement signals will generate opposed polarity signals, which will be processed by the software. Any interference signals will generate same polarity signals, which will be rejected by the software providing unmatched RFI and EMI immunity.



Motion Detector Comparison Chart and Optional Lenses

Products	Digital Detection	Auto Signal Processing	Auto Temp. Compen-sation	Shield Algorithm	Dual Edge Processing	Dual Opposed	Interlock Sensor Geometry	Special	Animal Immunity	Metal Shield	Sensor	Coverage (Viewing Angle)	Optional Lenses
DG55	✓	✓	✓	✓	✓	-	-	-	-	✓	Dual Element	m: 12 x 12 ft: 40 x 40 110°	✓
DG65	✓	✓	✓	✓	✓	✓	✓	-	-	✓	Quad Elements	m: 12 x 12 ft: 40 x 40 110°	✓
DG75	✓	✓	✓	✓	✓	✓	-	-	40kg (90lbs)	✓	2 Dual Elements	m: 11 x 11 ft: 35 x 35 90°	-
DG85W	✓	✓	✓	✓	✓	✓	-	Outdoor	40kg (90lbs)	✓	2 Dual Element	m: 11 x 11 ft: 35 x 35 90°	-
525D	✓	✓	✓	✓	✓	-	-	Microwave Infrared	-	-	Dual Elements	m: 14 x 14 ft: 45 x 45 90°	✓
DG466	✓	✓	✓	✓	-	-	-	Directional	-	-	2 Dual Element	see page 3	-
476+	-	✓	✓	-	-	-	-	-	-	✓	Dual Element	m: 11 x 11 ft: 35 x 35 110°	✓
476PET	-	✓	✓	-	-	-	-	-	18kg (40lbs)	✓	Dual Element	m: 11 x 11 ft: 35 x 35 88.5°	-
460	-	✓	✓	-	-	-	-	Vertical view	-	✓	Dual Element	see page 4	-
465	-	✓	✓	-	-	-	-	360°	-	✓	Dual Element	see page 5	-

Note: For the latest information on product approvals, such as UL and CE, please visit our website at www.paradox.ca.



The beam patterns represent the optional lenses that are available for the 476+, DG55, DG65 and 525D motion detectors. Distances shown may vary according to the selected motion detector.

PARADOX SECURITY SYSTEMS
780 Industriel Blvd., St-Eustache (Quebec) J7R 5V3 CANADA
Tel.: (450) 491-7444 • Fax (450) 491-2313
paradox.com

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