The RADION TriTech ZB Wireless Motion Detector uses a combination of passive infrared (PIR) and microwave Doppler radar detection technologies with advanced signal processing. This combination ensures maximum false alarm immunity while ensuring catch performance for residential and small commercial applications. The detector uses two Fresnel lenses designed to produce sharply-focused images throughout the field of view providing superior detection of intruders. The main lens provides a high density (77 zone) 7-layer pattern, and the selectable lookdown lens provides an additional three lookdown zones. Easy installation and flexible mounting height provides state-of-the-art detection while minimizing installation time and complexity. Pet Friendly intelligence generates alarm signals for human intruders without generating false alarm signals from pets.

**Functions**

**ZigBee technology**
This motion detector utilizes ZigBee technology, a global wireless standard for communicating to both smart devices and security systems in a home automation environment. This ZigBee Certified product works in global 2.4 GHz networks supporting ZigBee HA1.2.

**ZigBee Certified product**

**Home automation**
ZigBee Home Automation wireless technology offers a standard approach for connecting a variety of compliant devices throughout a residential or
commercial property. ZigBee technology uses a reliable mesh network that keeps devices connected and working together, while offering outstanding battery life. ZigBee wireless home automation systems seamlessly connect security with home operational and control devices offering the property owner both convenience and peace of mind.

**TriTech detection technology**
TriTech combines Passive Infrared (PIR) and Doppler radar with advanced signal processing for optimal performance. An alarm condition is generated only when intruder activity is detected by both technologies and when this activity meets the alarm requirements of the signal processing algorithm. By combining these two technologies, the detector is able to more effectively eliminate false alarms from objects that a traditional PIR only detector may generate an alarm from. The Doppler radar sensitivity is also adjustable to suit application requirements.

**First Step Processing**
*First Step Processing* (FSP) almost instantly responds to human targets without producing false alarms from other sources. FSP adjusts the detector’s sensitivity based on signal amplitude, polarity, slope, and timing. This eliminates the need for the installer to select the sensitivity level, thus improving ease of installation and reliability.

**Pet-Friendly**
The installer can turn pet immunity on or off based upon application requirements. When pet immunity is turned off, the detector increases sensitivity by approximately 20%, for applications that require higher levels of catch performance. When pet immunity is turned on, the detector can distinguish between signals caused by humans and signals caused by pets. It ignores signals caused by one or two animals or pets up to 45 kg (100 lb) or numerous rodents.

**Doppler radar Noise Adaptive Processing**
Microwave Doppler radar noise adaptive processing adjusts to background disturbances. This helps to reduce false alarms while maintaining catch performance.

**Supervised Radar and PIR**
Patented, fully supervised Doppler radar circuitry ensures single technology (PIR) coverage in the event the Doppler radar subsystem fails.

**Dynamic Temperature Compensation**
This feature automatically monitors the ambient temperature and adjusts the signal processing to maintain proper catch performance in critical temperature ranges.

**Active White Light Suppression**
An internal light sensor measures the level of light intensity directed at the face of the detector. Advanced signal processing uses this information to eliminate false alarms from bright light sources.

**Sealed Optics and Electronics**
The optics and electronics are assembled into the front enclosure and sealed with a protective cover to prevent damage during installation. The sealed optical chamber also prevents drafts and insects from affecting the detector.

**Wall-to-Wall Coverage**
An improved lookdown zone and coverage range of 12 m x 12 m (40 ft x 40 ft) provide wall-to-wall coverage.

**Self-locking Enclosure**
The sliding self-locking enclosure enables faster, easier installation.

**Removable mounting bubble level**
Mounting the detector is easy to do when you use the integrated bi-axial bubble level to align the detector base to the contours of your wall. Use the bubble level when installing on flat surfaces. Remove the bubble level and insert into the specifically designed bubble level holder when installing onto an optional swivel mounting bracket to ensure proper vertical leveling of the detector.

**Extended battery life**
The motion detector utilizes a dual-battery compartment allowing for additional battery life by using an optional 2nd lithium battery. To preserve battery life, LED and alarm indications are visible and transmitted only after 3 minutes have passed since the previous alarm restoral. Note that the LED is only visible when the LED switch is set to on.

**Test Features**
Externally visible alarm LED can be disabled after installation to maximize battery life. The LED also may be enabled for customer peace of mind to show LED activation in the event of motion detection. Note that leaving the LED on will reduce battery life by approximately 6 months.

**Certifications and approvals**

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*ONLY for models RFDL-ZB and RFDL-ZB-MS
### Installation/configuration notes

#### Compatibility information
Compatible with ZigBee Home Automation 1.2 compliant systems.

#### Coverage patterns

- **Coverage pattern key**
  - PIR detection zones
  - PIR detection look-down zones
  - Doppler radar range

- **Mounting considerations**
  - Radio communication range depends on building construction and other factors.
  - Install in high traffic areas to optimize catch performance.
  - Mount the motion detector so it is aimed where an intruder will most likely cross through the coverage pattern.
  - Mount the motion detector level both horizontally and vertically to avoid false alarms and reduced catch performance.
  - Mount the motion detector on interior walls where it is protected from weather elements such as rain, snow, or direct sun light.
  - Mount the motion detector between 2.3 m and 2.7 m (7.5 ft and 9 ft).
    - On a flat wall (surface mount).
    - In the junction of two perpendicular walls (corner mount).
    - On a flat wall with the optional B335-3 Swivel-mount Bracket.
    - On the ceiling with the optional B338 Ceiling-mount Bracket.
    - Lower mounting heights generally increase catch performance. Higher mounting heights increase false alarm immunity.

#### Notice
The use of optional mounting brackets can reduce the detector’s range and increase the dead zone areas. Mount the motion detector level vertically to ensure optimal performance.

### Technical specifications

#### Mechanical

- **Dimensions**: 2.4 in x 4.3 in x 1.7 in (60 mm x 108 mm x 42 mm)

#### Environmental considerations

- **Relative humidity**: 0% to 93% at +40°C (+104°F)
  - UL: 0% to 85% at +30°C (+86°F)
- **Temperature (operating)**: -10°C to +55°C (+14°F to +131°F)
  - UL: 0°C to +49°C (+32°F to +120°F)
- **Mounting considerations**: Mount in dry indoor locations.
- **Mounting height**: 7.5 ft to 9 ft (2.3 m to 2.7 m)
- **Frequency**: ZigBee: 2.4 GHz
- **Pet immunity**: Enable or disable

#### Power requirements

- **Batteries**: Panasonic CR123A Lithium 3 VDC
  - Duracell DL123A Lithium 3 VDC
  - Sanyo CR123A Lithium 3 VDC
- **Battery life**: Up to 3 years using one battery. Up to 6 years using two batteries
- **Battery capacity**: 1400 mAh (minimum)

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**RADION TriTech ZB coverage pattern**

**Coverage pattern key**
- PIR detection zones
- PIR detection look-down zones
- Doppler radar range

**Mounting considerations**
- Radio communication range depends on building construction and other factors.
- Installation on metal surfaces can negatively affect the RF propagation pattern of the radio transceiver.
- For residential applications and applications that have small animals or pets, enable pet immunity mode.
- For commercial applications, disable pet mode for higher sensitivity.
Notice
Do not mix between old batteries and new batteries.

Ordering information

**RFDL-ZB RADION TriTech ZB Motion Detector**
ZigBee certified motion detector with pet-friendly technology. Provides PIR and Doppler radar, 12 m x 12 m (40 ft x 40 ft) coverage. For use with compatible ZigBee systems in North and South America, Australia, and Asia Pacific region.
Order number **RFDL-ZB**

**RFDL-ZB-MS RADION TriTech ZB Motion Detector (compatible with iControl ecosystems)**
ZigBee certified motion detector with pet-friendly technology. Provides PIR and Doppler radar, 12 m x 12 m (40 ft x 40 ft) coverage. For use with iControl systems in North America, South America, Australia, and Asia-Pacific region.
Order number **RFDL-ZB-MS**

**Accessories**

**B335-3 Swiveling low-profile mount**
Swiveling, low-profile, universal bracket for wall mounting. The vertical swivel range is +10° to -20°, while the horizontal swivel range is ±25°.
Order number **B335-3**

**B338 Universal Ceiling-mount Bracket**
Swiveling universal bracket for ceiling mounting. The vertical swivel range is +7° to -16°, while the horizontal swivel range is ±45°.
Order number **B338**