Motion Sensors

Leading
by technology

ARITECH

Carrier
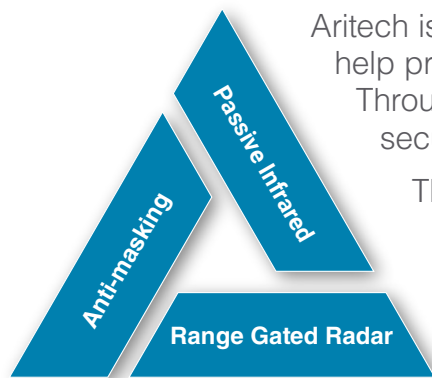
Advanced technologies from Aritech

Aritech is a global leader in safety and security solutions that help protect people, property and assets the world over. Through a broad portfolio of innovative products, we offer security solutions to countless customers worldwide.

This document provides a comprehensive overview of our indoor wired motion sensors with the features and applications they are most suited for. We invite you to discover the power of technology within the design housing that can be mounted discreetly in your room. With a unique triangle of technologies PIR, range gated radar and anti-masking Aritech is providing its customers with:

Superior volumetric coverage

Our highly advanced mirror optics provide great volumetric coverage, minimising the risk that an intrusion event is missed.

Outstanding false alarm immunity

Advanced digital signal processing means better detection and an extremely low rate of unwanted alarms. Dual and vector technology gives peace of mind, particularly in harsh environments.

Supreme protection against sabotage

Highly sophisticated anti-masking technology helps thwart any attempt to sabotage the detectors.

Lower power consumption

Our motion sensors are designed for low power consumption.

Freedom of installation

Our sensors tolerate wall-angle deviation and different mounting heights. No sensitivity adjustment is needed for shorter distances and coverage will be only partially blocked by objects. Depending on the model, easy sensitivity adjustments can be made both on PIR and range gated radar technology.

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Our full range of intrusion sensors

Intrusion sensor technologies line up

PIR

EV1000 series **EV1100 series** **EV600 series**

PIR technology (passive infrared)

– Superior mirror optics
– Gliding focus : target focus on entire range improving accuracy

(pages 04-05)

Vector

VE1000 series **VE1100 series** **VE700 series**

Vector technology

– Superior mirror optics
– Gliding focus : target focus on entire range improving accuracy
– Multi-dimensional signals
– Sophisticated algorithms using pattern recognition

(pages 06-07)

Range gated radar

DD1000 series **DD600 series**

PIR + Range gated radar

– Combining PIR technology with range gated technology
– True Range control : radar technology defining the borderline of the detection range

(pages 08-09)

Anti-masking

EVAM series **VEAM series**

DD1000AM series **DD600AM series**

Anti-masking technology

– EN Grade 3 anti-masking technology with unique design
– Best-in-class detection against sabotage

1. PIR technology

2. Dual technology

(pages 10-11)

PIR technology

Passive infrared is the most commonly used technology for motion sensors. For our indoor passive infrared sensors, Aritech uses a concept of sophisticated mirror optics and signal processing to accurately and reliably detect the presence of a human in the protected area. Several patents distinguish Aritech's passive infrared motions sensors from other manufacturers.

This technology is used for wall and ceiling mount motion sensors to fit a variety of applications.

Product series

EV1000 series   EV1100 series   EV600 series

PASSIVE INFRARED IS THE MOST COMMONLY USED TECHNOLOGY FOR MOTION SENSORS

Sophisticated mirror optics driving precision

Overview

Our sophisticated mirror optics are shaped, reinvented, miniaturised and patented thanks to more than 30 years of industry leading experience. These optics, coupled with unique signal processing, make our motion sensors sensitive and reliable in challenging environments.

Gliding focus

Sophisticated mirror optics create a dense detection pattern of continuous curtains. Each mirror segment has a lens effect compensating for the distance of the person moving in front of the detector. This 'gliding focus' principle results in a well captured signal regardless of how close or far the person is from the detector.
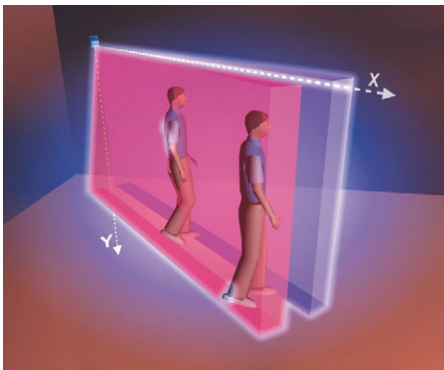
- Even sensitivity over the entire range
- Full coverage wall to wall and Floor to Installed Motion Sensor Height
- Dealing with obstructing objects

Sensor analytics & intelligent differentiation of signals
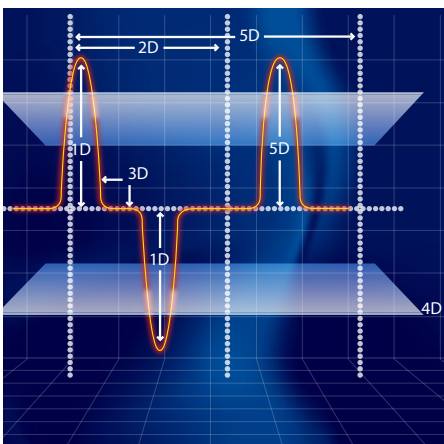
The unique 5D signal processing technology will look for a match in size, speed and shape to decide if an alarm condition is present. The result is a range of PIR motion sensors that combines high sensitivity detection with strong immunity to false alarms. Proven sensibility and reliability!

The sensor analyses:
1D = Shape
2D = Duration
3D = Speed
4D = Size
5D = Environment

Signals such as moving reflections of sunlight are filtered out.

Technology to the benefit of your security

Aritech's patented vector technology is based on a double passive infrared sensing element with a specific layout. Thanks to the specific layout of the sensor, elaborated analytics can be made on the detection signal resulting in both increased stability and sensitivity. The sophisticated vector algorithms, using pattern recognition, can easily eliminate nuisance signals and can even determine the direction of motion of the intruder. This makes the Vector range of motion sensors most suitable in situations where nuisance factors can't be eliminated or avoided.

In some cases this highly advanced Vector detection technology will be the preferred choice above dual technology.

Product series

| VE1000 series	VE1100 series	VE700 series

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Vector enhanced signal analysis

Overview

VE or vector enhanced sensors embodies the perfect motion sensor where high sensitivity and outstanding stability are required in demanding environments. It combines the latest step in the evolution of technology driven motion sensors with the superior mirror technology.

Building blocks

A dual heat sensitive pyro cell with specific layout captures movement in the detected area using sophisticated mirror optics with 'Gliding focus'. Elaborated analytics on the captured signal results in high performance and reliable detection.

Vector enhanced signal analysis

Patented VE passive infrared technology uses the dual pyro sensor in such a way that it provides two separate detection signals with a slight time difference. By plotting the combination of these two signals on an X/Y axis, a distinctive shape appears when a person is moving in front of the detector. The VE signal analysis
will compare the detected signal with pre-programmed shapes to find a matching signal. The break-through technology behind this range of sensors puts them
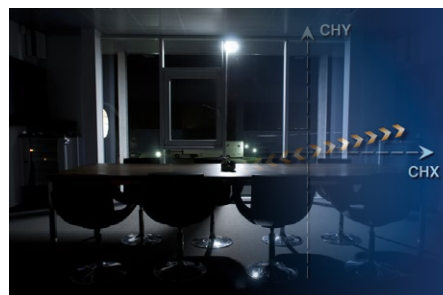in a class of their own.
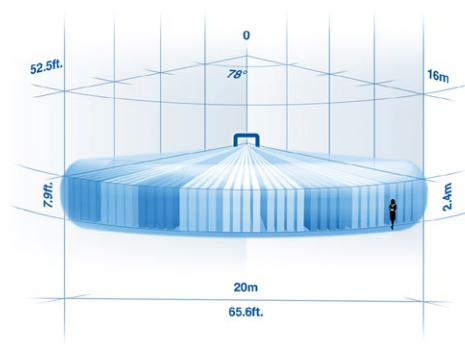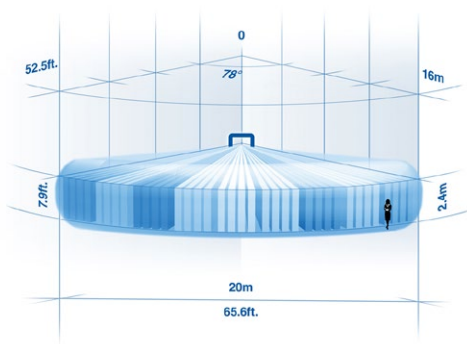
Potential nuisance

Discrimination between real Motion of person and 'Non-Motion' (thermal, electrical, shock...)

Thermal non-motion

White-light

Air-turbulence

RFI/mechanical shock

Range gated radar technology combined with PIR or vector

Reacting only to objects within the selected range

Dual motion sensors combine passive infrared technology with patented range gated radar technology. The range of the radar detection can accurately be set to a pre-defined distance. This patented breakthrough technology is unique within the industry. Additionally the processing of an alarm condition in both technologies is designed in such a smart way that the performance of these sensors is unparalleled.

Product series

Passive Infrared

Addressability

Range Gated Radar

DD1000 series   DD600 series

THE RANGE OF THE RADAR DETECTION CAN ACCURATELY BE SET TO A PRE-DEFINED DISTANCE

Dual technology : always in control
PIR + Range gated radar

Overview

Aritech's motion sensors based on dual technology holds several patents for each technology. Passive infrared technology with mirror optics works perfectly together with range gated radar technology. Both are 'best in class' within the industry.

Patented range gated radar technology

Selecting 1 of the 4 predefined radar ranges allows the installer to tailor the detection pattern to the room the device is within. The range gated radar technology will clearly define the borderline of the detection range and will avoid any false alarms from microwave bleeding through walls, as can be found with traditional dual technology motion sensors.

PIR combined with patented mirror optics

Same as with single technology, the PIR part of the dual detector uses the patented gliding focus mirror optic technology with a dense pattern of detection curtains from floor level up to the installation height. Using a dual or a quad pyro element will generate 2 or 4 segments per curtain.

More than a commonly used 'AND' function

These motion sensors generate an alarm depending on what both technologies – range gated radar and PIR – analysed within the detection range. But the devices go beyond a simple 'AND' function.

Example : a very strong signal picked up by a technology in combination with a weaker signal picked up by the other technology, will generate an alarm. This results in an increased detection sensitivity and accuracy well beyond traditional dual sensors.
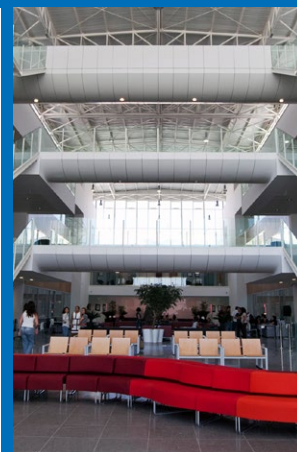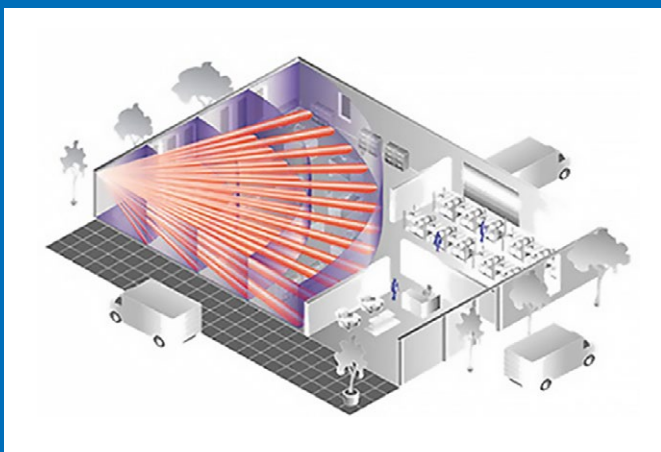
It combines radar and PIR technology which gives you precise coverage, accurate definition and unsurpassed false alarm immunity. Traditional dual technology sensors can generate false alarms and increased risk of microwave bleeding. Or worse, they can fail to detect because of decreased sensitivity.

Radar

Anti-masking technology-powerful protection against sabotage

The detection signal coming from motion sensors is ignored during the day-time when the security system is switched off. During that time the presence of people in the room is allowed and the possibility exists to cover the motion sensor reducing or blocking it's detection range. Anti-masking technology is a separate detection circuit within the motion sensor that performs checks continuously on the detector's ability to function normally. Any situation deviating from the normal condition will be reported to the security system.

Product series

EV AM series   VE AM series   DD1000AM series   DD600AM series

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Advanced anti-masking protection

Grade 3 anti-masking and beyond

We provide the best-available grade 3 anti-masking technology in our PIR, Vector Enhanced and Dual plus motion sensors. We use our own patented Active Infra Red (AIR) technology with a unique optical design to provide protection not only outside the detector, but inside it too - exceeding EN50131 grade 3 requirements.

With our dual technology motion sensors using the range gated radar technology, we are even able to detect partial masking of the window the pyro uses to look through, again going beyond the EN50131 grade 3 requirements. We also used the radar on board to further improve the Anti-Masking detection performance.

This provides superior protection against sabotage techniques such as spraying, covering and device penetration. Detecting the widest variety of materials, sprays and lubricants.
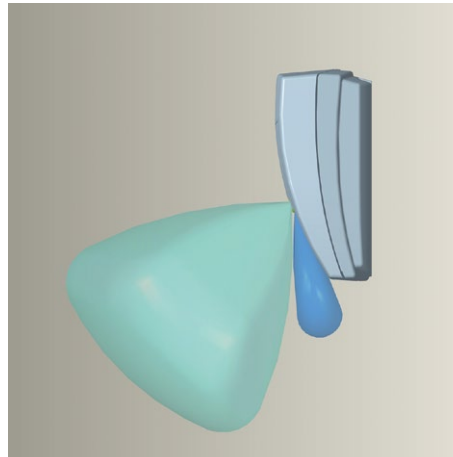
Self-diagnostics

A full self-diagnosis regime tests the pyro-electric sensor circuitry on a routine basis and can be triggered remotely from a control panel. This, combined with the fact that the anti-masking circuitry is continuously monitored, ensures the detector is always operating correctly.

ARITECH

Intrusion solutions :

SCAN ME

About Aritech

Aritech provides leading security and life-safety solutions for both commercial and residential applications covering intrusion, video, transmission and access. Offering some of the most-trusted product names in the industry, and backed by ongoing partner services and support, Aritech helps customers secure and protect what matters most. Aritech is a part of Carrier, a leading global provider of innovative HVAC, refrigeration, fire, security and building automation technologies.

For more information visit www.firesecurityproducts.com.au. Follow us on LinkedIn @Aritech Australia.

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