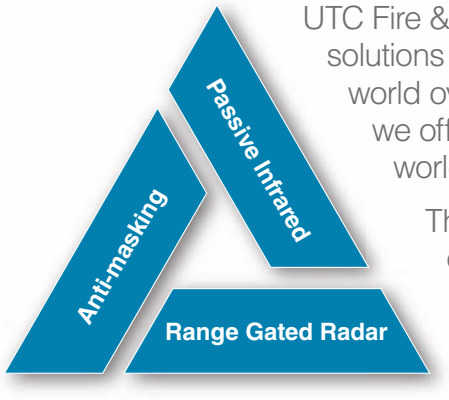
aritech

Motion sensor technologies

Leading by technology

interlogix
United Technologies

Advanced technologies from UTC Fire & Security



UTC Fire & Security is a global leader in fire 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 its features and the 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 UTC is providing its customers with:

Superior volumetric coverage

Our highly advanced mirror optics give great volumetric coverage, ensuring that no intrusion attempt is missed.

Outstanding false alarm immunity

Advanced digital signal processing means better detection and an extreme 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 sensivity adjustments can be made both on PIR and range gated radar technology.

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 it's indoor passive infrared sensors, UTC Fire & Security uses a concept of sophisticated mirror optics and signal processing to accurately and reliably detect the presence of a human in the covered area. Several patents are distinguishing UTC'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

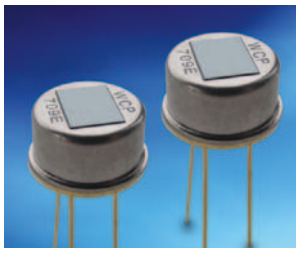
Sophisticated mirror optics driving precision

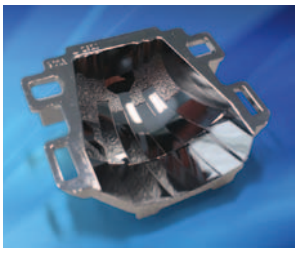
Overview

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, makes our motion sensors sensitive and reliable in challenging environments.

Gliding focus

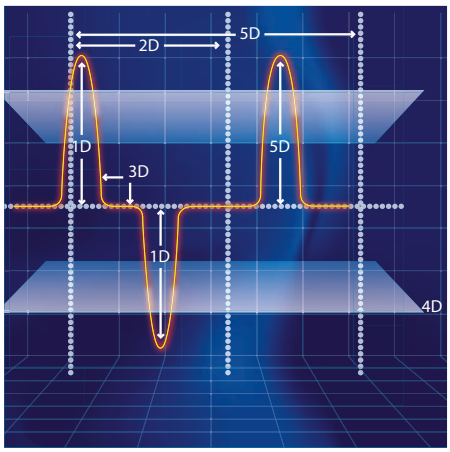
Sophisticated mirror optics create a dense detection pattern of continuous curtains. Each mirror segment has a lens effect compensating for the distance of the person moving in front of the detector.
This 'gliding focus' principle results in a well captured signal regardless how close or far this person 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 analystics & intelligent differentiation of signals



The unique 5D signal processing technology will look for a match in size, speed and shape to decide on an alarm condition. 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.

MOST SUITABLE IN SITUATIONS WHERE NUISANCE
FACTORS CAN'T BE ELIMINATED OR AVOIDED

Technology to the benefit of your security

UTC'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. That 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 the preferred choice above dual technology.

Product series

VE1000 series

VE1100 series

VE700 series

Vector enhanced signal analysis

Overview

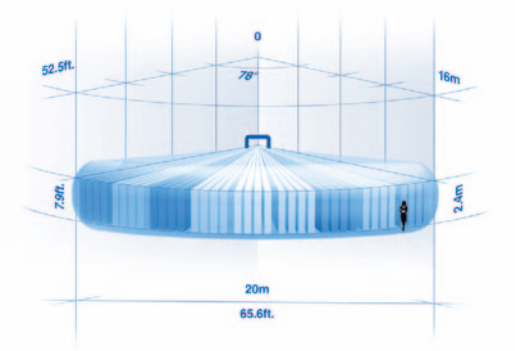
VE or vector enhanced sensors embodies the perfect motion sensor where high sensitivity and outstanding stability are required in demanding environments.
It combines the latest step in the evolution of technology driven motion sensors with the superior mirror technology.

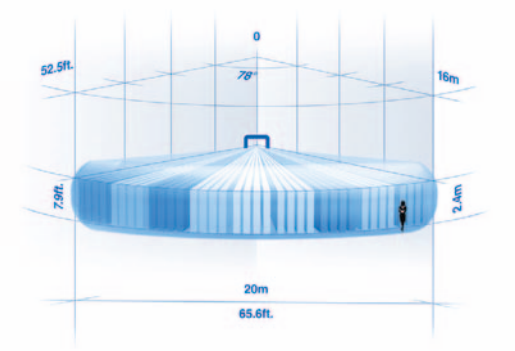
Building blocks

A double heat sensitive pyro cell with specific layout captures movement in the detected area using the clever 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 double pyro sensor in such 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 combines 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 in the industry. Additionally the decision taking of an alarm condition in both technologies is designed in such a smart way that the performance of these sensors is unparalleled.

Product series

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

UTC'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' in the industry.

Patented range gated radar technology

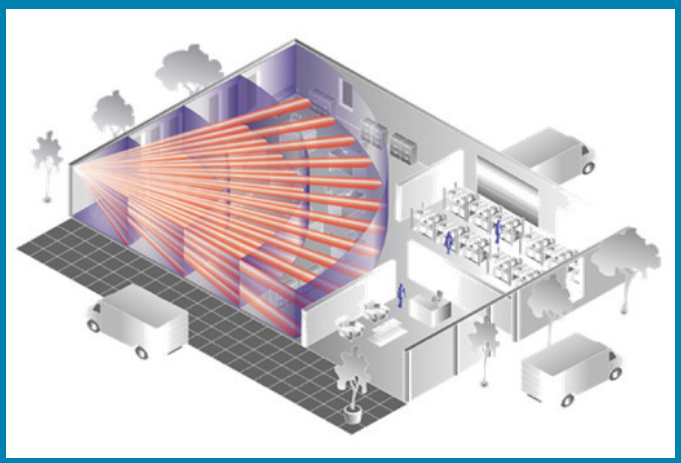
Selecting 1 of the 4 predefined radar ranges allows the installer to tailor the detection pattern to its needs taking into account the room the device is in. The range gated radar technology will clearly define the borderline of the detection range and will avoid any false alarms from microwave bleeding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

PIR combinated 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 pyro will generate 2 or 4 segments per curtain.

More than a common used 'AND' function

These motion sensors generate an alarm depending on what both technologies – range gated radar and PIR – picked up within its 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. The results is an increased 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 cost from microwave bleeding. Or worse, they can fail to detect because of decreased sensitivity.

ANY SITUATION DEVIATING FROM THE NORMAL CONDITION
WILL BE REPORTED TO THE SECURITY SYSTEM

Anti-masking technology powerful protection against sabotage

The detection signal coming from motion sensors is ingnored during the day-time where 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

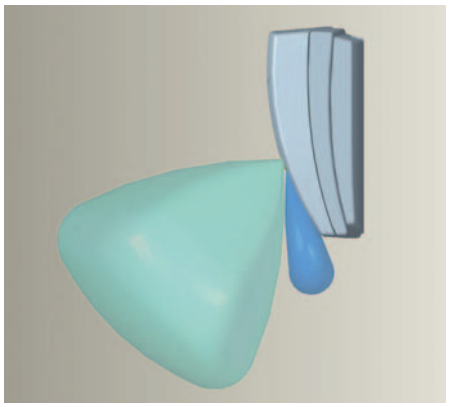
Advanced anti-masking protection

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.

PIR technology

PIR TECHNOLOGY




Specifications

EV1000 series | EVAM series | EV1100 series | EV600 series

PIR

Used technology		PIR technology with Superior mirror optics						
		EV1012	EV1012AM	EV1012PI	EV1116	EV1116AM	EV666-D	EV669
Number of PIR curtains		9	9	9	11	11	18	18
Detection range (m)		12	12	12	16	16	20	20
Viewing angle (°)		86	86	86	86	86	360	360
Mounting height – min./max. (m)		1,8/3,0	1,8/3,0	2,3/3,0	1,8/3,0	1,8/3,0	2,5/5,0	2,5/5,0
Nominal current consumption (mA)		4,4	10	4,4	4,4	4,4	10	10
Dimensions:	Height (mm)	108	108	108	125	125	138 (Ø)	138 (Ø)
	Width (mm)	60	60	60	65	65	138 (Ø)	138 (Ø)
	Depth (mm)	46	46	46	60	60	68	68
Pet immunity – up to (kg)		—	—	15	—	—	—	—
Anti-masking optical AIR		—	Yes	—	—	Yes	—	—
Anti-masking radar		—	—	—	—	—	—	—
EN 50131 certified – grade		2	3	2	2	3	2	2

Range Gated radar

RCR TECHNOLOGY


Specifications

DD1000(AM) series | DD600(AM) series

PIR + radar

Used technology		Patented volumetric Dual Plus technology motion sensors							
		DD1012	DD1012PI	DD1012AM	DD1012RAM	DDV1016	DDV1016AM	DD669	DD669AM
Number of PIR curtains		9	9	9	9	9	9	18	18
Detection range (m)		12	12	12	12	16	16	20	20
Viewing angle (°)		78	78	78	78	78	78	360	360
Mounting height – min./max. (m)		1,8/3,0	1,8/3,0	2,0/3,0	1,8/3,0	1,8/3,0	2,0/3,0	2,5/5,0	2,5/5,0
Nominal current consumption (mA)		8	8	10	9	8	10	12	12
Dimensions:	Height (mm)	126	126	126	126	126	126	138 (Ø)	138 (Ø)
	Width (mm)	63	63	63	63	63	63	138 (Ø)	138 (Ø)
	Depth (mm)	50	50	50	50	50	50	92	92
Pet immunity – up to (kg)		—	18	—	—	—	—	—	—
Anti-masking optical AIR		—	—	Yes	—	—	Yes	—	—
Anti-masking radar		—	—	—	Yes	—	—	—	Yes
EN 50131 certified – grade		2	2	3	2	2	3	2	3

For country specific SKU's, please reach out to your local technical support.

Vector technology


VE1000 series


VE1100 series


VEAM series


VE700 series

Specifications

Vector

Used technology	Passive InfraRed motion sensors – Vector signal processing for false alarm immunity										
	VE1012	VE1012AM	VE1012PI	VE1016	VE1016AM	VE1120	VE1120AM	VE735	VE735AM	VE736	VE736AM
Number of PIR curtains	9	9	9	9	9	11	11	11	11	11	11
Detection range (m)	12	12	12	16	16	20	20	20/60	20/60	20/60	20/60
Viewing angle (°)	86	86	86	86	86	86	86	86	86	86	86
Mounting height – min./max. (m)	1,8/3,0	1,8/3,0	1,8/3,0	1,8/3,0	1,8/3,0	1,8/3,0	1,8/3,0	1,8/3,0	1,8/3,0	1,8/3,0	1,8/3,0
Nominal current consumption (mA)	4,4	10	4,4	4,4	10	4,4	4,4	11	20	11	20
Dimensions: Height (mm)	108	108	108	108	108	125	125	175	175	175	175
Width (mm)	60	60	60	60	60	65	65	93	93	93	93
Depth (mm)	46	46	46	46	46	60	60	66	66	66	66
Pet immunity – up to (kg)	—	—	15	—	—	—	—	—	—	—	—
Anti-masking optical AIR	—	Yes	—	—	Yes	—	Yes	—	Yes	—	Yes
Anti-masking radar	—	—	—	—	—	—	—	—	—	—	—
EN 50131 certified – grade	2	3	2	2	3	2	3	2	3	2	3

Anti-Masking Technology


EVAM series


VEAM series


DD1000AM series


DD600AM series

Specifications

Anti-masking

Used technology	EN Grade 3 anti-masking technology										
	EV1012AM	EV1116AM	VE1012AM	VE1016AM	VE1120AM	VE735AM	VE736AM	DD1012AM	DD1012RAM	DDV1016AM	DD669AM
Number of PIR curtains	9	11	9	9	11	11	11	9	9	9	18
Detection range (m)	12	16	12	16	20	60	60	12	12	16	20
Viewing angle (°)	86	86	86	86	86	86	86	78	78	78	360
Mounting height – min./max. (m)	1,8/3,0	1,8/3,0	1,8/3,0	1,8/3,0	1,8/3,0	1,8/3,0	1,8/3,0	2,0/3,0	1,8/3,0	2,0/3,0	2,5/5,0
Nominal current consumption (mA)	10	4,4	10	10	4,4	20	20	10	9	10	12
Dimensions: Height (mm)	108	125	108	108	125	175	175	126	126	126	138 (Ø)
Width (mm)	60	65	60	60	65	93	93	63	63	63	138 (Ø)
Depth (mm)	46	60	46	46	60	66	66	50	50	50	92
Pet immunity – up to (kg)	—	—	—	—	—	—	—	—	—	—	—
Anti-masking optical AIR	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	—	Yes	—
Anti-masking radar	—	—	—	—	—	—	—	—	Yes	—	Yes
EN 50131 certified – grade	3	3	3	3	3	3	3	3	2	3	3

For country specific SKU's, please reach out to your local technical support.

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