

Panasonic

OVERVIEW

PIR MOTION SENSORS



PIR sensors from Panasonic

Panasonic develops and produces PIR sensors (passive infrared), which combine easy integration, reliability, and environmental protection. The PIR motion sensor families EKMB, EKMC and AMN are used in many areas such as:

- Lighting systems
- HVAC (Heating, Ventilation and Air Conditioning) engineering for building automation
- Safety and alarm systems
- IP cameras
- Wireless devices and sensors in general
- Vending machines

Unique sensor design for special applications

The pyroelectric sensors from Panasonic offer crucial advantages as compared to conventional PIR sensors. The unique design concept explained below goes from the production of the pyroelectric sensing devices to the internal signal processing, thus guaranteeing an optimal detection capability and high reliability.



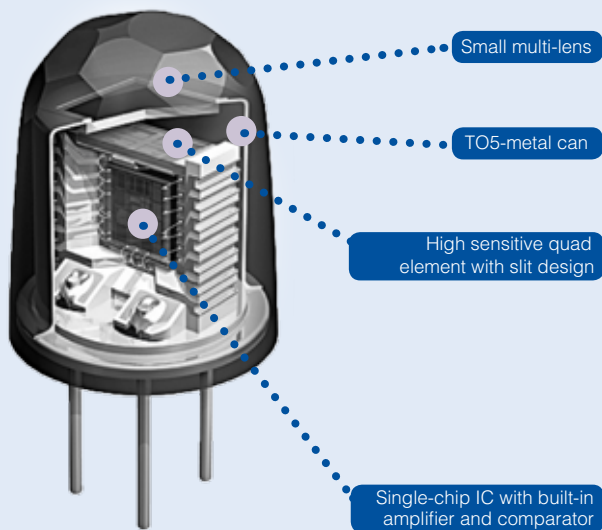
Improved reliability and easy design-in

The integrated amplifier/comparator circuit inside a TO5-metal can (digital types) prevents interference caused by electromagnetic fields, such as those generated by mobile phones.

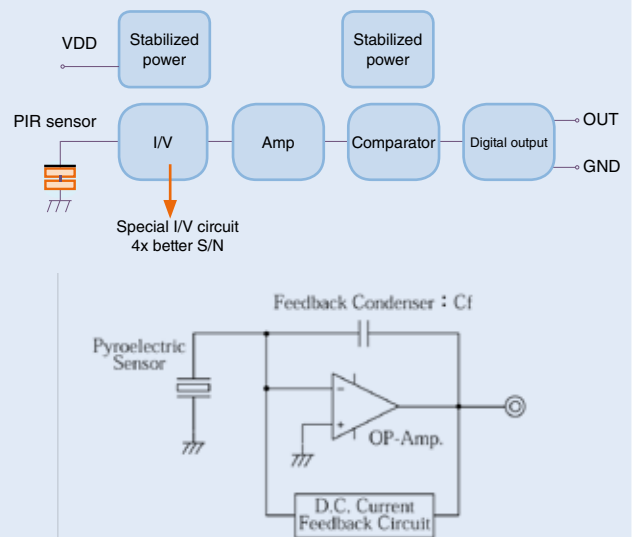
Better signal-to-noise ratio (min. 4 times)

Improved signal-to-noise ratio thanks to a special I/V circuit design decreases the probability of false triggering due to temperature fluctuation.

Design diagram

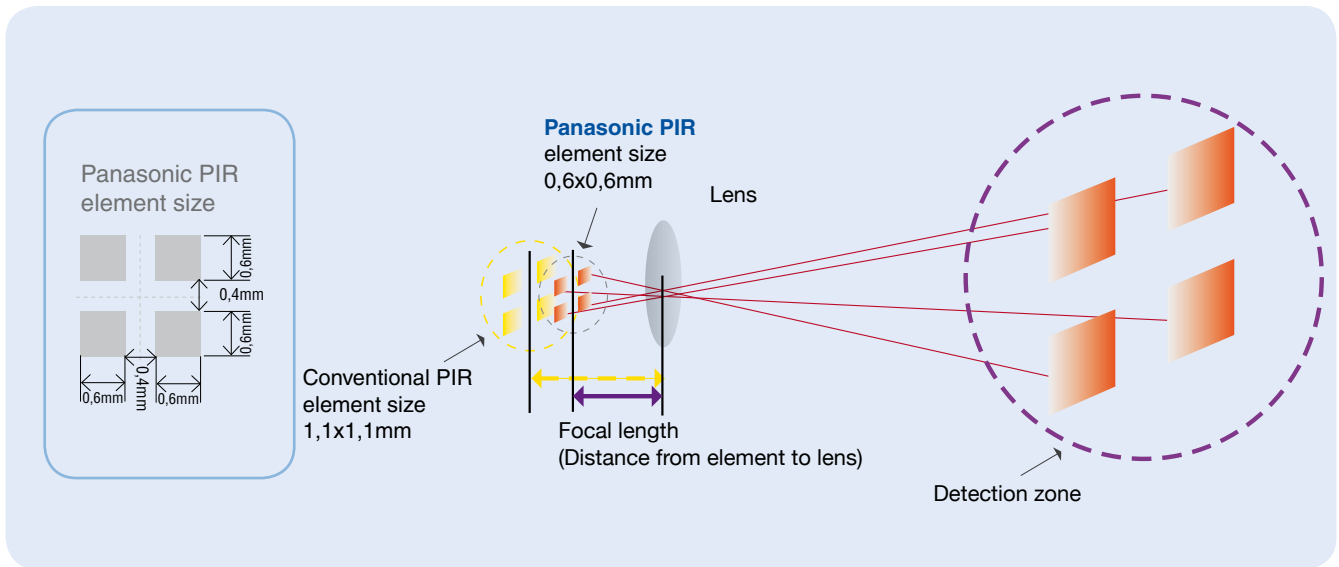


General circuit concept digital output types



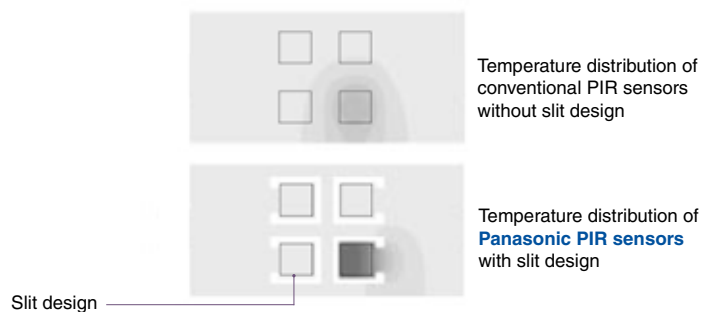
Small and fancy lens design

A smaller lens scale can be realized thanks to the special design of the small pyroelectric elements.



Better sensitivity (approx. 2 times)

Significantly improved sensitivity due to a unique slit design for the pyroelectric elements. The separated sensing areas prevent thermal crosstalk between the single sensing elements. Therefore reliable detection is possible even if the temperature difference between the background (e.g. floor/wall) and the target object (human) is small (e.g. $\Delta T=4^{\circ}\text{C}$).



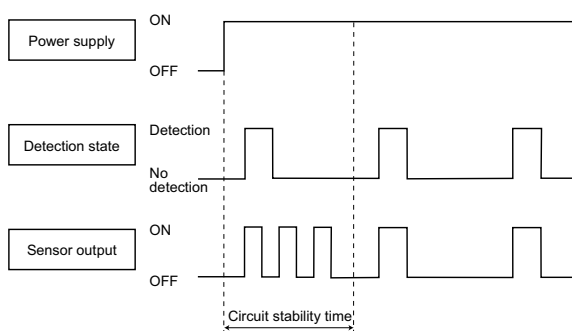
Additional notes:

Detection performance

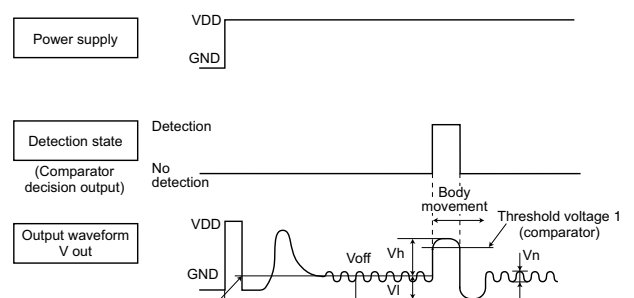
Depending on the difference in temperature between the background and detection target, these sensors may be capable of detecting targets beyond the detection distances stated in the datasheet. For details refer to the datasheet.

Output concept

Timing chart (digital output)



Timing chart (analog output)



Note: After the power is turned on, the sensor circuitry needs some time to stabilize. During this time, the sensor output can be either "on" or "off", but this is no indication of whether the sensor has detected something or not. Please allow sufficient time for the circuitry stabilization before expecting a reliable detection result from the sensor.

EKMB series

Ideal for wireless security devices (1, 2 and 6 μ A)

FEATURES

PIR sensor with the world lowest electrical current consumption: 1 to 6 μ A during sleep mode

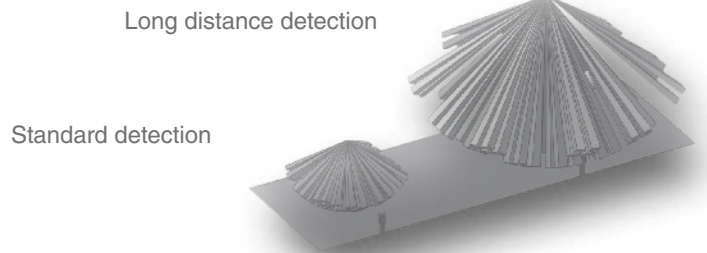


EKMC series

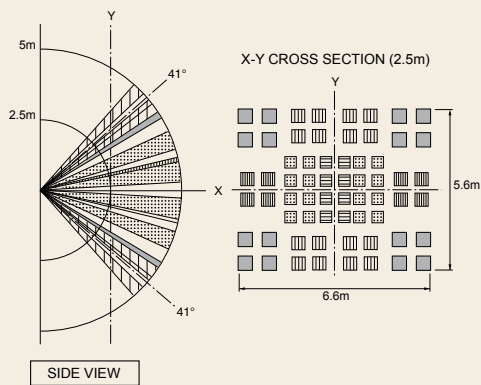
Ideal for lighting management systems, HVAC, security systems, etc.

FEATURES

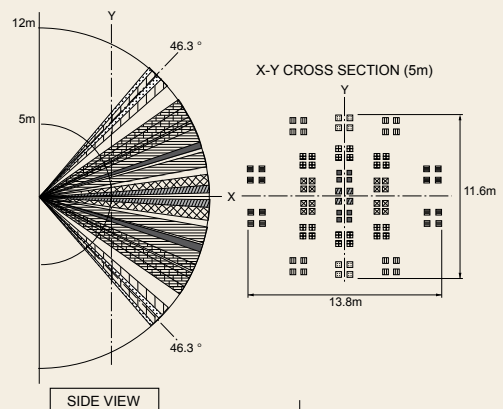
Economy type



Standard detection type (5m)



Long distance detection type (12m)

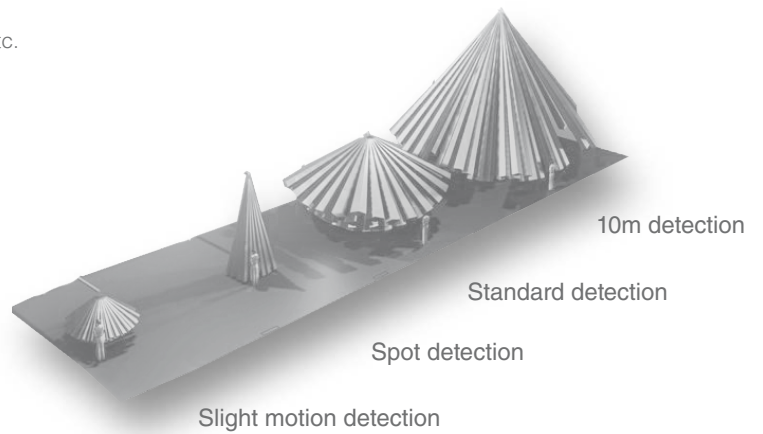
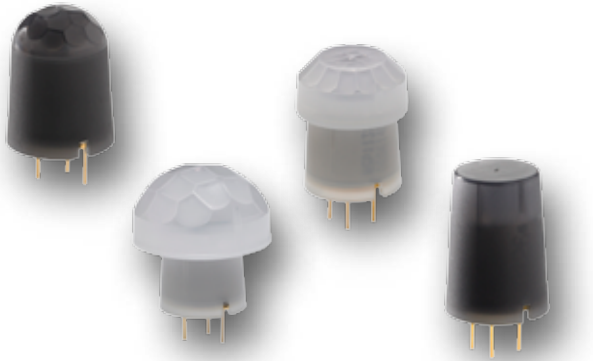


AMN series

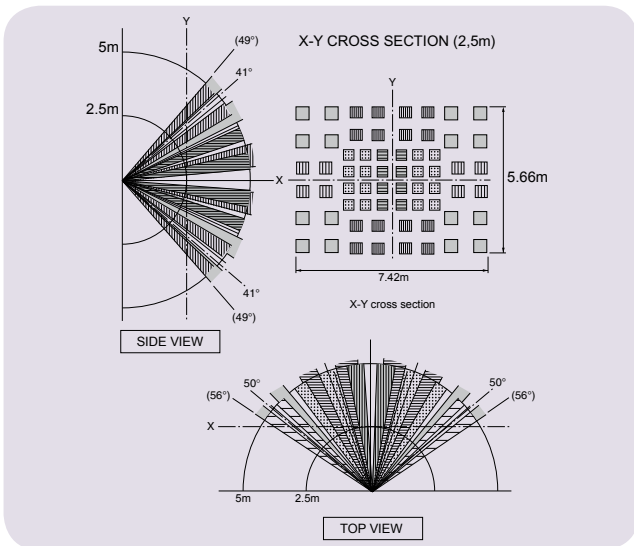
Ideal for lighting management systems, HVAC, security systems, etc.

FEATURES

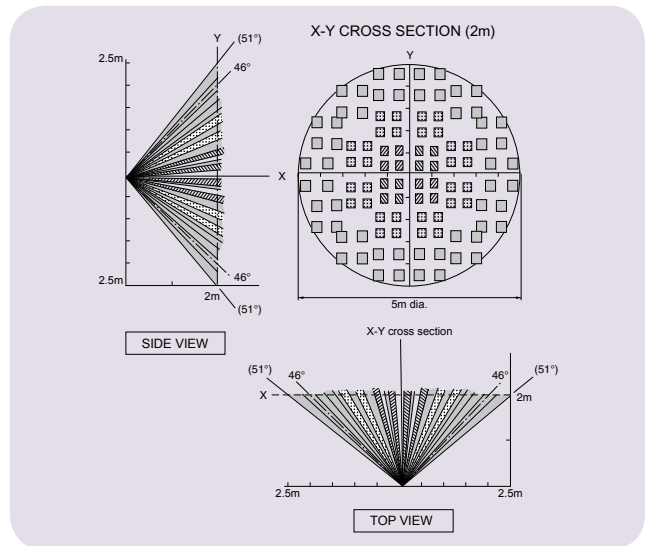
General use high-performance version available both for analog and digital output



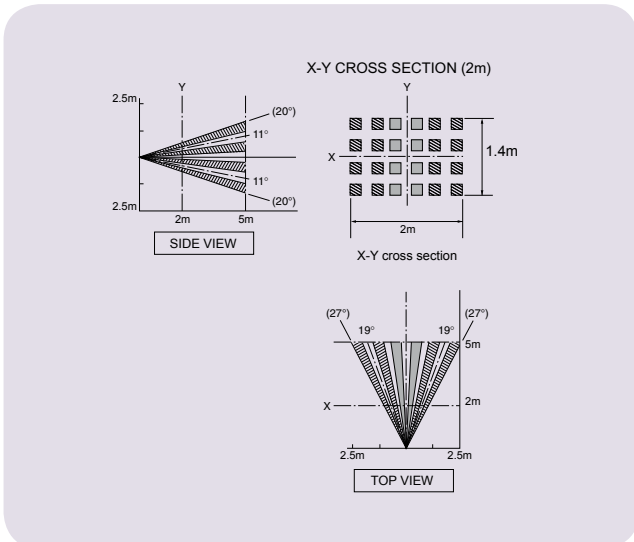
Standard detection type



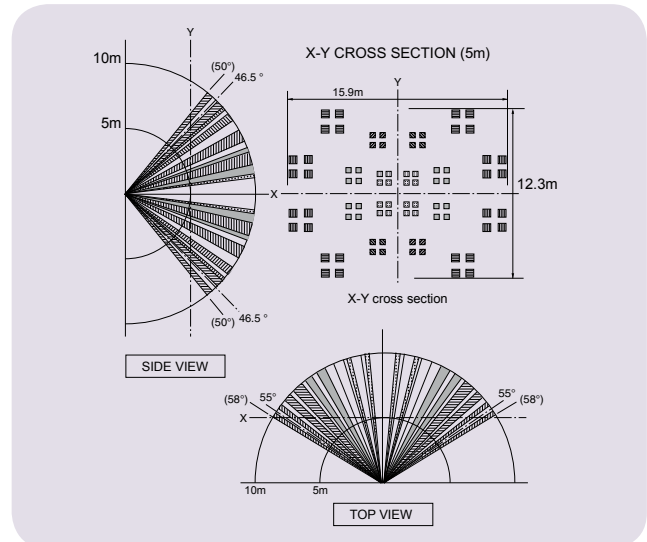
Slight motion detection type



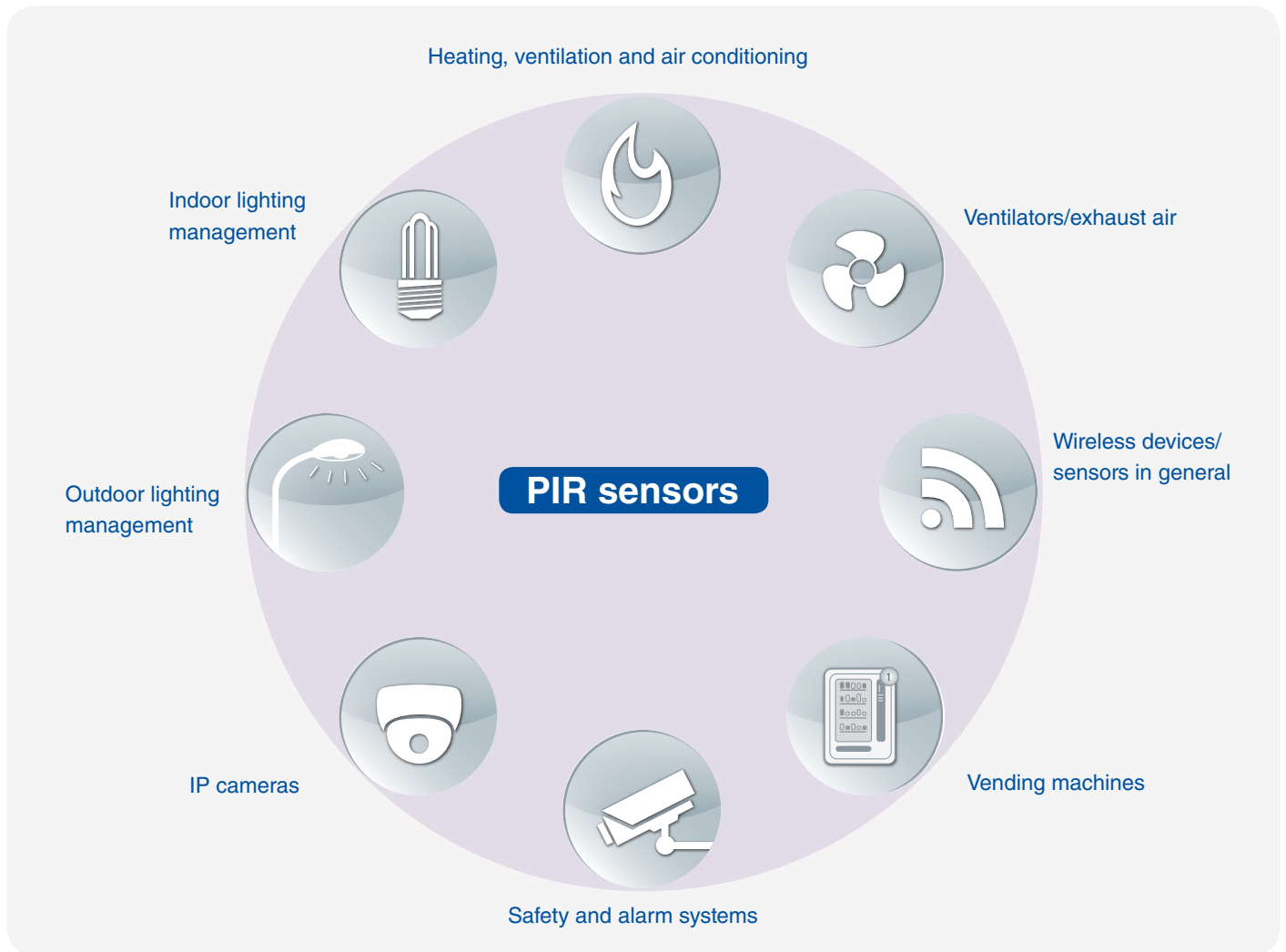
Spot detection type



10m detection type (12m)





Typical applications




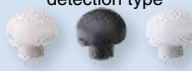
Overview – Specified detection distance

Type	Detection distance	Product Examples
Slight motion detection type: AMN	2m	
Standard detection type: EKMB series, EKMC series, AMN Spot detection type: AMN	5m	
10m distance detection type: AMN	10m	
Long-distance detection type: EKMB series, EKMC series	12m	





EKMB series

Detection performance	Model no.	Current consumption	Lens color	Output type	Detection distance	Detection area		Detection zones	Rated operating voltage
						Horizontal	Vertical		
Standard detection type 	EKMB1101111	1µA	White	Digital	5m	94°	82°	64	2.3V – 4 VDC
	EKMB1101112		Black						
	EKMB1101113		Pearl white						
	EKMB1201111	2µA	White						
	EKMB1201112		Black						
	EKMB1201113		Pearl white						
	EKMB1301111K	6µA	White						
	EKMB1301112K		Black						
	EKMB1301113K		Pearl white						
Long-distance detection type 	EKMB1103111	1µA	White	Digital	12m	102°	92°	92	
	EKMB1103112		Black						
	EKMB1103113		Pearl white						
	EKMB1203111	2µA	White						
	EKMB1203112		Black						
	EKMB1203113		Pearl white						
	EKMB1303111K	6µA	White						
	EKMB1303112K		Black						
	EKMB1303113K		Pearl white						

EKMC series

Detection performance	Model no.	Current consumption	Lens color	Output type	Detection distance	Detection area		Detection zones	Rated operating voltage
						Horizontal	Vertical		
Standard detection type 	EKMC1601111	170µA	White	Digital	5m	94°	82°	64	3V – 6VDC
	EKMC1601112		Black						
	EKMC1601113		Pearl white						
Long-distance detection type 	EKMC1603111	170µA	White		12m	102°	92°	92	
	EKMC1603112		Black						
	EKMC1603113		Pearl white						

AMN series

Detection performance	Model no.	Current consumption	Lens color	Output type	Detection distance	Detection area		Detection zones	Rated operating voltage
						Horizontal	Vertical		
Standard detection type 	AMN31112	170µA	White	Digital	5m	100°	82°	64	3V – 6VDC
	AMN31111		Black						
	AMN21112		White	Analog					
	AMN21111		Black						
Slight motion detection type 	AMN32112		Digital	White	2m	91°	91°	104	3V – 6VDC
	AMN32111			Black					
	AMN22112			White					Analog
	AMN22111			Black					
Spot detection type 	AMN33112		Digital	White	5m	38°	22°	24	3V – 6VDC
	AMN33111			Black					
	AMN23112			White					Analog
	AMN23111			Black					
10m detection 	AMN34112	Digital	White	10m	110°	93°	80	3V – 6VDC	
	AMN34111		Black						
	AMN24112		White					Analog	
	AMN24111		Black						

Note: Please contact your local sales representative if you require a type without lens.

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