

## OVERVIEW PIR MOTION SENSORS



# PIR sensors from Panasonic

Panasonic Electric Works (PEW) 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.

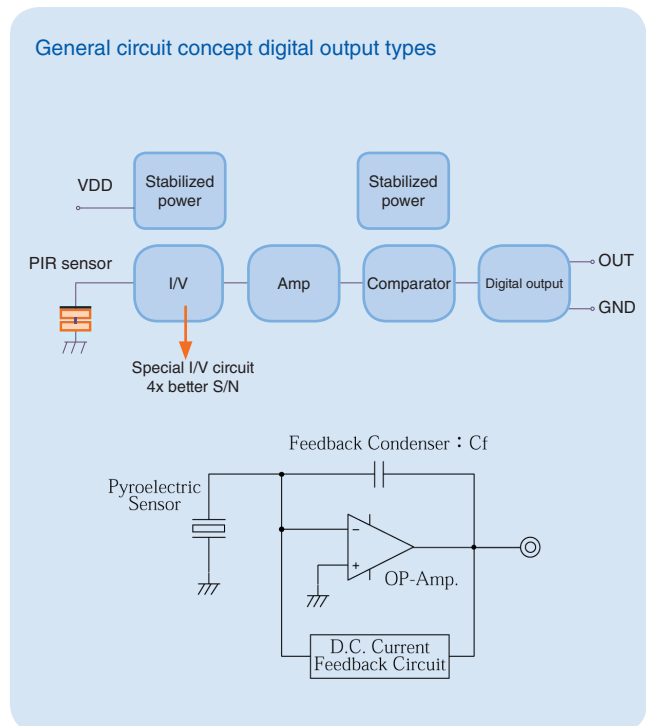
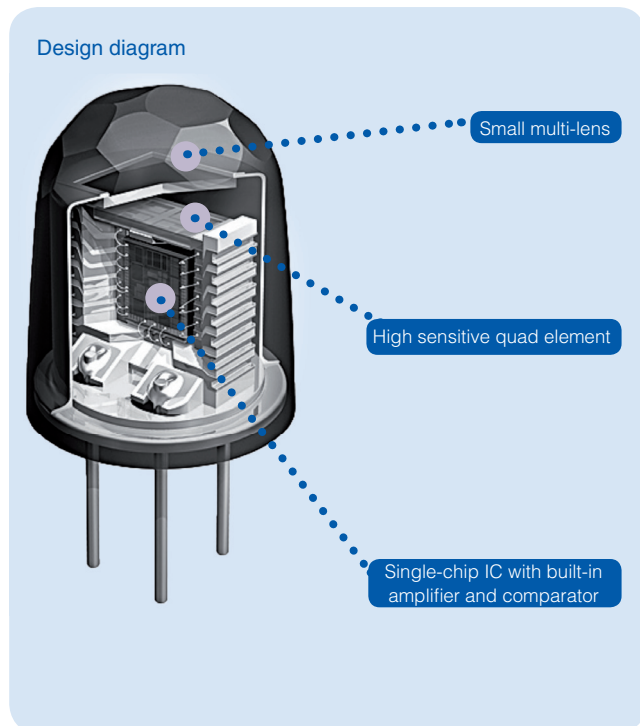


## Improved reliability and easy design-in

- 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

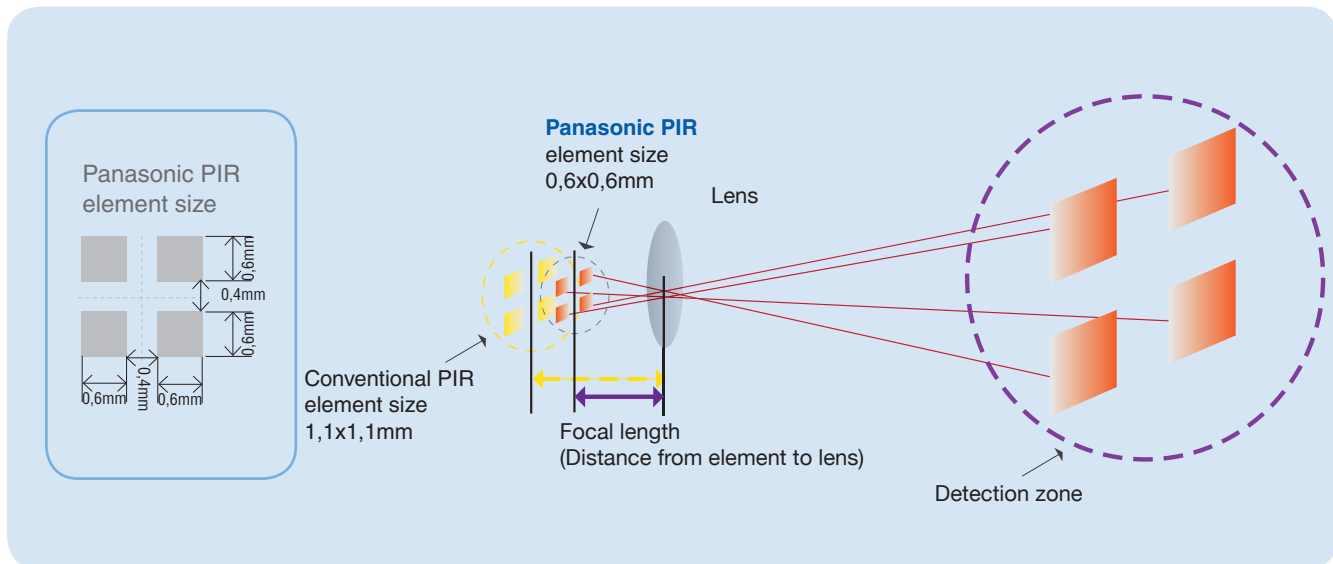
## Better signal-to-noise ratio (min. 4 times)

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



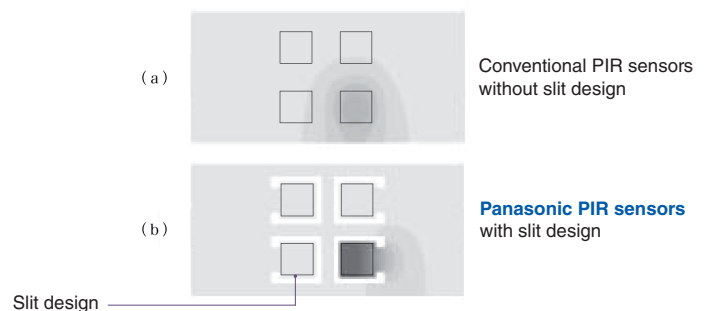
## Small and fancy lens design

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.
- Reliable detection even if the temperature difference between the background (e.g. floor/wall) and the target object (human) is small (e.g.  $\Delta T=4^{\circ}\text{C}$ ).



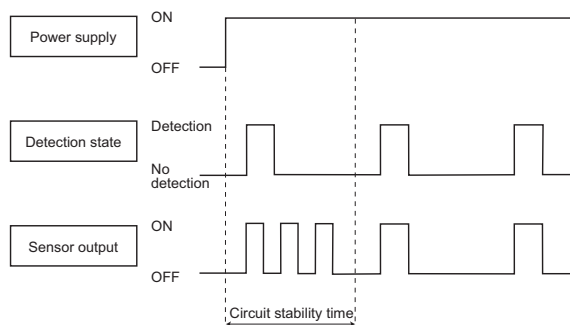
## Additional notes:

### Detection Performance

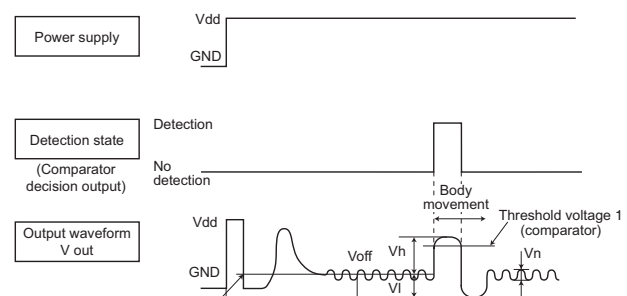
Depending on the difference in temperature between the background and detection target, these sensors may be capable of detecting targets beyond the detection distances stated in the datasheet. For details refer to the datasheet.

### 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 (low current consumption type)

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

### FEATURES

- Operating voltage: 2.3 – 4.0V DC
- PIR sensor with the world lowest electrical current consumption: 1 to 6µA during sleep mode



## EKMC series (economy type)

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

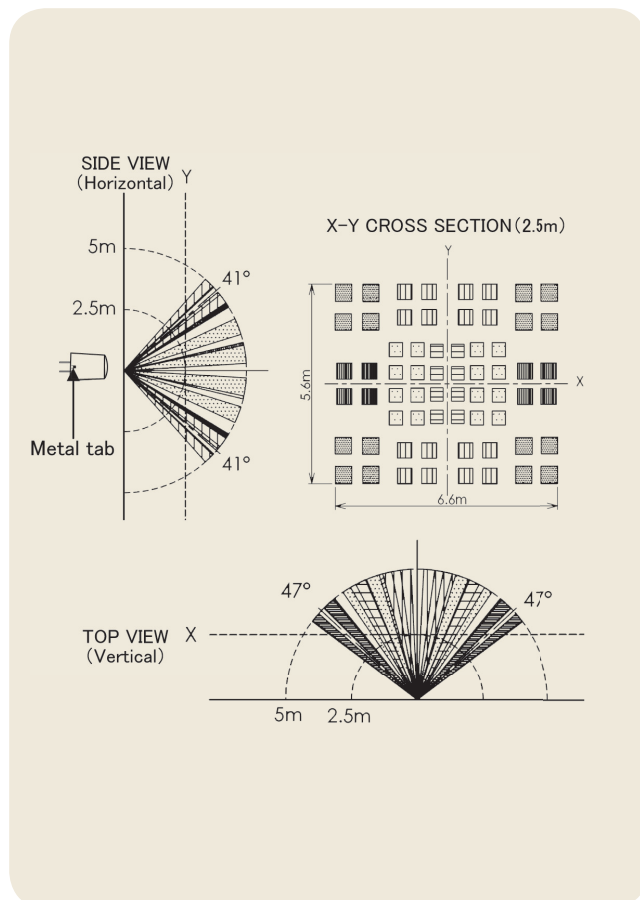
### FEATURES

- Operating voltage: 3.0 – 6.0V DC
- Electrical current consumption is 170µA

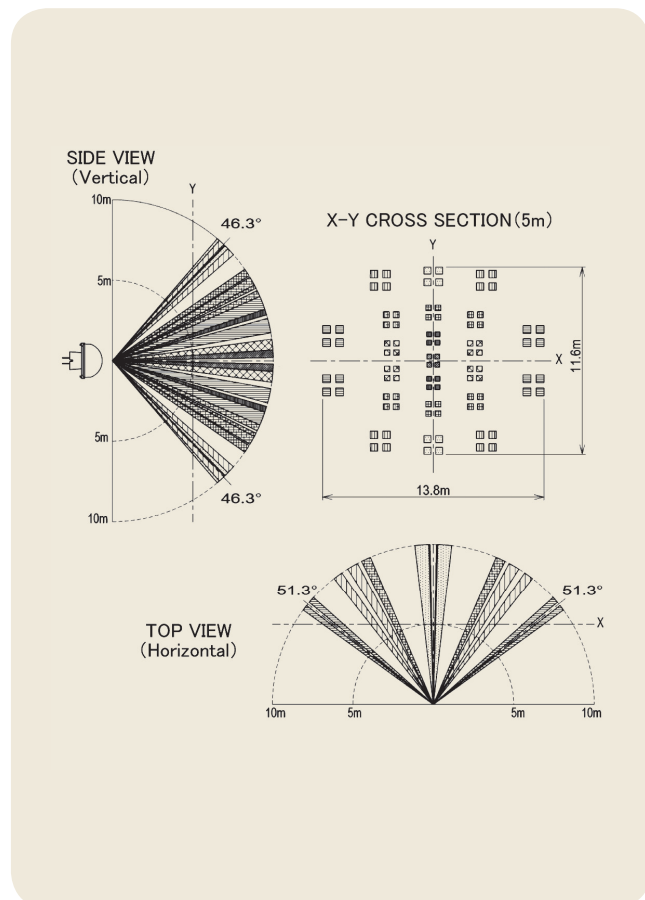
Long distance detection  
Standard detection



Standard detection type (5m)



Long-distance detection type (12m)

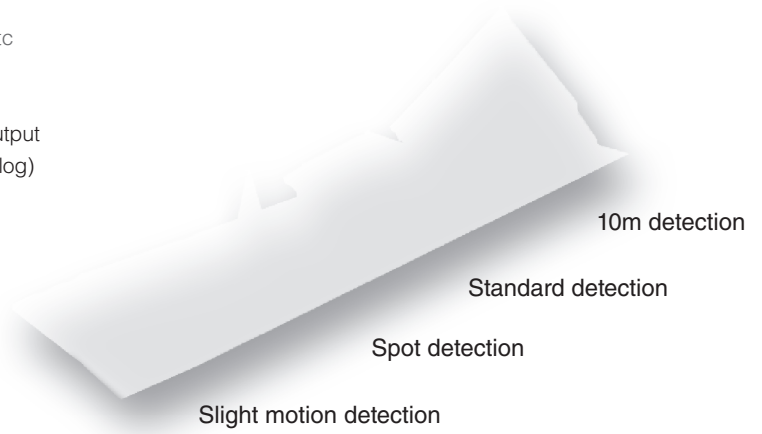


## AMN series (general use)

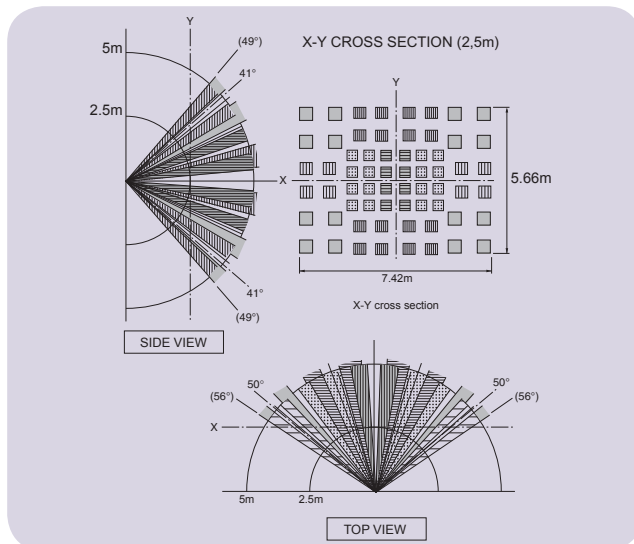
Ideal for lighting management systems, HVAC, security systems, etc

### FEATURES

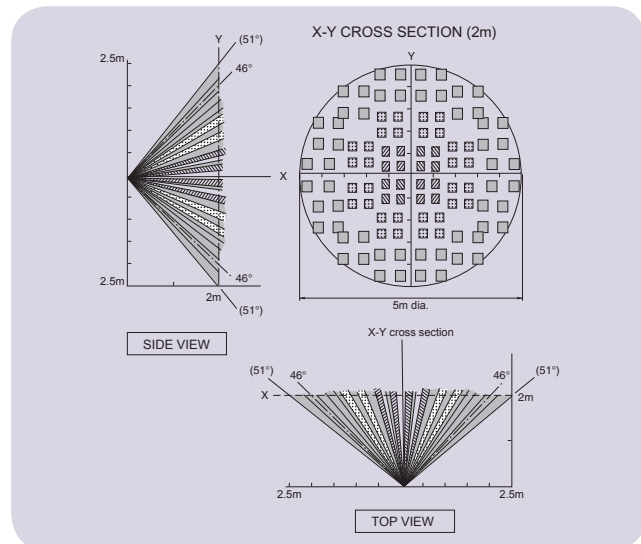
- High-performance version available both for analog and digital output
- Operating voltage: 3.0 – 6.0V DC (digital) and 4.5 – 5.5V DC (analog)



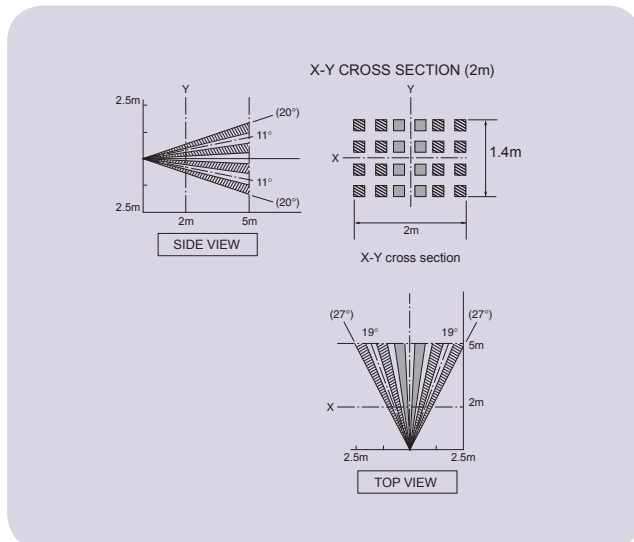
Standard detection type



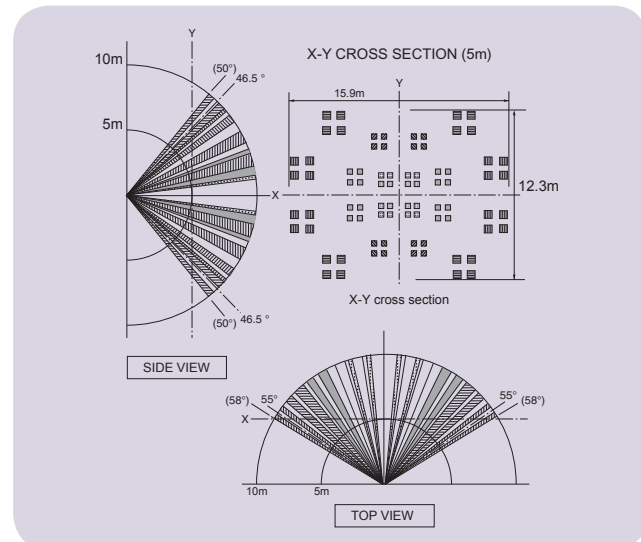
Slight motion detection type



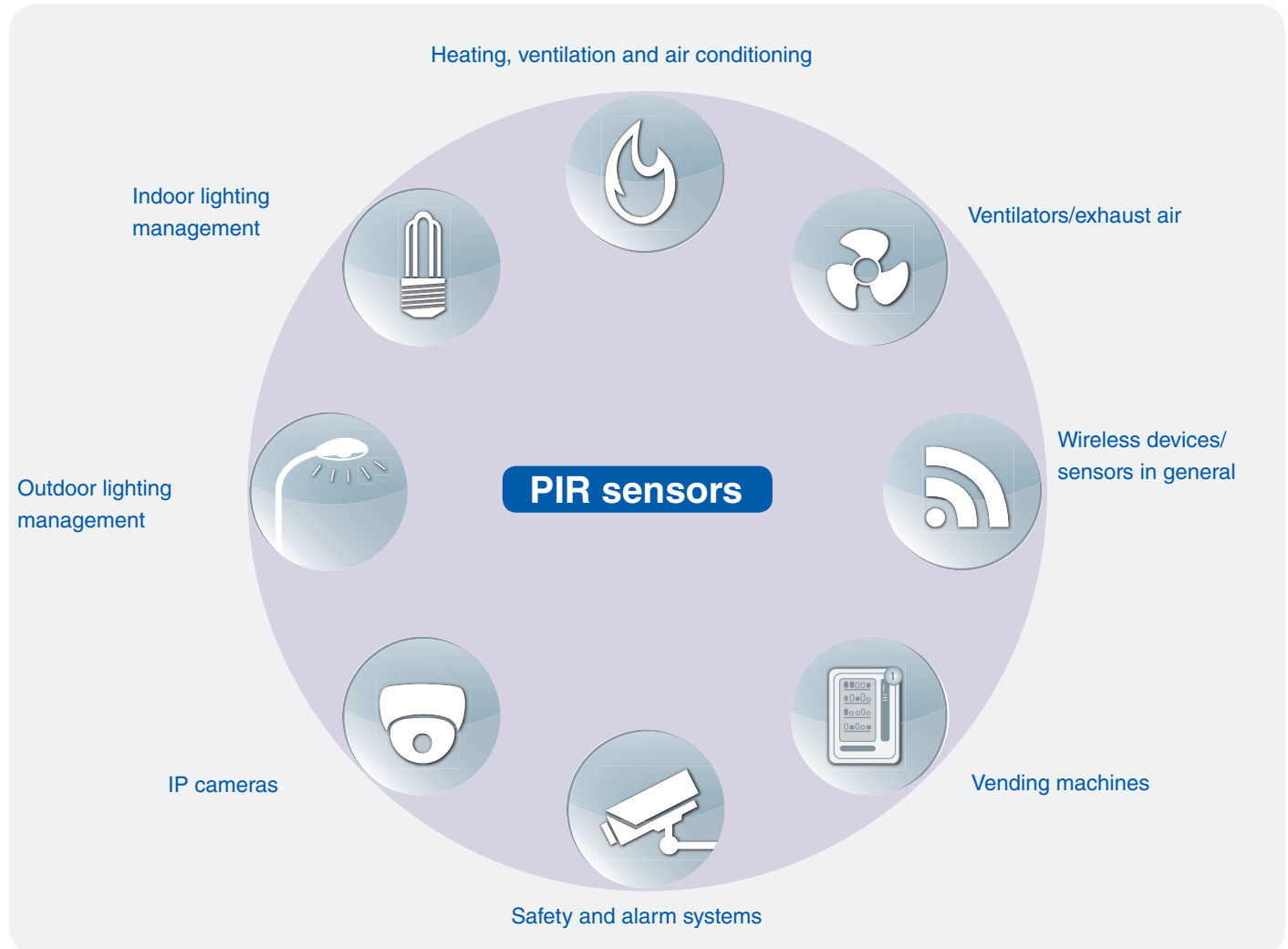
Spot detection type



10m detection type (12m)





## Typical applications





## Overview – Specified detection distance

Type	Detection distance	Product Examples
<b>Slight motion detection type:</b> AMN	2m	
<b>Standard detection type:</b> EKMB series, EKMC series, AMN <b>Spot detection type:</b> AMN	5m	
<b>10m distance detection type:</b> AMN	10m	
<b>Long-distance detection type:</b> 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						
	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					4.5V – 5.5VDC		
	AMN21111		Black								
Slight motion detection type 	AMN32112		170µA	White	Digital	2m	91°	91°	104	3V – 6VDC	
	AMN32111			Black							
	AMN22112			White	Analog					4.5V – 5.5VDC	
	AMN22111			Black							
Spot detection type 	AMN33112			170µA	White	Digital	5m	38°	22°	24	3V – 6VDC
	AMN33111				Black						
	AMN23112				White	Analog					4.5V – 5.5VDC
	AMN23111				Black						
10m detection 	AMN34112	170µA	White		Digital	10m	110°	93°	80	3V – 6VDC	
	AMN34111		Black								
	AMN24112		White		Analog					4.5V – 5.5VDC	
	AMN24111		Black								

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

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