

EKMC(VZ) series

Current consumption **170 μ A** Digital output



Standard detection type



Long distance detection type



Wall installation type

○Economy type suitable for a wide range of applications

Recommended applications

Lighting control, lighting equipment, heaters, ventilators or air conditioners, security equipment for IP cameras, intrusion alarms, digital signage, vending machines, multi-function printers, display panels for meeting rooms, PCs

Lensless type available
170 μ A type: EKMC1600100

Specifications

Detection performance	Model no.	Current consumption	Lens color	Output type	Detection distance	Detection area		Detection zones
						Horizontal	Vertical	
Standard detection type 	EKMC1601111	170 μ A	White	Digital	5m	94°	82°	64
	EKMC1601112		Black					
	EKMC1601113		Pearl white					
Long distance detection type 	EKMC1603111		White		12m	102°	92°	92
	EKMC1603112		Black					
	EKMC1603113		Pearl white					
Wall installation type 	EKMC1604111		White		12m (1st step lens) 6m (2nd step lens) 3m (3rd step lens)	40°	105°	68
	EKMC1604112		Black					
	EKMC1604113		Pearl white					

■ Ordering information

EKMC16 **1**

- PaPIRs motion sensor
- Detection (Lens)
 - 00: Lensless / 01: 5m distance standard / 03: 12m long distance / 04: Wall installation type

- Lens color
 - 0: Lensless / 1: White / 2: Black / 3: Pearl white
- Lens
 - 0: Lensless / 1: with lens

Characteristics

■ Maximum rated values

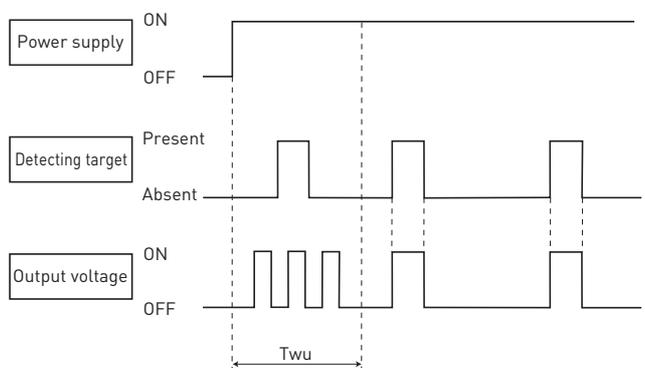
Items	Value
Power supply voltage	-0.3 to 7V
Ambient temperature	-20 to +60°C (no frost, no condensation)
Storage temperature	-20 to +70°C

■ Electrical characteristics

Items		Symbol	EKMC (VZ) type	Conditions
Operating voltage	Max	Vdd	6.0V	—
	Min		3.0V	
Current consumption (in standby mode) Note 1)	Ave	Iw	170 μ A	Ambient temperature: 25°C Iout=0 Vdd: 5V
Output current (during detection) Note 2)	Max	Iout	100 μ A	Ambient temperature: 25°C Vout \geq Vdd-0.5
Output voltage (during detection period)	Min	Vout	Vdd-0.5V	Ambient temperature: 25°C Open at no detection
Circuit stability time (when voltage is applied)	Max	Twu	30 sec	Ambient temperature: 25°C Iout=0 Vdd: 5V

Note 1) Current consumption during detection period is the total value of current consumption in standby mode add to output current.
Note 2) Please select an output resistors (pull-down concept) in accordance with Vout so that the output current is lower than or equal to 100 μ A. If the output current is more than 100 μ A, this may cause false alarms.

Timing chart



[Explanation of the timing]

Twu: Circuit stability time: max. 30 sec
During this stage, the output's status is undefined (ON/OFF) and detection is therefore not guaranteed.

Lenses for the EKMB/EKMC series

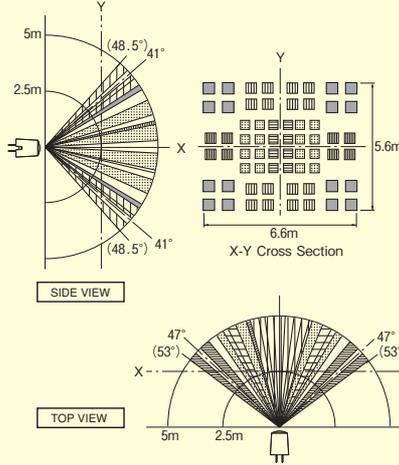
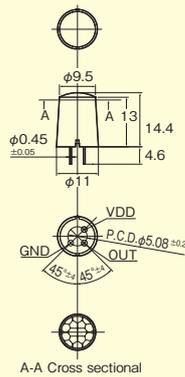
Dimension (mm)

Detection zone

Detection characteristics

Standard detection type

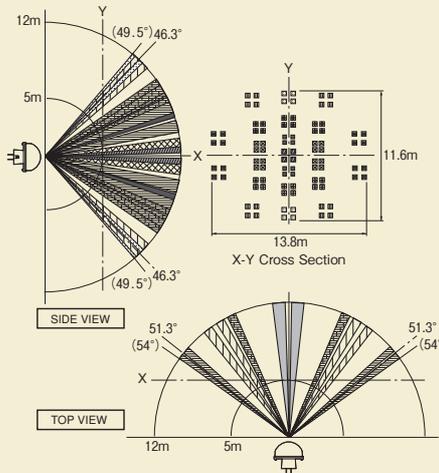
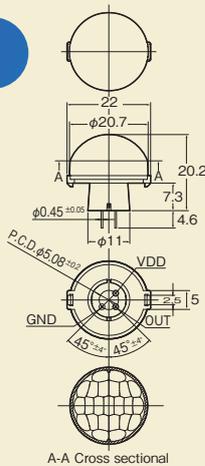
CAD data



Detection distance	Max. 5m
Field of view	94°×82°
Detection zone	64 beams
Detection condition	<ul style="list-style-type: none"> The temperature difference between the target and the surroundings must be higher than 4°C. Movement speed: 1.0m/s Target concept: Human body with an approx. size of 700×250mm Target moving direction: Crossing the detection beam.

Long distance detection type

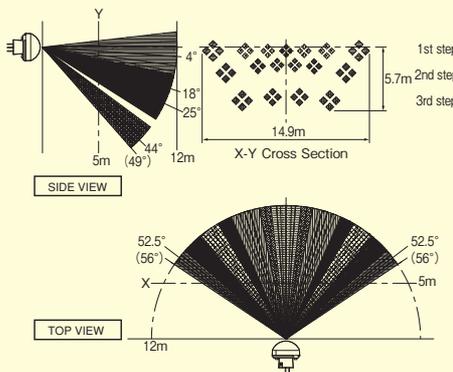
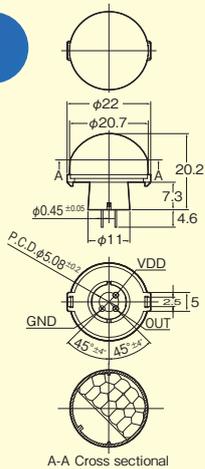
CAD data



Detection distance	Max. 12m
Field of view	102°×92°
Detection zone	92 beams
Detection condition	<ul style="list-style-type: none"> The temperature difference between the target and the surroundings must be higher than 4°C. Movement speed: 1.0m/s Target concept: Human body with an approx. size of 700×250mm Target moving direction: Crossing the detection beam.

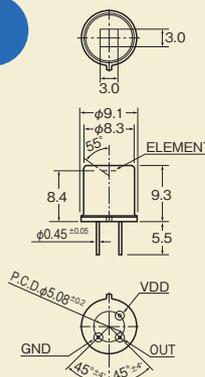
Wall installation type

CAD data

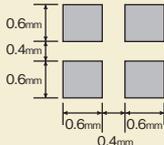


Detection distance	1st step lens	Max. 12m
	2nd step lens	Max. 6m
	3rd step lens	Max. 3m
Field of view	40°×105°	
Detection zone	68 beams	
Detection condition	<ul style="list-style-type: none"> The temperature difference between the target and the surroundings must be higher than 4°C. Movement speed: 1.0m/s Target concept: Human body with an approx. size of 700×250mm Target moving direction: Crossing the detection beam. 	

Lensless type



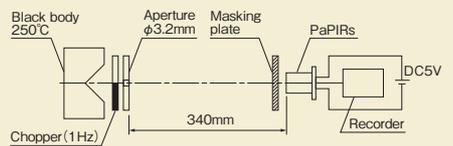
PIR element



Detection sensitivity	Average: 5.6μW/cm ² Maximum: 7.6μW/cm ²
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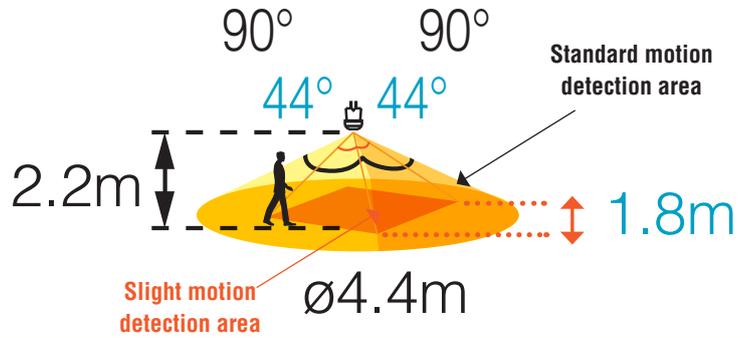
※Detection sensitivity is measured by following system

Test setup





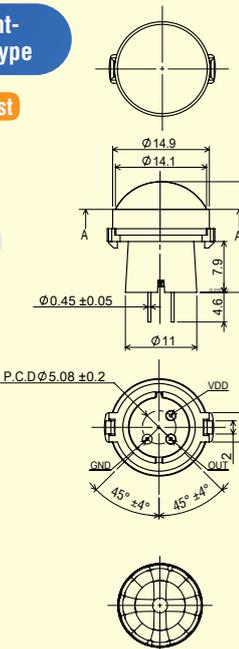
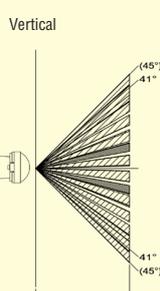
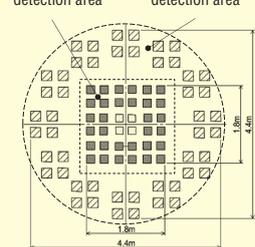
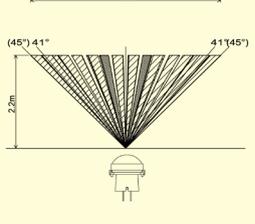
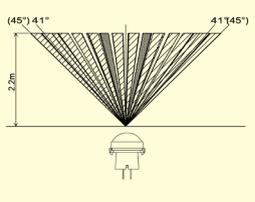
SATURN LENS - Dual zone



Standard and slight-motion detection type

<p>► Choose by the current consumption in standby mode (1µA type: in sleep mode)</p>		1µA	2µA	6µA	170µA	
	<p>► Choose by output</p>	Digital			Digital	Analog
<p>► Choose by lens color</p>	White	EKMB1193111	EKMB1293111	EKMB1393111K	EKMC1693111	By request
	Black	EKMB1193112	EKMB1293112	EKMB1393112K	EKMC1693112	By request
	Pearl white	EKMB1193113	EKMB1293113	EKMB1393113K	EKMC1693113	By request

Saturn lens

	Dimension (mm)	Detection zone	Detection characteristics																		
<p>Standard and slight-motion detection type</p> <p>CAD data by request</p>  		<p>Vertical</p>  <p>Slight motion detection area</p>  <p>Standard motion detection area</p>  <p>Horizontal</p> 	<table border="1"> <tr> <td>Detection distance</td> <td colspan="2">Max. 2.2m*</td> </tr> <tr> <td rowspan="2">Field of view</td> <td>Slight motion</td> <td>44° x 44°</td> </tr> <tr> <td>Standard motion</td> <td>90° x 90°</td> </tr> <tr> <td rowspan="2">Detection zone</td> <td>Slight motion</td> <td>36</td> </tr> <tr> <td>Standard motion</td> <td>48</td> </tr> <tr> <td rowspan="2">Detection condition ▲</td> <td>Slight motion</td> <td> <ul style="list-style-type: none"> The temperature difference between the target and the surroundings must be higher than 4°C. Movement speed: 0.5ms Target concept: Human head with an approx. size of 200x200mm Target moving direction: Crossing the detection beam, 1 zone </td> </tr> <tr> <td>Standard motion</td> <td> <ul style="list-style-type: none"> The temperature difference between the target and the surroundings must be higher than 4°C. Movement speed: 1.0ms Target concept: Human body with an approx. size of 400x200mm Target moving direction: Crossing the detection beam, 2 zones </td> </tr> </table>	Detection distance	Max. 2.2m*		Field of view	Slight motion	44° x 44°	Standard motion	90° x 90°	Detection zone	Slight motion	36	Standard motion	48	Detection condition ▲	Slight motion	<ul style="list-style-type: none"> The temperature difference between the target and the surroundings must be higher than 4°C. Movement speed: 0.5ms Target concept: Human head with an approx. size of 200x200mm Target moving direction: Crossing the detection beam, 1 zone 	Standard motion	<ul style="list-style-type: none"> The temperature difference between the target and the surroundings must be higher than 4°C. Movement speed: 1.0ms Target concept: Human body with an approx. size of 400x200mm Target moving direction: Crossing the detection beam, 2 zones
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			<p>* Under specified detection conditions</p> <p>▲ Please refer to "Caution for use" (page 13) and "Basic principles" (page 13, point 5), for more details</p>																		