EKMB(WL) series

| Current consumption | 1/2/6μA | Digital output |

Standard detection type

Long distance detection type

Wall installation type

› Low current consumption for battery-driven applications
› A special differential input circuit design (EKMB 6μA type only)
  for applications where a high noise resistance is required (up to GHz range).

Recommended applications

IoT, occupancy sensor module for smart home, battery-driven applications, wireless devices

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Lensless type available

| 1μA type: EKMB1100100 | 6μA type: EKMB1300100K |
| 2μA type: EKMB1200100 | |

EKMB series

EKMC series

AMN series

Specifications

Detection performance	Model no.	Current consumption	Lens color	Output type	Detection distance	Detection area Horizontal	Detection area Vertical	Detection zones
Standard detection type	EKMB1101111	1μA	White	Digital	5m	94° (106°)	82° (97°)	64
	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		12m	102° (108°)	92° (99°)	92
	EKMB1103112		Black					
	EKMB1103113		Pearl white					
	EKMB1203111	2μA	White					
	EKMB1203112		Black					
	EKMB1203113		Pearl white					
	EKMB1303111K	6μA	White					
	EKMB1303112K		Black					
	EKMB1303113K		Pearl white					
Wall installation type	EKMB1104111	1μA	White		12m (1st step lens) 6m (2nd step lens) 3m (3rd step lens) Please refer to page 8 for details.	40° (55,6)	105° (112°)	68
	EKMB1104112		Black					
	EKMB1104113		Pearl white					
	EKMB1204111	2μA	White					
	EKMB1204112		Black					
	EKMB1204113		Pearl white					
	EKMB1304111K	6μA	White					
	EKMB1304112K		Black					
	EKMB1304113K		Pearl white					

■ Ordering information

E K M B 1 ☐☐☐ 1 ☐☐☐

● PaPIRs motion sensor
● Current consumption in standby mode
  1: 1μA / 2: 2μA / 3: 6μA
● Detection (Lens)
  00: Lensless / 01: 5m distance standard /
  03: 12m long distance / 04: Wall installation type

● Others
  K: 6μA / Blank: Other than 6μA
● 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 4.5V
Ambient temperature	-20 to +60°C (No frost, no condensation)
Storage temperature	-20 to +70°C

› Electrical Characteristics

| Items		Symbol	1µA type	2µA type	6µA type	Conditions
Operating voltage	Max	Vdd	4.0V			–
	Min		2.3V			
Current consumption (in standby mode) Note 1)	Ave	Iw	1µA	2µA	6µA	Ambient temperature: 25°C Iout=0 Vdd: 3V
Output current (during detection period) Note 2)	Max	Iout	100µA			Ambient temperature: 25°C Vout≧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)	Ave	Twu	25 sec		–	Ambient temperature: 25°C Iout=0 Vdd: 3V
	Max		210 sec		10 sec, Note 3)	

Note 1) The total current consumption is equal to the current consumption in standby mode (Iw) plus the output current during detection (Iout). For the 1µA type please note that the average current consumption is 1µA in sleep mode and 1.9µA in standby mode. Please also refer to the timing chart.
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 100µA. If the output current is more than 100µA, this may cause false alarms.
Note 3) The sensor temperature has to be constant for the time specified.
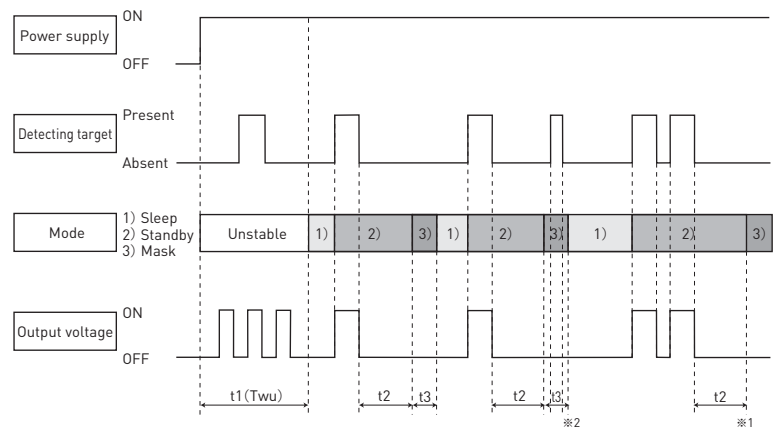
Timing chart

› 2µA / 6µA type
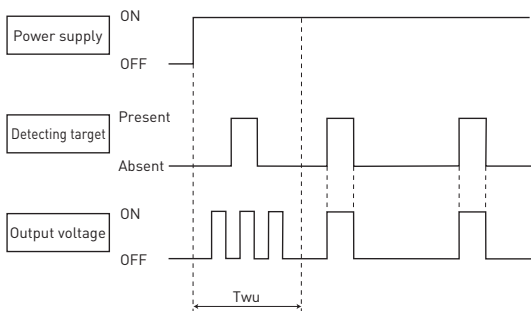
[Explanation of the timing]
Twu: Circuit stability time: about 25 sec (typ.) for 2µA type, max. 10 sec for 6µA type.
While the circuitry is stabilizing after the power is turned on, the sensor output is not fixed in the ON or OFF state. This is true regardless of whether or not the sensor has detected anything.

› 1µA type

[Explanation of modes]
1) Sleep mode: When the output is OFF. The electrical current consumption is around 1µA.
2) Standby mode: After the sensor's output has reached ON status, the sensor switches to standby mode. The electrical current consumption gets close to 1.9µA. When the sensor's output returns to its OFF value after the "hold time" has expired, the sensor switches again to sleep mode.
3) Mask mode: Time during which the output is forced to OFF status after the end of the standby mode. (No detection is possible during this period.)

[Explanation of the timing]
t1 (Twu):   Circuit stability time: about 25 sec (typ.)
              While the circuitry is stabilizing after the power is turned on, the sensor output is not fixed in the ON or OFF state. This is true regardless of whether or not the sensor has detected anything.
t2:   Standby hold time: about 2.6 sec (typ.) after the last detection of a signal. (※1)
t3:   Mask time: about 1.3 sec (typ.) During this stage, even if the sensor detects something, the output will not switch to ON. (※2)