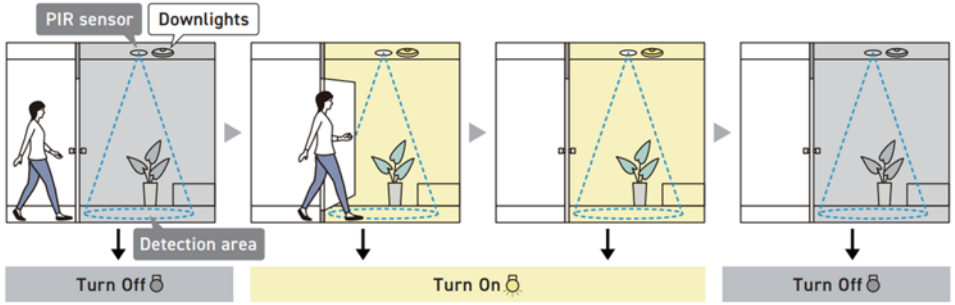
Pyroelectric Infrared Motion Sensors (((PaPIRs)))

from Panasonic in a nutshell

Panasonic

What are PIR Motion Sensors?

PIR (Pyroelectric or Passive Infrared) Motion Sensors from Panasonic called PaPIRs, are the smallest and most powerful PIRs in the market. PaPIRs motion sensors detect changes in infrared energy caused by people moving into the detection area. These sensors are often used to switch lighting, heating and ventilation.

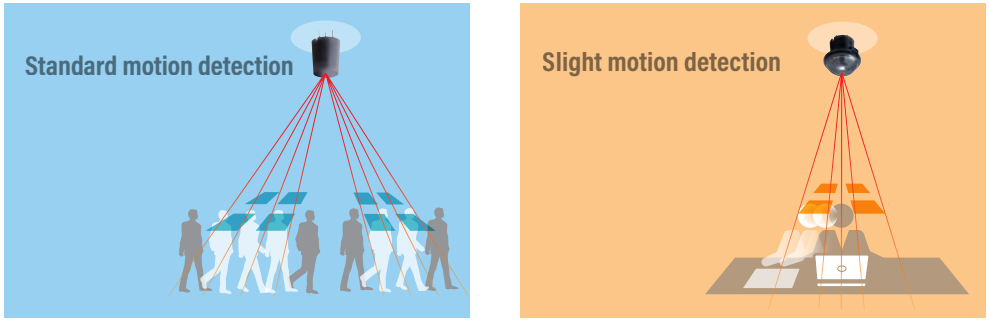


Lights turn on automatically when sensors detect motion.

Lights automatically turn off when motion is no longer detected.

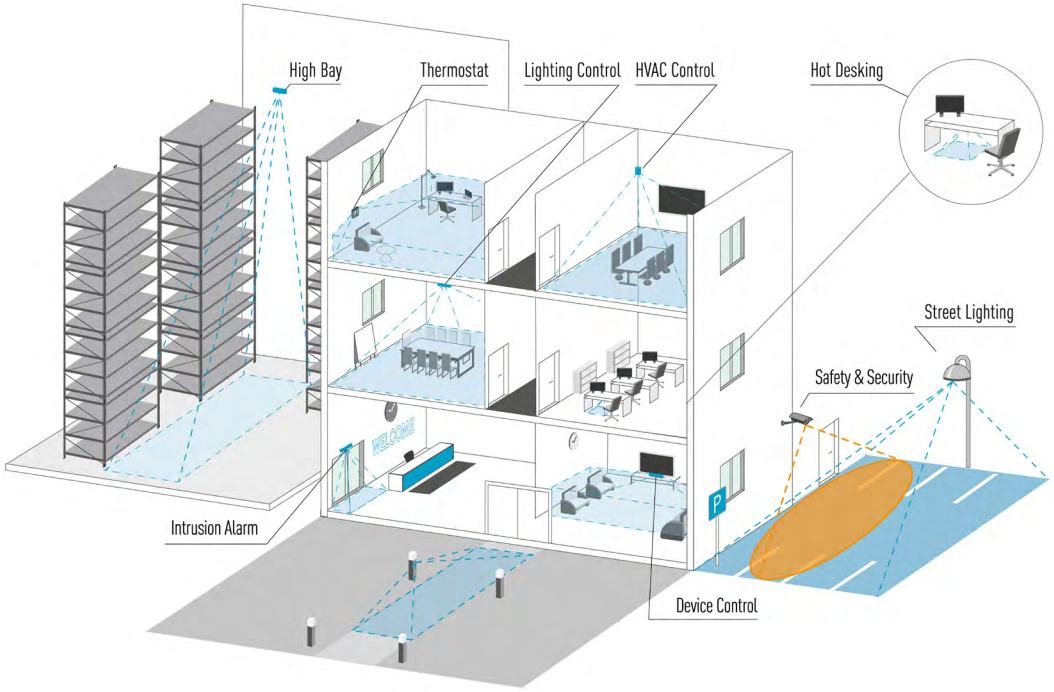
Detection principle

Difference of Standard & Slight motion by lens design



If an object (here a human) with a surface temperature different from the ambient temperature moves into the detection area, its heat radiation is focused through a lens onto the pyroelectric sensor elements, which generate an electrical signal.

Applications for Smart Home and Office



HVAC	Safety & Security	Lightning	Others
▪ Thermostats ▪ Ventilation ▪ Air conditioning ▪ Air purifiers	▪ IP & CCTV cameras ▪ Intrusion alarm ▪ Air conditioning ▪ Gate monitoring	▪ Office sensors ▪ Luminaire sensors ▪ Mid-bay sensors ▪ High-bay sensors ▪ Street-lighting sensors	▪ Wake up switch ▪ Flex or hot desk

Panasonic

PaPIRs main markets & applications

BUILDING AUTOMATION

Hot Desking or Flex Desk

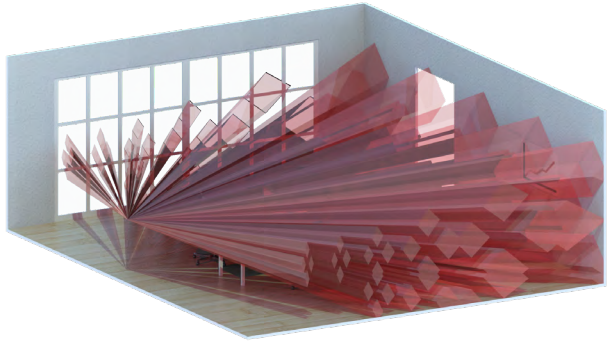
Standard- and Slight Motion Detection Type

Lighting and HVAC control

Standard Detection Type

Lighting and HVAC control

Horizontally Wide Detection Type



SAFETY & SECURITY

Intrusion alarm sensor

Horizontally Wide Detection Type

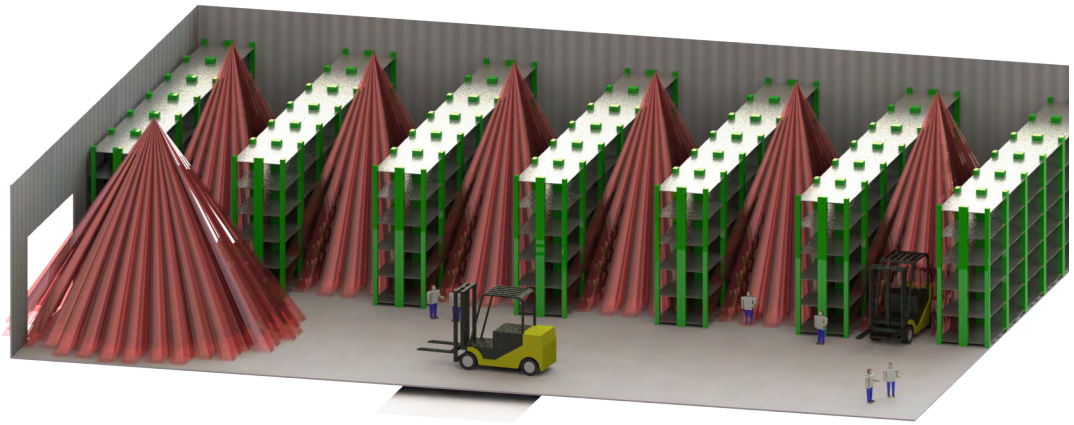
Intrusion alarm sensor

Wall (corner) Installation Type

BUILDING AUTOMATION

Lighting Control

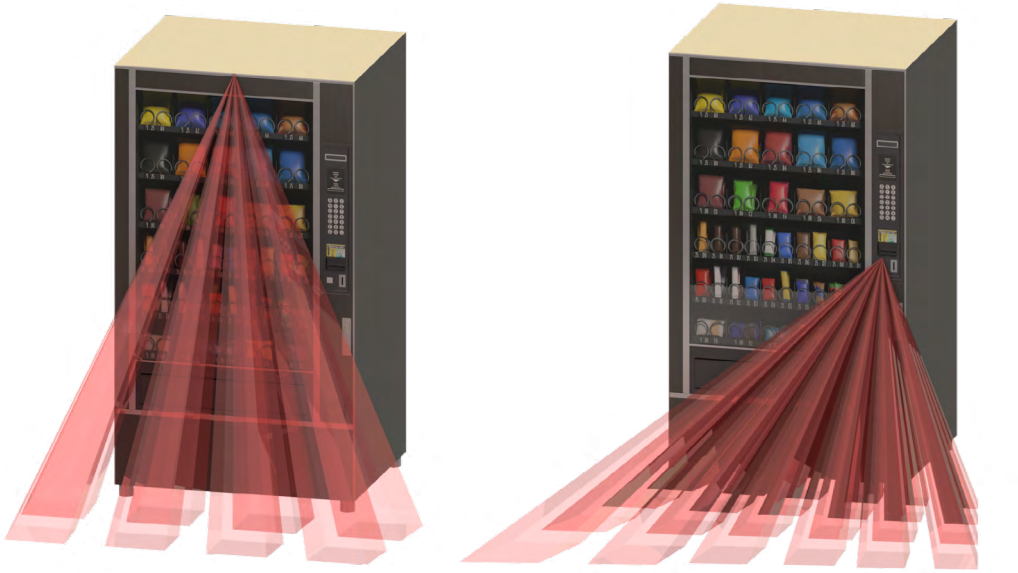
High Density Long Distance Detection Type



VENDING MACHINES

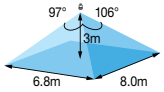
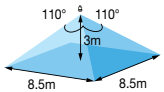
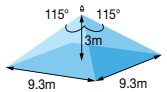
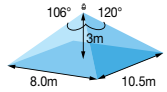
People detection for effective energy

Standard Detection Type

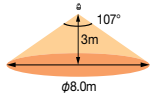
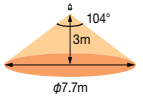
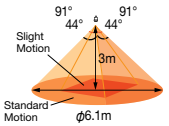
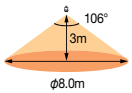


Specifications

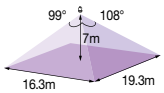
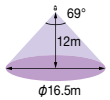
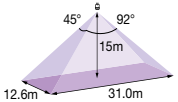
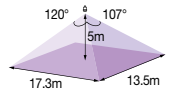
Standard Detection Types

	Standard	Low Profile	Flat Square	AMN series Standard
Lens color	White / Black / Pearl white	White / Black / Pearl white	White / Black / Pearl white	White / Black
Detection area coverage				
Reference page	P. 10	P. 11	P. 12	P. 13
Typical application	Base lighting Digital signage, IP cameras	Lighting controls Digital signage, IP cameras	Air purifier IoT module, Thermostats	Base lighting Ceiling air conditioners, Heaters

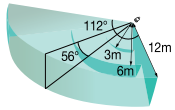
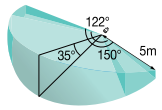
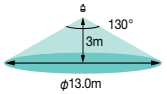
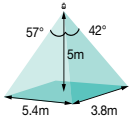
Slight Motion Detection Types

	Ultra Slight	Slight Motion	Standard & Slight	AMN series Slight Motion
Lens color	White / Black / Pearl white	White / Black / Pearl white	White / Black / Pearl white	White / Black
Detection area coverage				
Reference page	P. 18	P. 19	P. 20	P. 21
Typical application	Lighting controls Wall air conditioners, IP cameras	Lighting controls Wall air conditioners, IP cameras	Lighting controls Wall air conditioners, IP cameras	Base lighting Ceiling air conditioners, Heaters

Long Distance Detection Types

	Long Distance	High Density Long Distance	Ultra Wide & Long Distance	AMN series 10m Detection
Lens color	White / Black / Pearl white	White / Black / Pearl white	White / Black / Pearl white	White / Black
Detection area coverage				
Reference page	P. 14	P. 15	P. 16	P. 17
Typical application	Street lighting High-bay lighting, Ceiling air conditioners	High-bay lighting Wall air conditioners, IP cameras	Street lighting High-bay lighting, IP cameras	Lighting controls Air purifier, Heaters

Specific Area Detection Types

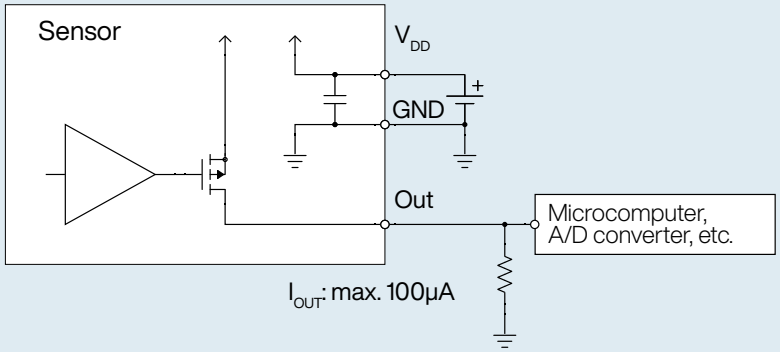
	Wall Installation	Horizontally Wide Detection	Wide Detection	AMN series Spot Detection
Lens color	White / Black / Pearl white	White / Black / Pearl white	White / Black / Pearl white	White / Black
Detection area coverage				
Reference page	P. 22	P. 23	P. 24	P. 25
Typical application	IP cameras IoT module, Wall air conditioners	IoT module Digital signage, Thermostats	Lighting controls Wall air conditioners, IP cameras	Digital signage Sterilization stand, IP cameras

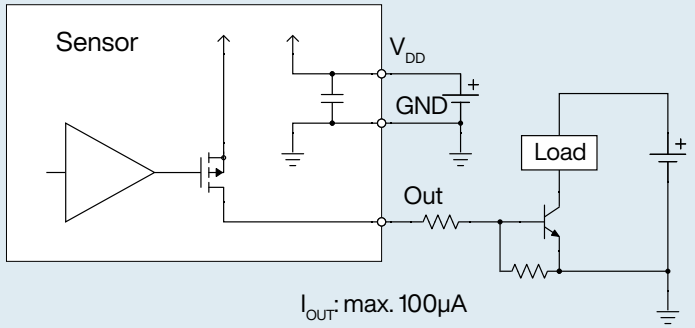
Panasonic

Easy to install: Wire the sensor and it's ready to go

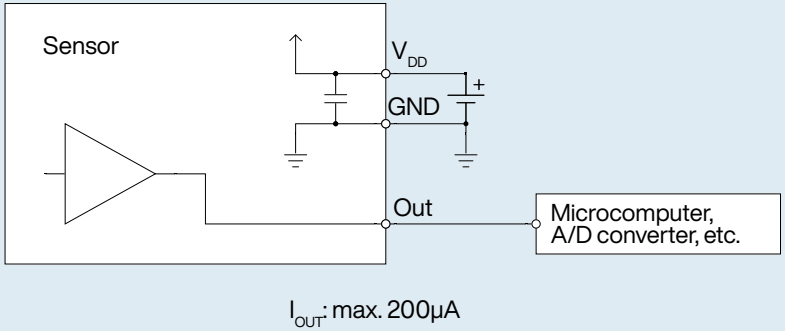
Wiring diagram

Digital output





Analog output



Current consumpton & output interface

Part Number Series	Standby Current Consumption	Output Interface
EKMB11*	1uA	Digital (open-drain)
EKMB12*	2uA	Digital (open-drain)
EKMB13* & EKMB43*	6uA	Digital (open-drain)
EKMC14* & EKMC46*	170uA	Digital (open-drain)
EKMC26*	170uA	Analog (op-amp)

Notes: Digital output types:

The output signal for the digital output type is from inside FET drain, therefore pull-down resistors are necessary. Please select an output resistor (pull-down concept) in accordance with V_{OUT} so that the output current is maximum 100µA. If the output current is more than 100µA, this may cause false alarms. If the microcomputer has a pull-down function, there is no need for a resistor as long as the output current does not exceed 100µA.

Analog output types (EKMC26 series):

In either case, a microcomputer or a resistor needs to be chosen in accordance to V_{OUT}, so that the output current is maximum 200µA.

Contact us: https://industry.panasonic.eu/contact-us

https://industry.panasonic.eu/products/components/sensors/passive-infrared-motion-sensors-papirs

Panasonic