

# MP Motion Sensor (AMN2, 3, 4)

## 2. Absolute maximum ratings (Measuring condition: ambient temperature = 25°C 77°F) (Common to All types)

Items	Absolute maximum ratings
Power supply voltage	-0.3 to 7 V DC
Usable ambient temperature	-20 to 60°C -4 to +140°F (No freezing and condensing at low temperature.)
Storage temperature	-20 to 70°C -4 to +158°F

## 3. Electrical characteristics (Common to All types)

### 1) Digital output

Items	Symbol	Electrical characteristics *( ) is low current consumption type	Measured conditions *( ) is low current consumption type
Rated operating voltage	Minimum	3.0 V DC (2.2 V DC)	
	Maximum	6.0 V DC (3.0 V DC)	
Rated consumption current (Standby) Note)	Typical	170 μA (46 μA)	Ambient temperature = 25°C 77°F Operating voltage = 5V (3V) Iout = 0
	Maximum	300 μA (60 μA)	
Output current (when detecting)	Maximum	Iout	Ambient temperature = 25°C 77°F Operating voltage = 5V (3V) Vout ≥ Vdd-0.5
Output voltage (when detecting)	Minimum	Vout	Ambient temperature = 25°C 77°F Operating voltage = 5V (3V) Open when not detecting
Circuit stability time	Typical	Twu	Ambient temperature = 25°C 77°F Operating voltage = 5V (3V)
	Maximum		

Note: The current which is consumed during detection consists of the standby consumed current plus the output current.

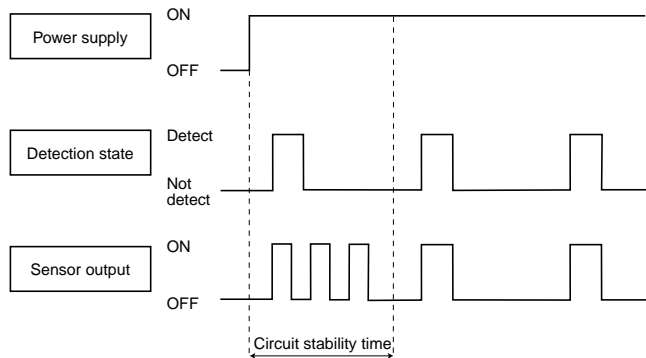
### 2) Analog output

Items	Symbol	Specified value	Measured conditions
Operating voltage	Minimum	4.5 V DC	
	Maximum	5.5 V DC	
Consumption current	Typical	170 μA	Ambient temperature = 25°C 77°F Operating voltage = 5V (3V) Iout = 0
	Maximum	300 μA	
Output current	Maximum	Iout	Ambient temperature = 25°C 77°F Operating voltage = 5V (3V)
Output voltage range	Minimum	Vout	Ambient temperature = 25°C 77°F Operating voltage = 5V (3V)
	Maximum		
Output offset average voltage	Minimum	Voff	Ambient temperature = 25°C 77°F Operating voltage = 5V (3V) Steady-state output voltage when not detecting
	Typical		
	Maximum		
Steady-state noise	Typical	Vn	Ambient temperature = 25°C 77°F Operating voltage = 5V (3V)
	Maximum		
Detection sensitivity	Minimum	Vh or Vl	Ambient temperature = 25°C 77°F Operating voltage = 5V (3V) Temperature difference with background: 4°C 39.2°F Please refer to conditions of other detection objects.
Circuit stability time	Maximum	Twu	Ambient temperature = 25°C 77°F Operating voltage = 5V (3V)

Note: To set to the same detection performance as the digital output type, set the output voltage to the offset voltage (2.5V) ±0.45V (i.e. 2.95V or more and 2.05V or less).

## TIMING CHART

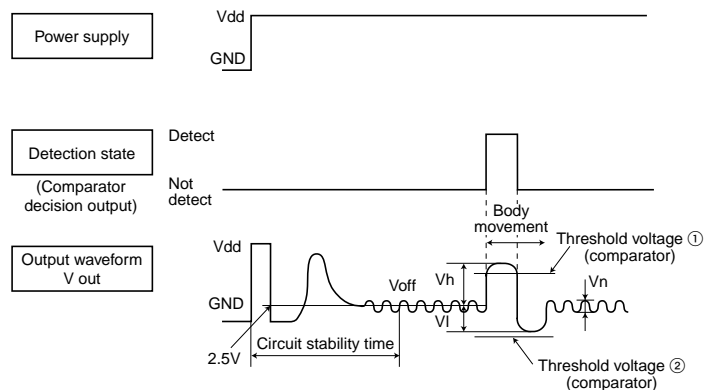
### 1. Digital output



Note: Circuit stability time: 30s max.

While the circuitry is stabilizing after the power is turned on, the sensor output is not fixed in the "on" state or "off" state. This is true regardless of whether or not the sensor has detected anything.

### 2. Analog output



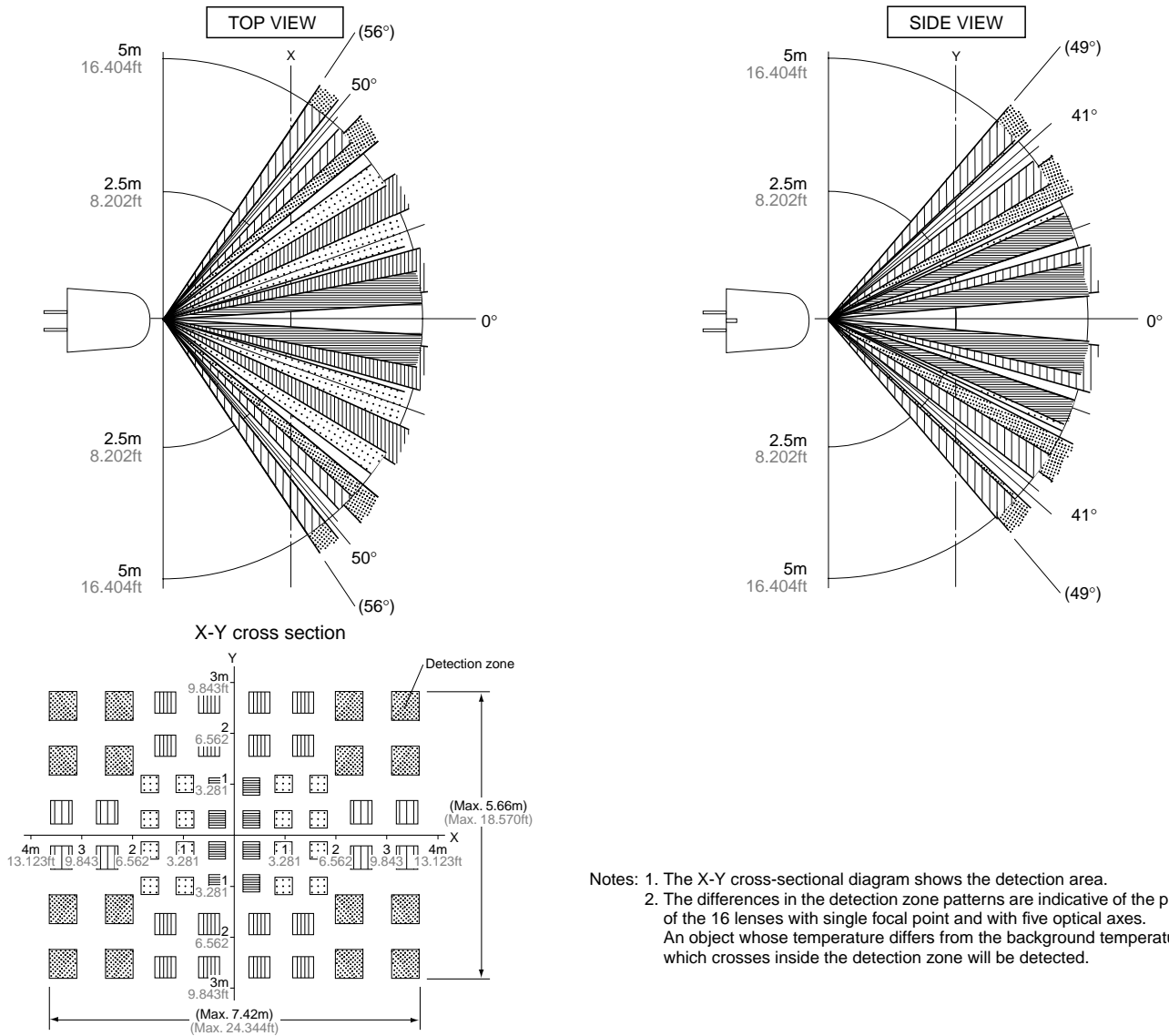
Note: Circuit stability time: 45s max.

While the circuitry is stabilizing after the power is turned on, the sensor output is not fixed in the "on" state or "off" state. This is true regardless of whether or not the sensor has detected anything.

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## DETECTION PERFORMANCE

### 1. Standard detection type



### 2. Slight motion detection type

