

Specification

Product series: Low-mounting PIR motion sensor(ON/OFF+Dry contact version)

Product model: MSA246S IR A2(order sku:313781002)

Product version: V1.0

Version	Release Date	Record	Publishing
V1.0	2026.4.25	Initial version	Jacky

【Product description】

MSA246S IR A2 is a low-mounting PIR motion sensor with daylight detection function. Combined with the unique software algorithm of Merrytek, it can accurately detect human movements in almost all scenario to trigger smart scene application.

【Product Feature】

- PIR motion detection
- Accurate motion detection with one channel ON/OFF and one channel dry contact output
- Daylight sensor detection available
- Daylight threshold gear learning available
- Detection area,hold time,daylight threshold etc can be set by rotation switch or remote control
- Max detection range: 8-10m in diameter
- 16A relay applied,max loading capacity :1200w resistive loading and 600w inductive loading
- PUSH button control available
- Semi-auto/auto sensing mode available
- IQ mode available
- Max 2kV surge capacity
- Office,passageway etc motion detection highly recommended
- Flush mounting and surface mounting(need extra surface mounting kit) available
- 5 years warranty



【Dimension】

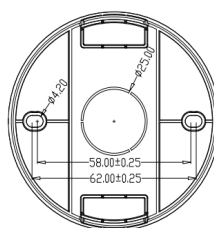
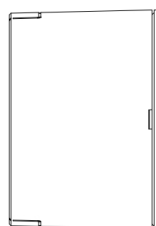
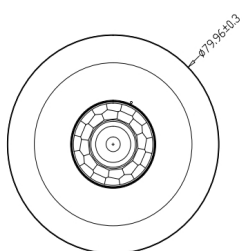
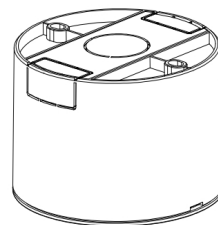
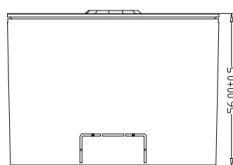
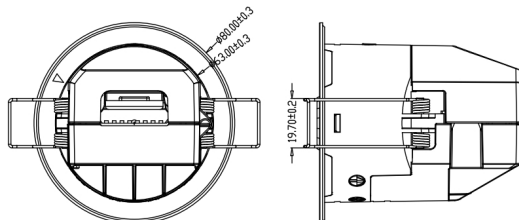
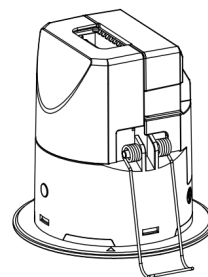
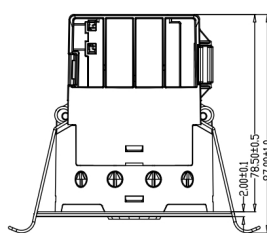
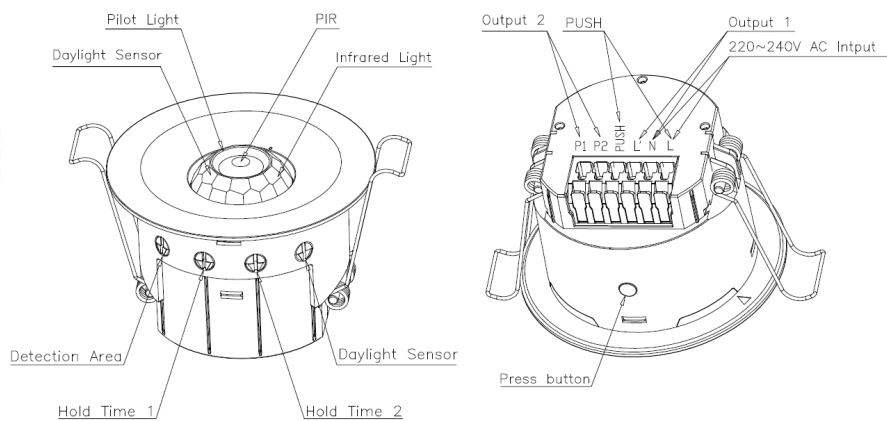
- Product size: $\phi 63$ (internal diameter)x80.5mm/ $\phi 80$ (external diameter)x80.5mm
- Connection interface: 6-pin terminal

【Parameter】

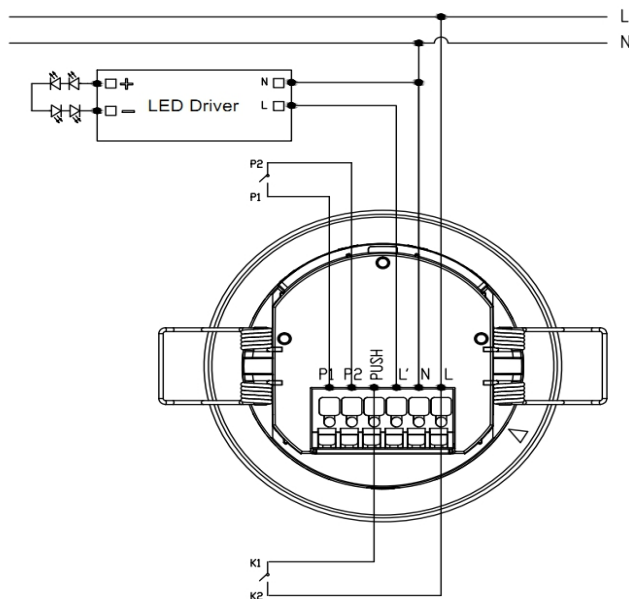
Input/Output	Input voltage	220-240V AC
	Rated voltage	230V AC
	Working current	20mA max
	Power consumption	≤0.5W @230V AC
	Output signal	One channel ON/OFF(16A relay)+one channel Dry contact(can connect loading)
	Max surge voltage	2KV(L/N,EN61000-4-5)
	Max surge current	30A (50% Ipeak, twidth =500us, 230Vac full load, cold start)
	Max loading	ON/OFF terminal: Max 1200w resistive loading and 600w inductive loading @230Vac Dry contact terminal: Max 5A @24Vdc
Sensor parameter	Function	PIR motion detection+ daylight sensor
	Detection Area	Rotation switch/MH18 remote/MH10 remote setting: 100%/75%/50%/25%
	Hold Time	ON/OFF channel hold time(Rotation switch/MH18 remote/MH10 remote setting) Test 2s/30s/1min/5min/10min/30min Dry contact channel hold time(Rotation switch/MH18 remote/MH10 remote setting) Test 2s/30s/1min/3min/5min/10min/20min/30min
	Daylight Sensor	Rotation switch/MH18 remote/MH10 remote setting: 5Lux/15Lux/30Lux/50Lux/100Lux/150Lux/Disable
	Daylight threshold learning mode	When sensor enter daylight threshold learning mode,it'll learn current environment's daylight level and set it as threshold
	IQ mode	When sensor enter IQ mode.our sensor will auto set hold time based on sensor trigger frequency,hold time setting range is 10s-10min. 1. when current hold time is 10s and sensor triggered more than 3 times,hold time will auto set as 20s; 2. when current hold time is 20s and sensor triggered more than 6 times,hold time will auto set as 30s; 3. when current hold time is 30s and sensor triggered more than 10 times,hold time will auto set as 1min; 4. when current hold time is 1min and sensor triggered more than 20 times,hold time will auto set as 3min; 5. when current hold time is 3min and sensor triggered more than 40 times,hold time will auto set as 5min; 6. when current hold time is 5min and sensor triggered more than 80 times,hold time will auto set as 10min; 7. when current hold time is 10min and sensor enter absence or sensor be re-powered,hold time will return to initial hold time
	Pulse mode	When sensor enter pulse mode.our sensor will keep on 2s and block

		sensing 8s when motion detected
	PUSH button control	Push button can set auto/semi-auto sensing mode,or you can also use locking button/MH18 remote to set auto/semi-auto sensing mode.(PUSH button can only set ON/OFF channel) 1. When locking button is pressed down,auto mode is set: A. in such case,sensor can turn on light when motion detected and turn off light when no motion detected and hold time run out. B. If customer use push button turn on light,sensor will automatically turn off light when no motion detected and hold time run out. 2. When locking button is pressed up,semi-auto mode is set: A. in such case,light can only be turned on by push button and be turned off by sensor when no motion detected and hold time run out.
	Radius detection range based on 100% detection range	3m height installation: tangential movement at 1m/s speed: 4-5m @25°C radial movement at 1m/s speed: 2-3m @25°C 6m height installation: tangential movement at 1m/s speed: 4-5m @25°C radial movement at 1m/s speed: 2-4m @25°C
	Remote control	available (MH18 remote/MH10 remote)
	Mounting heights	2.5-6m typical value: 3m
Application environment	Drill hole	Φ65mm
	Working temperature	-25°C...+50°C(detection range might differ based on different temperature)
	Storage temperature	-25°C~+50°C, humidity ≤60%(non-condensation status)
	Warranty	5 year (available based on product quality under indoor application)
Certificate Standard	Certificate	Compliant to CE
	Environmental requirements	Compliant to RoHS
	IP rating	IP20
"N/A" means not available		

【Dimension and Function diagram】



【Wiring instruction】



Wiring layout suggestion:

1. LN terminal stands for AC input, L'N' stands for AC output, please wiring correctly
2. One sensor's max loading capacity is 1200w resistive loading and 600w inductive loading for one single load. if you want connect more load in one loop, we recommend to add an AC contactor in our output LN terminal to avoid momentary surge overload.
3. P1, P2 terminal can connect DC loading device, if you want connect AC loading device, you can jump P1 or P2 connect to L terminal

【Initialization】

When powered on, sensor indicator will turn off after flashing for 35s and will not detect moving signal during this time. After 35S, you can use our rotation switch or remote to adjust detection area, hold time and daylight sensor etc parameter.

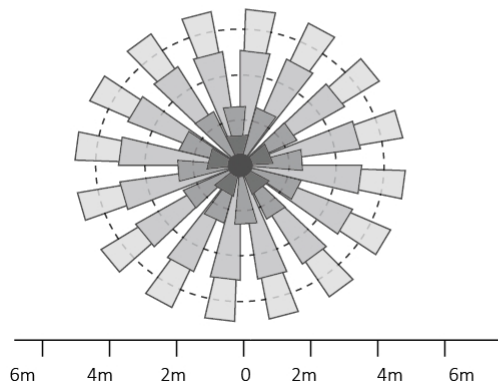
【Factory setting】

Detection Area: 100%, ON/OFF terminal Hold Time: 2s, dry contact terminal Hold Time: 2s, Daylight threshold: Disabled, Indicator: ON

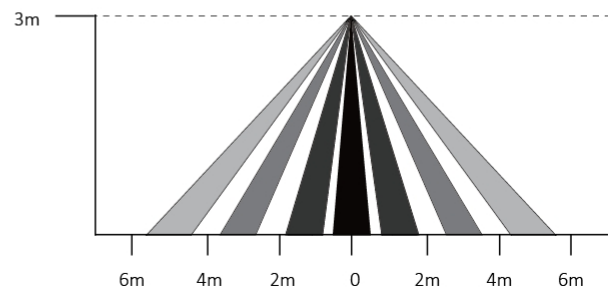
【Detection radiation】

MSA246S IR A2 is highly recommended ceiling flush mounting and its detection radiation based on 3m height is as below shows:

Top View



Side View



【Detection Signal】

The product detects human moving signals and below is a description of the moving signals:

- **Major motion signal:** detect the human significant moving (walking) in the detection area.



Major motion



Minor motion



Micro motion

【Rotation switch setting】

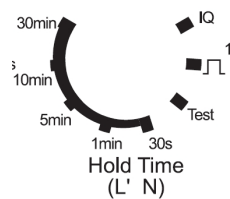
Detection Area

Gear	Detection area
1	25%
2	50%
3	75%
4	100%



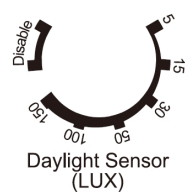
ON/OFF terminal Hold Time

Gear	Hold time
1	Test 2s
2	30s
3	1min
4	5min
5	10min
6	30min
7	Pulse mode
8	IQ mode



Daylight Sensor

Gear	Daylight threshold
1	5lux
2	15lux
3	30lux
4	50lux
5	100lux
6	150lux

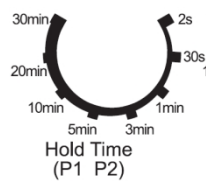


7	Disable
---	---------

*When disabled set,our sensor will turn on light once motion detected regardless of environment daylight

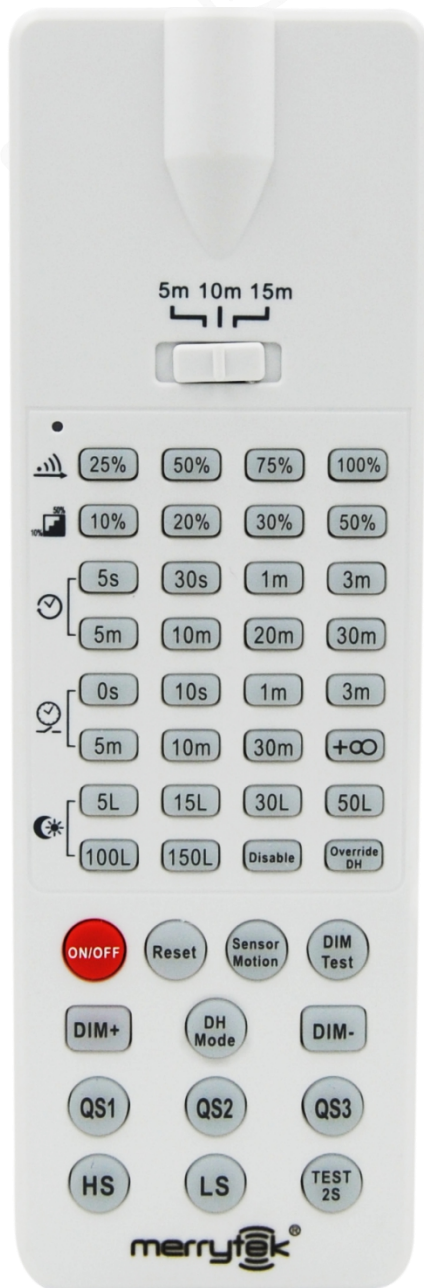
Dry contact terminal Hold Time

Gear	Hold time
1	Test 2s
2	30s
3	1min
4	3min
5	5min
6	10min
7	20min
8	30min



【Remote control setting】

MH10 remote:



Detection area:

25%/50%/75%/100%

Hold time:

Test 2s (5S 按键) /30s/1min/3min/5min/10min/20min/30min

Daylight sensor threshold:

5lux/15lux/30lux/50lux/100lux/150lux/Disable

ON/OFF: disable sense function, light will be constantly on

Sensor motion: enable sense function

Reset: all parameter back as factory setting

DIM test: short press to turn on IQ mode

DIM+: short press to set on/off channel hold time

DIM-: short press to set dry contact channel hold time

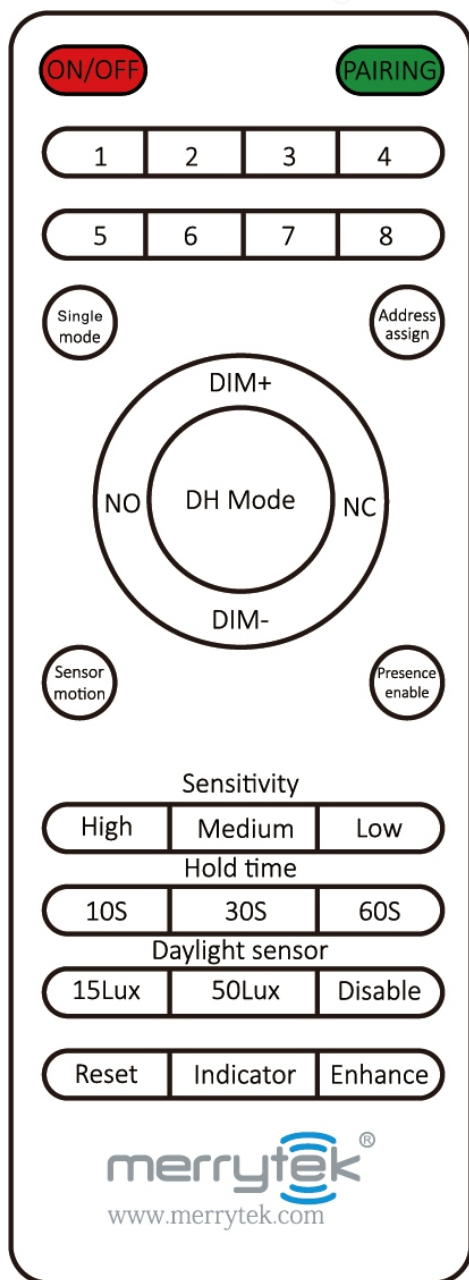
QS1: auto mode QS2: semi-auto mode QS3: daylight threshold learning mode

HS: turn on indicator

LS: turn off indicator

TEST 2S: pulse mode

MH18 remote:



ON/OFF: disable sense function, light will be constantly on

PAIRING: short press to turn on IQ mode

Detection area: 1=100%, 2=75%, 3=50%, 4=25%,

Single mode: Long press 3s to enter pulse mode

DIM+: short press to set ON/OFF channel hold time, DIM-: short press to set Dry contact channel hold time

Sensor motion: short press to enable sense function (parameter will remain as last time status)

High: short press to set auto mode Low: short press to set semi-auto mode

Hold time: short press to set Test 2s (10s button) / 30s / 60s

Daylight sensor: short press to set 15lux / 50lux / Disable

Reset: short press to recover factory setting

Indicator: short press to turn on indicator, long press to turn off indicator

Enhance: short press to enter daylight sensor threshold learning

【Application tips】

1. Our sensor shall be installed by professional electrician under power-off state
2. Our sensor's typical installation is 3m high for indoor use only. And it's strongly suggested installed far away from hot or temperature-change-fast area to avoid false trigger
3. To ensure normal detection, there shall be no big object within our sensor's detection area because our sensor can't detect by penetrating object
4. There shall also no strong-reflect object, wifi router, microwave oven etc before our sensor to avoid false trigger
5. Our sensor's detection area function is based on 25°C environment temperature, when environment temperature is higher/lower than this temperature, our sensor will be dull/sensitive, such the detection area will be shorter/longer
6. Our sensor's detection area function is based on tangential movement, and become short if you test by radial movement due to PIR character

【Disclaimer】

Due to the complexity of product technology and differences in application environment, it is difficult to guarantee a completely accurate or complete description, so this specification is only for user reference. We will reserve the right to make changes to the product specifications without notifying the user, and do not make any commitments and guarantees in the legal sense. At the same time, our company encourages users to supplement or modify the contents of our specifications after using our products.