Specification

Product Name: **AC ON/OFF sensor**

Product Model: **MC077V 99&1**

Versions	Release/ change Date	Reason	Publishing
V1.0	14th Feb, 2023		James Guo
V1.1	30th March, 2023	Updated microwave antenna spacing and radiation diagram	James Guo
V1.2	20th April, 2023	Update microwave antenna spacing	James Guo
V1.3	27th November, 2023	Product adapts ceiling light	James Guo

【Product Feature】

- Patented mini dipole microwave antenna for ceiling light, suitable to built-in metal LED tray without false trigger.
- Compact size, not effect light distribution.
- Low sidelobe, no false trigger in metal reflection space.
- Low transmitting power, no harm to human.
- Sensor data can be set by DIP switch & remote control.
- Not affected by temperature, humidity, noise, dust etc..

MC077V 99

MC077V 99 1

【Parameter】

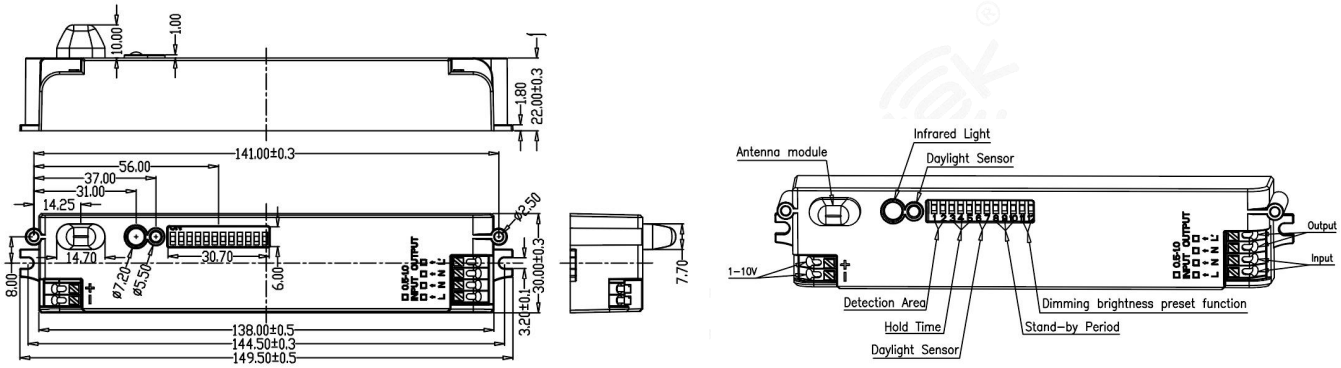
Input		
Rated Voltage	220-240VAC 50/60Hz	
Stand-by Power	≤0.5W	
Surge Test	1kV(L/N,EN61000-4-5)	
Output		
Output Control	ON-OFF	0-10VDC Dimming Signal
Load Capacity	400W(Inductive/LED) ; 800W(Resistive)	
Max. Surge Capacity	10A relay: 30A (50% Ipeak, twidth =200us, 230Vac full load, cold start);	
Sensor Parameter		
Operating Frequency	5.8 GHz ±75MHz, ISM wave band.	
Transmitting power	1mW Max.	
Detecting Radius	≥2.5m @ ceiling mounting, ≥ 4mi @ wall mounting Motion speed: 1m/s, 100% sensitivity, 165cm person.	
Mounting Height	2.5-6m (ceiling mounting), 2-3m (wall mounting)	
Environment		
Operating Temperature	-20~60°C	
Storage Temperature	-40℃~80℃, Humidity: ≤85%(Non-condensing)	
Certificate Standard		
Certificate	CE, RED, UKCA, SAA, CB	
Environmental Requirement	Compliant to RoHS 2.0, Reach	
Safety standards	EN61058-1-2	
EMC standards	EN61547, EN61000-3-2, EN61000-3-3, EN62479	
IP Rating	IP20	
Other		
Wiring	Press-in type terminal block, wiring 0.5-0.75mm^2	
Installation	Built-in	
Package	Bubble bag + Clapboard + Carton(K=A)	
Net Weight	62±5g	
Lifetime	5 years warranty @Ta	

【Function】

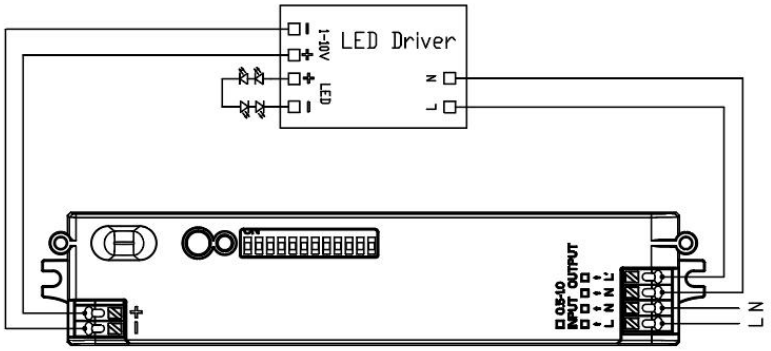
☑ON-OFF function	Stand-by Period be set “0s”
☑2-step dimming	Stand-by Period be set “+∞”
☑3-step dimming	Stand-by Period be set “10s/1min/3min/5min/10min/30min”
☐Override function	N/A

□Daylight harvesting	N/A
□Daylight priority	N/A
□High-low sensitivity	N/A
□Grouping	N/A

【Product Information】Recommended for use on ceiling lights



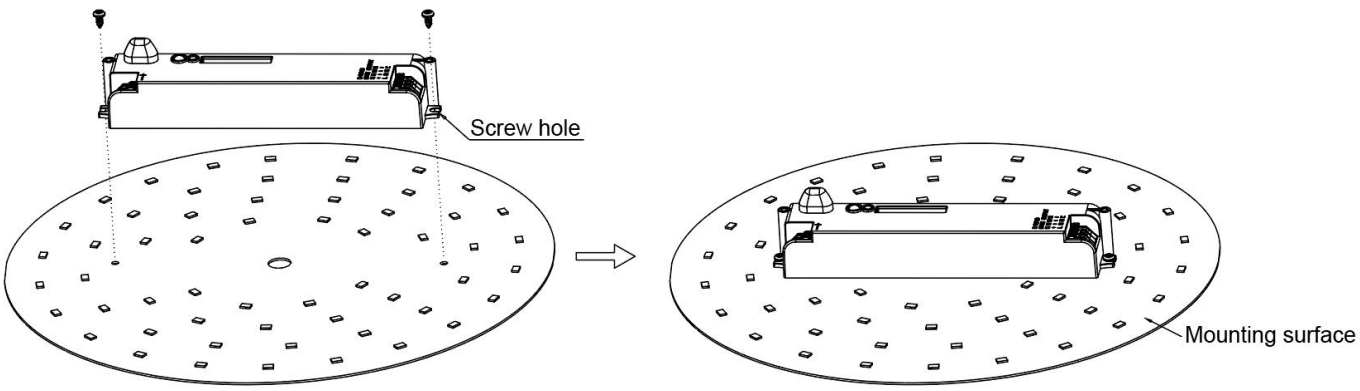
【Wiring diagram】



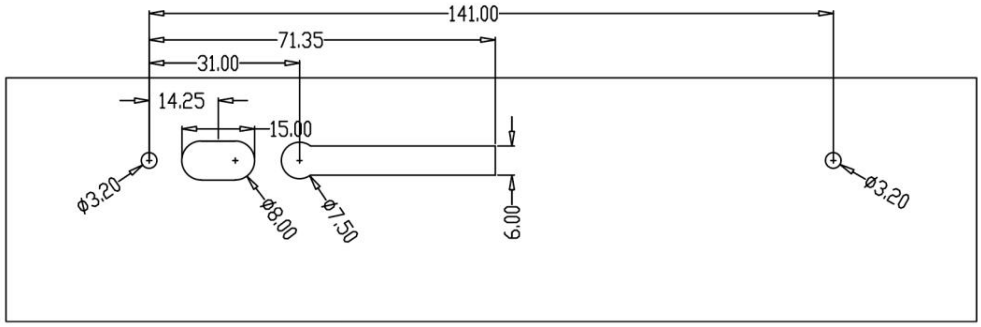
*The sensor is designed for connect one load only. Connect more than one loads may damage the sensor.

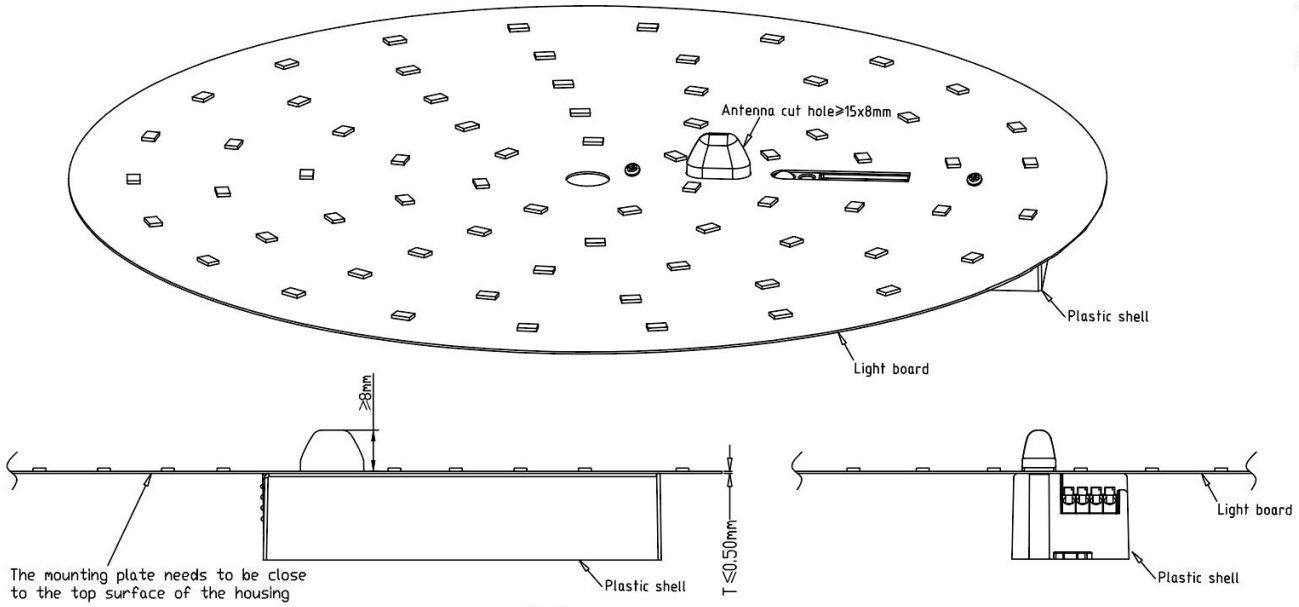
【Installation Instruction】

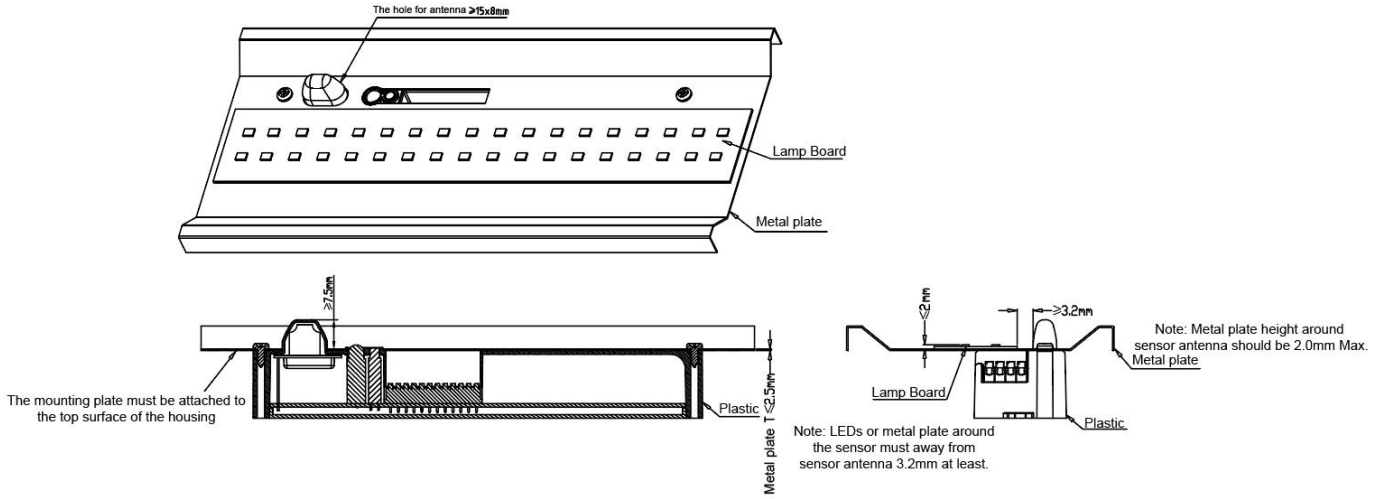
- **Screw installation**



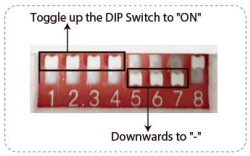
- **Cut Size**


141.00
71.35
31.00
14.25
15.00
Ø3.20
Ø8.00
Ø7.50
6.00
Ø3.20


Antenna cut hole≥15x8mm
Plastic shell
Light board
≥8mm
The mounting plate needs to be close
to the top surface of the housing
Plastic shell
T≤0.50mm
Light board
Plastic shell



【DIP Switch Setting】



ON

Detection Area

1	2		Detection Radius
ON	ON	100%	Around 3 meters
ON	–	75%	Around 2 meters
–	ON	50%	Around 1.5 meters
–	–	25%	Around 1 meters

Hold Time

3	4	5	
ON	ON	ON	5S
–	ON	ON	30S
ON	–	ON	90S
–	–	ON	3min
ON	ON	–	20min
–	–	–	+∞

Daylight Sensor

6	7	
ON	ON	5Lux
–	ON	50Lux
ON	–	150Lux
–	–	Disable

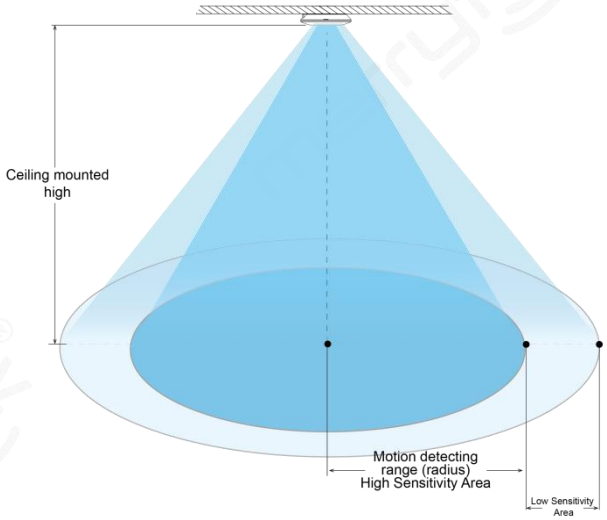
Stand-by Period

8	9	10	
ON	ON	ON	0S
–	ON	ON	5S
ON	–	ON	5min
–	–	ON	10min
ON	ON	–	30min
–	ON	–	1H
–	–	–	+∞

Stand-by DIM level

11	12	
ON	ON	50%
–	ON	30%
ON	–	20%
–	–	10%

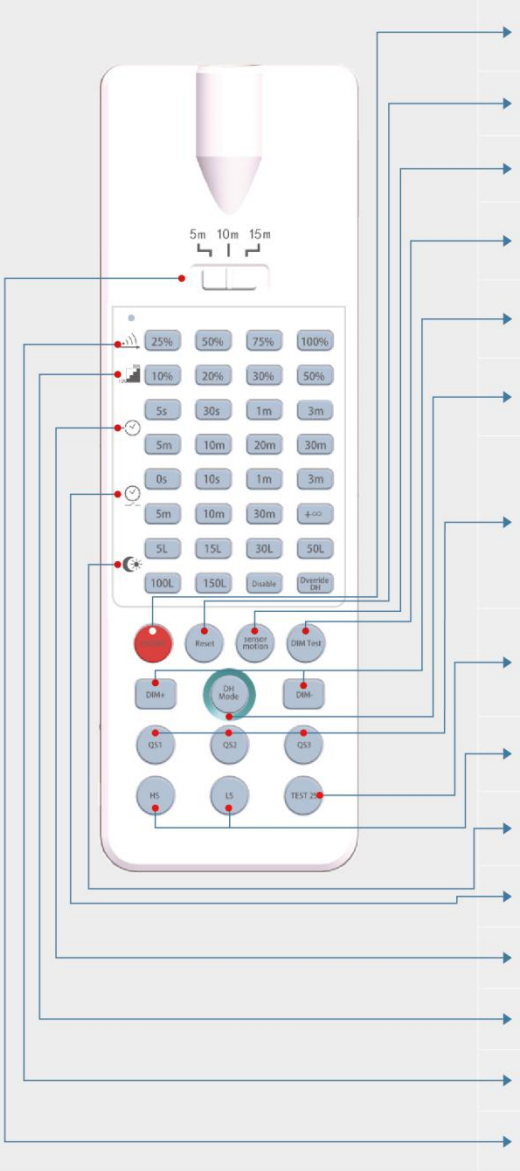
【Detection Range】



【Remote control】

merrytek®

MH10
Instruction

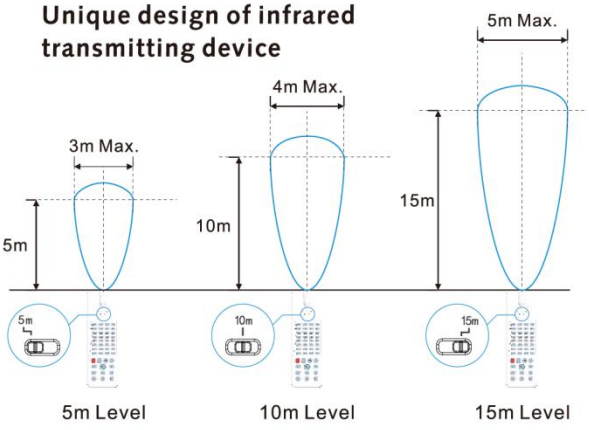
Remote Control Setting	Button	Remarks
	ON/OFF	Press the "ON/OFF" button, the light enters the constant ON/OFF mode, and the sensing function is disabled. In ON/OFF mode, DIM+/DIM- function is available, it maintains the same brightness after powering on again. Power off under NO mode and then power on, the lamp enters constant OFF mode. Power off under constant ON mode and then power on, the load lamp lights 2s and then enters NC mode.
	Reset	Press "Reset"button, all parameters are same as setting of DIP switch or factory settings.
	Sensor motion	Press "Sensor motion" button, the light quits from the constant on/ off mode, and the sensor starts to work (The latest setting stays in validity)
	DIM Test	Press"DIM Test" button, the 1-10 V dimming works to test whether the10Vdc dimming ports are connected properly. After 2s, it returns to the latest setting automatically.
	DIM+ DIM-	Short press to transmit a dimming signal, and the brightness of the lamp will be adjusted with +/-2% each time: dimming range:10%-100 %. (Only available for daylight priority function sensor) Note: the maximum brightness can be set with this button:
	DH Mode	N/A
	Q1 Q2 Q3	<table><tr><th>Scence Options</th><th>Dection Area</th><th>Hold Time</th><th>Stand-by period</th><th>Stand-by dim level</th><th>Daylight Sensor</th><th>Induction model</th></tr><tr><td>QS1</td><td>100%</td><td>5min</td><td>10min</td><td>10%</td><td>30Lux</td><td>Hs</td></tr><tr><td>QS2</td><td>100%</td><td>10min</td><td>30min</td><td>10%</td><td>Disable</td><td>Hs</td></tr><tr><td>QS3</td><td>100%</td><td>20min</td><td>30min</td><td>10%</td><td>Disable</td><td>Hs</td></tr></table> Note: Users can press any button to adjust parameters, subject to the last setting. When the sensor does not have the above parameter function, the parameter setting is invalid. Hold time, dim level are not applicable to ON/OFF sensor, Sensor mode is not available for low installation sensor.
	TEST 2S	Press the "RESET" and then Press the "TEST 2S" bottom can enter the test mode any time At the mode the sensor parameters as below:Detection Area is 100%, Hold Time is 2s.Stand-by Dim Level is 10%,Stand-by Period is 0s, daylight sensor disable This function only for testing. Quit the mode by pressing "RESET"or any other function buttons.
	HS LS	N/A
		Daylight Sensor Set up daylignt thereshold: 5Lux/15Lux/30Lux/50Lux/100Lux/150Lux/Disable
		Stand-by period Set up stand-by time:0S/10S/1min/3min/5min/10min/20min/30min/+∞
		Hold time Set up hold time:5S/30S/1min/3min/5min/10min/20min/30min
	50% 10%	Stand-by dim level Set up stand-by dim level:10%/20%/30%/50%
		Detection Area Set up detection area: 25%/50%/75%/100%
	5m 10m 15m	Remote Distance Toggle bottom can set the remote distance of remote control and sensor。

Remote control and code setting conversion

1.DIP switch setting convert to remote control Press any bottom except "RESET" on the remote control, and the sensor settings convert to the function currently selected by the remote control.
(No function button settings invalid)

2 remote control convert to DIP switch setting
a. Press the "RESET" button on the remote control, and all settings return to the DIP switch settings of the sensor.
b. Turn off the power, toggle any DIP switch,connect to the power, and all settings return to the DIP switch settings when supply power again.

Unique design of infrared transmitting device



【Initialization】

After power on, the sensor automatically turns on light to 100% brightness and turns off light in 12 seconds. During initialization, sensor is not able to detect movement.

【Default setting】

Sensitivity: 100%, Hold time: 5s, Daylight sensor: Disable, Stand-by Period: 0s, Stand-by DIM Level:50%

【Application Notice】

● Sensor should be installed by a professional electrician. Please turn off power before installing, wiring, or setting the DIP switches.

● Microwaves cannot penetrate metal. Do not place product in a closed or a half-closed metal lamp. Neither metal nor glass is not allowed to cover above the product. If antenna needs to pass through the metal plate, please ensure that the top of sensor is close to the metal plate.

● Sensitivity area is related to moving speed of objects, size of moving objects, mounting height, mounting angle, working environment, reflecting materials and etc.. Given detecting area is typical value that was measured by 165cm high testers in an indoor open environment.

● The daylight thresholds are measured on a sunny day without shadow and in an ambient light diffuse reflection status. Different environment and climate cause different brightness values that daylight sensor measures.

● The installation spacing between sensors is recommended to be greater than 2m, and the installation spacing between sensors and routers is recommended to be greater than 2m.

● Sensor should not be covered or hided by metal, PCB, LED tray etc..The spacing between the sensor antenna and surrounding materials should be greater than 5mm. There should be no metal or PCB tracks near the sensor antenna, above or below it. The recommended thickness of cover is 2mm, and keep the spacing between the sensor antenna and cover is greater than 3.2mm.

● Vibration signals will be regarded as moving signals to trigger sensor. Installing sensor should be away from the object that vibrates for a long time, such as large metal equipment, pipes, air conditioning outlets, exhaust vents, smoke exhaust machine ports, shaking fans, etc. Pets in detecting area may cause false trigger.

● The antenna surface of microwave module should be away from input AC, output DC, rectifier bridge, transformer, switch tube and other high-power devices to avoid high frequency signals affecting the normal operation of microwave sensor’s antenna.

● Sensor is for indoor use only. The waterproof effect for outdoor or half-outdoor use will be affected. Wind, rain, and moving objects may cause false triggering.