

# SPECIFICATION

Product Name: Step Dimming Sensor for Tri-proof Light

---

Model No.: MC077V RC


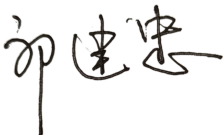


---

Issue Date: June 28, 2022

---

CUSTOMER APPROVED

---

PRODUCT DIRECTOR APPROVED	P&M CHECKED	R&D CHECKED	PREPARED
			

Shenzhen Merrytek Technology Co.,Ltd

Add: No.17th Building, Dianda Guyuan Industrial Park, Mashantou, Matian, Guangming District, Shenzhen, China, 518106

Tel: +86 (0)755-2305 7253

Fax: +86 (0)755-2786 3012

Website: [www.merrytek.com](http://www.merrytek.com)

## 1. Features



- Built-in motion sensor and daylight sensor
- Ultra-slim design for Tri-proof LED light
- Work with 1-10V dimmable LED driver, easy to achieve 2-step or 3-step dimming function.
- Work with remote controller, easy to adjust sensor parameters.
- With override function
- 5 years warranty

## 2. Parameter

<b>Input</b>	Rated Voltage	120-277V AC, 50Hz/60Hz
	Stand-by Power	≤0.5W
	Surge Test	L-N: 1kV
<b>Output</b>	Working Mode	ON/OFF function, 1-10V dimming
	Type of Load	Inductive or Resistive
	Load Capacity	200W@120Vac, 400W@277Vac(Inductive) 400W@120Vac, 800W@277@Vac(Resistive)
	Max. Surge Capacity	30A (50% Ipeak, twidth =500uS, 230Vac full load, cold start); 60A (50% Ipeak, twidth =200uS, 230Vac, full load, cold start)
<b>Dim Interface</b>	1-10V Dimming	20mA Max (Passive interface)
<b>Sensor Parameters</b>	Operating Frequency	5.8 GHz ±75 MHz , ISM Band.
	Transmitting power	0.5mW Max.
	Hold time	5S/5min/10min/30min (set by DIP switch )
		5s/30s/1min/3min/5min/10min/20min/30min (set by remote)
	Stand-by Dim Level	25%(2.2-2.5V)/35%(3.5V-4V)/50%(4.5-5.0V) (DIP switch set only )
	Stand-by Period	0S/5min/15min/+∞(set by DIP switch )
		0s/10s/1min/3min/5min/10min/30min/+∞(set by remote)
	Detection Area	100%/75%/50%/25% (set by DIP switch )
		100%/75%/50%/25%(set by remote)
	Daylight Sensor	5lux/25lux/50lux/100lux/Disable(Ambient light diffusion)(set by DIP switch )
		5lux/15lux/30lux/50lux/100lux/150lux/Disable(set by remote)
	Detecting Radius	4-7m (mounting height 3m)
	Mounting Height	4m Max.
	Detecting Angle	150°

Shenzhen Merrytek Technology Co.,Ltd

Add: No.17th Building, Dianda Guyuan Industrial Park, Mashantou, Matian, Guangming District, Shenzhen, China, 518106

Tel: +86 (0)755-2305 7253

Fax: +86 (0)755-2786 3012

Website: www.merrytek.com

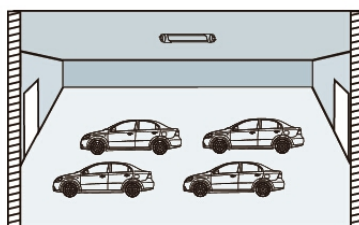
<b>Operating Environment</b>	Operating Temperature	-25~+60℃
	Storage Temperature	Temperature: -40℃...+80℃; Humidity: 10%-95% (Non-condensing)
<b>Certificate Standards</b>	Safety standards	EN61058-1
	Environmental Requirement	Compliant to RoHS
	Certificate	CE, UL, RED
<b>Others</b>	Wiring	Press-in Type Terminals, wire diameter : 0.75-1.5mm <sup>2</sup>
	IP Rating	IP20
	Protection Class	Class II
	Installation	Built-in
	Dimension	193*26*22mm
	Package	Bubble bag +white box+ clapboard +carton(K=A)
	Net Weight	100g
	Lifetime	5 years warranty @Ta 230V full load

**Note**

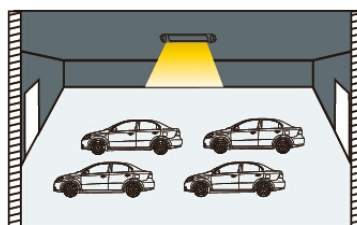
1. "N/A" means not available.
2. Detection area is affected on volume of motion object and motion speed. The detection area is tested by a 165cm height person and walking speed is 0.3m/s.

### 3. Function

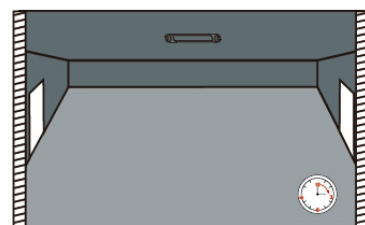
#### 1) ON/OFF Function (stand-by period set at '0')



- ① With sufficient ambient light, the light will not be switched on even if with motion signal.

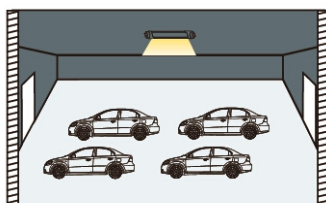


- ② With insufficient ambient light, the sensor switches on the light when motion is detected.

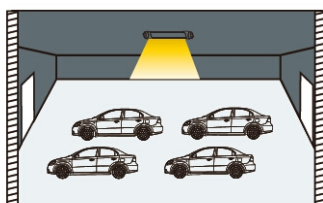


- ③ After elapse of hold time, the sensor switches off the light when no motion is detected.

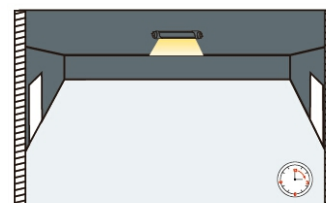
#### 2) 2-step dimming function (stand-by period set at "+∞")



- ① If there is no motion detected, the light will be remained at a low light level all the time.



- ② When motion is detected, the sensor will switch on the light to 100% brightness



- ③ After elapse of hold time, the sensor dims the light at the present low light level if no motion is detected.

Shenzhen Merrytek Technology Co.,Ltd

Add: No.17th Building, Dianda Guyuan Industrial Park, Mashantou, Matian, Guangming District, Shenzhen, China, 518106

Tel: +86 (0)755-2305 7253

Fax: +86 (0)755-2786 3012

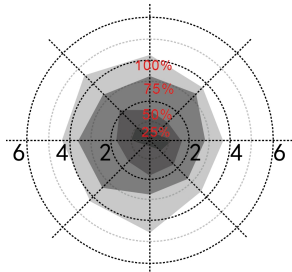
Website: [www.merrytek.com](http://www.merrytek.com)



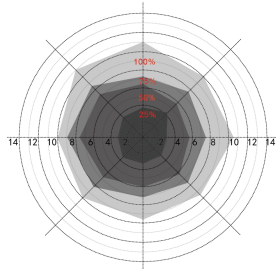
## 7. Radiation Pattern

### Ceiling mounting

Ceiling mounted height: 3m  
Sensitivity: 100%/75%/50%/25%

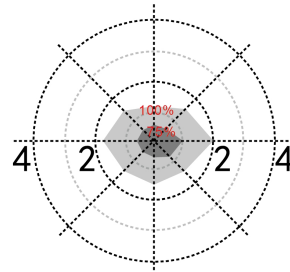


Normal moving (Speed:1m/s)

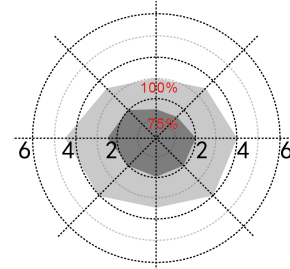


Slow moving (Speed 0.3m/s)

Ceiling mounted height: 4m(\*)  
Sensitivity:100%/75%



Normal moving (Speed:1m/s)

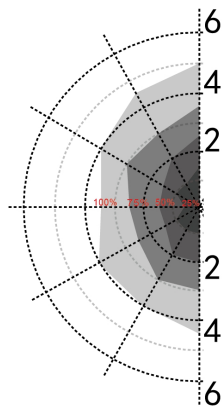


Slow moving (Speed: 0.3m/s)

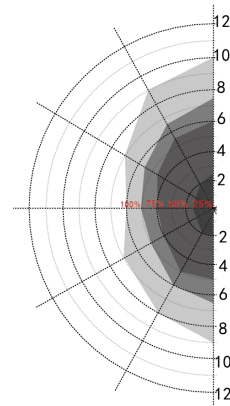
\*Only 100% /75%detection sensitivity is workable when installed at 4m mounting height. 25%/50%sensitivity is not able to detect motion signal.

### Wall mounting:

Horizon mounted height: 2m  
Sensitivity: 100%/75%/50%/25%



Normal moving (Speed: 1m/s)



Slow moving (Speed 0.3m/s)

## 8. Remote Control

Button	Remarks																												
ON/OFF	Press the "ON/OFF" button, the light goes to constant on/off mode, sensor is disabled. Press any button to quit from this mode and the sensor starts to work. No memory for ON-OFF setting after power off. Sensor mode will auto resume after restart power supply.																												
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	(This Function is disable)																												
DIM+	(This Function is disable)																												
DIM-	(This Function is disable)																												
DH Mode	(This Function is disable)																												
QS1, QS2, QS3	<table border="1"> <thead> <tr> <th>Scene Options</th> <th>Detection 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> </thead> <tbody> <tr> <td>QS1</td> <td>100%</td> <td>30S</td> <td>1min</td> <td>10%</td> <td>5Lux</td> <td>Hs</td> </tr> <tr> <td>QS2</td> <td>100%</td> <td>1min</td> <td>3min</td> <td>10%</td> <td>10Lux</td> <td>Hs</td> </tr> <tr> <td>QS3</td> <td>100%</td> <td>5min</td> <td>10min</td> <td>10%</td> <td>30Lux</td> <td>Hs</td> </tr> </tbody> </table> <p>Note: Detection area / Hold time / Stand-by period / Stand-by dim level / Daylight sensor can be adjusted by pressing the corresponding button. The latest setting will stay valid.</p>	Scene Options	Detection Area	Hold Time	Stand-by period	Stand-by dim level	Daylight Sensor	Induction model	QS1	100%	30S	1min	10%	5Lux	Hs	QS2	100%	1min	3min	10%	10Lux	Hs	QS3	100%	5min	10min	10%	30Lux	Hs
Scene Options	Detection Area	Hold Time	Stand-by period	Stand-by dim level	Daylight Sensor	Induction model																							
QS1	100%	30S	1min	10%	5Lux	Hs																							
QS2	100%	1min	3min	10%	10Lux	Hs																							
QS3	100%	5min	10min	10%	30Lux	Hs																							
TEST 2S	Press the "TEST 2S" bottom can enter the test mode anytime. 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.																												
HS	(This Function is disable)																												
LS	(This Function is disable)																												

	Daylight Sensor Set up daylight threshold: 5Lux/15Lux/30Lux/50Lux/100Lux/150Lux/ Disable
	Stand-by period Set up stand-by time: 0S/10S/1min/3min/5min/10min/30min/+∞
	Hold time Set up hold time: 5S/30S/1min/3min/5min/10min/20min/30min
	10%, 20%, 30%, 50%
	Detection Area Set up detection area: 25%/50%/75%/100%
	Remote Distance Toggle bottom can set the remote distance of remote control and sensor. (5m: 5m operation only)

### 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.

## 9. DIP Switch Setting

Detection Area (Sensitivity)

	1	2	
I	ON	ON	100%
II	-	ON	75%
III	ON	-	50%
IV	-	-	25%

Hold Time

	3	4	
I	ON	ON	5S
II	-	ON	5min
III	ON	-	10min
IV	-	-	30min

Daylight sensor

	5	6	7	
I	ON	ON	ON	5Lux
II	ON	ON	-	25Lux
III	ON	-	ON	50Lux
IV	-	ON	ON	100Lux
V	-	-	-	Disable*

\*Disable means the sensor will turn on the light once motion is detected regardless of ambient light level.



### Stand-by Period

	8	9	
I	ON	ON	0S
II	-	ON	5min
III	ON	-	15min
IV	-	-	+∞

### Stand-by dim Level

	1	2		Voltage of 1-10V Interface
I	ON	ON	50%	5-5.5V
II	ON	-	35%	3.5-4V
III	-	-	25%	2.2-2.5V

## 10. Override Sensor

Power off, quick switch ON/OFF sensor 3 times (ON-OFF-ON-OFF-ON) within 2sec to override sensor function. Lights will blink 3 times and then switch ON all the time. Power off and on again to recover sensor function.

## 11. Initialization

1) On/Off function /3-step dimming function:

After power on, the sensor automatically turns on light at 100% brightness. After 10sec, it turns off the light. During the initialization, the sensor is not able to detect movement.

2) 2-step dimming function:

After power on, the sensor automatically turns on light at 100% brightness. After 10sec, it dims the light to a low light level (set by stand-by dim level). During the initialization, the sensor is not able to detect movement.

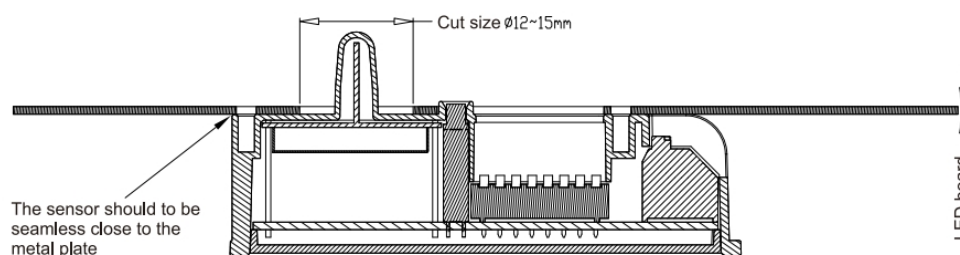


## 12. Factory Setting

Detection Area: 100%;      Hold Time: 5S;      Stand-by Period: 0;  
Stand-by dim Level: 25%;      Daylight Sensor: Disable

## 13. Application Notice

- 1) The sensor should be installed by a professional electrician. Please turn off the power before installing, wiring, changing the setting of the DIP switch.
- 2) The sensor which installed in the plastic and glass lampshade will reduce the sensitivity. For every 3mm increase in thickness, the sensitivity will be reduced by 20%.
- 3) The light sensitivity threshold is in a sunny environment, no shadow and ambient light diffuse reflection. Ambient lux level could be different in different environment, weather, climate, time-of-day and season.
- 4) 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.
- 5) The parameters of the sensor may need to be reconfigured in different installation environments. Please refer to the following instructions or contact the manufacturer.
- 6) This sensor is for indoor use only. It will affect the waterproof effect for outdoor use. Wind, rain, and moving objects around will cause false triggering.
- 7) The distance between any inductive sensors should be greater than 3m.
- 8) Do not place the sensor close to high-density objects such as metal, glass, concrete walls, etc, false triggering could happen. When the sensor is installed in a metal lamp, metal reflective surface, or a narrow enclosed environment, the microwave will be reflected repeatedly and cause false triggering. Please reduce the sensitivity or contact the manufacturer for technical support.
- 9) Please ensure that there are no moving signals around the sensor, such as fan, DC motor, sewer pipe, air outlet, etc., the sensor may generate false trigger.
- 10) You are advised to test 5 samples before mass application of sensor in a new lighting project.
- 11) Due to continuous improvement, the contents of this instruction could be changed without prior notice.
- 12) The product's dimming function must work with active 1-10V dimmable LED driver. 1-10V stand-by Dim level can not be set by remote controller.
- 13) If the sensor is built under metal board, recommend cut-hole 12-15mm, and make sure the sensor surface should be seamless close to the metal plate without space.



Shenzhen Merrytek Technology Co., Ltd

Add: No.17th Building, Dianda Guyuan Industrial Park, Mashantou, Matian, Guangming District, Shenzhen, China, 518106

Tel: +86 (0)755-2305 7253

Fax: +86 (0)755-2786 3012

Website: [www.merrytek.com](http://www.merrytek.com)