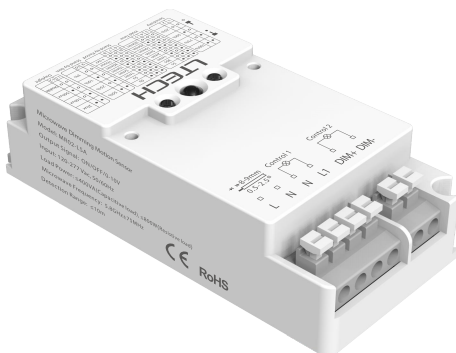# LTECH

# MR02-LSA
## Microwave Motion Sensor

## Manual

ON/OFF

Detect Motions

Sense Sunlight & LED Light

Daylight Threshold
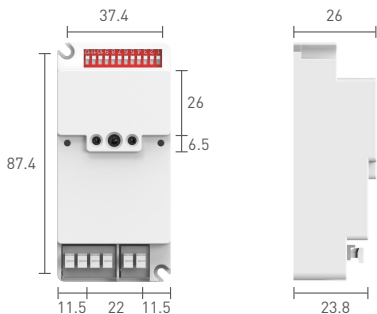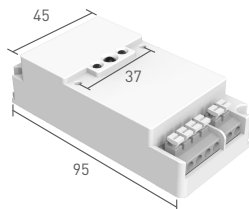
3-Step Dimming

# Product Introduction

- MR02-LSA is a microwave motion sensor with microwave detection and light sensing function combined.
- Turn on/off 0-10V drivers or lights, and adjust dimming.
- Sense daylight &LED light source and adopt a photosensor that removes IR interference to intelligently control lights with high sensitivity and anti-interference capacity.
- Turn on/off and support 2-step dimming & 3-step dimming, making sensors ideal for hallway, stairway and office applications.
- This compact sensor supports wall mounting and ceiling mounting that let you easily achieve smart lighting control.
- Easily set up sensor parameters using the remote (LR1) or dip switches.
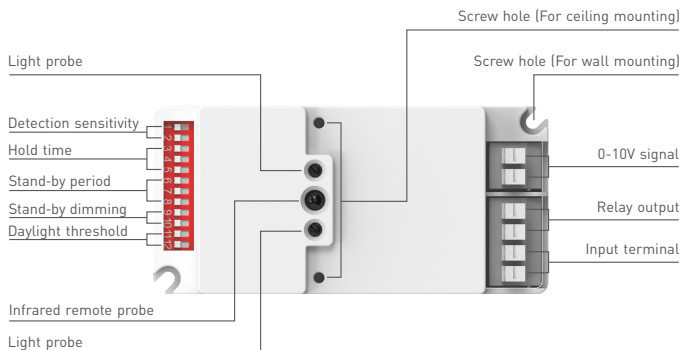
# Technical Specs

| | | |
|---|---|---|
| **Input** | Working voltage | 120-277Vac, 50/60Hz |
| **Output** | Working mode | NO/OFF, Multi-level 0-10V dimming |
| | Stand-by power consumption | ≤0.5W |
| | Load capacity | ≤400VA(Capacitive load), ≤800W(Resistive load) |
| **Parameters** | Microwave frequency | 5.8GHz ± 75MHz |
| | Detection sensitivity | 100%, 75%, 50%, 25% |
| | Hold time | 5S, 30S, 1min, 2min, 5min, 10min, 20min, 30min |
| | Stand-by period | 0s, 5S, 1min, 5min, 10min, 30min, 1hour, $+\infty$ |
| | Stand-by dimming | 50%, 25%, 10%, 3% |
| | Daylight threshold | 2lux, 10lux, 50lux, Disable |
| | Detection range | ≤10m |
| | Mounting height | ≤6m |
| **Environment** | Working temperature | -20℃~60℃ |
| | Storage temperature | -40℃~80℃, 10~95%RH |
| **Others** | Terminal specs | Wire diameter: 0.5-2.5mm², Strip length: 8-9mm |
| | IP rating | IP20 |
| | Mounting | Wall mounting or ceiling mounting |
| | Net weight | 52g±10g |
| | Dimensions | 95x45x26mm (LxWxH) |
| | Package size | 99x49x29mm (LxWxH) |

# Product Size

Unit: mm



# Product Structure



Screw hole (For ceiling mounting)

Screw hole (For wall mounting)

Light probe

Detection sensitivity

Hold time

Stand-by period

Stand-by dimming

Daylight threshold

0-10V signal

Relay output

Input terminal

Infrared remote probe

Light probe

# Wire Connection



Live line input (L)

Null line input (N)

Lamp

0-10V driver
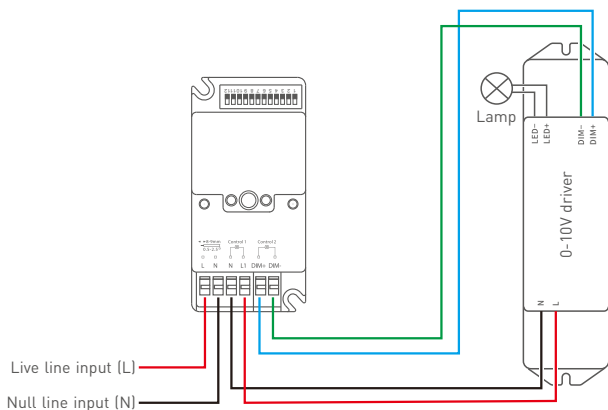
# Wall mounting

⚠ The product should be installed by a qualified electrician in accordance with electrical codes and product requirements.

Before you install the product and connect wires, please be sure to disconnect the power.
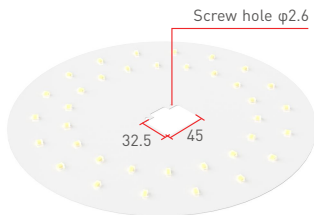Then secure the sensor to the wall with screws.

# Ceiling Mounting

Note: Microwaves cannot pass through metal, so please make sure there is no metal object above the sensor. The distance between the microwave antenna and the metal object should be at least 3.5mm. It is not allowed to place the antenna and the metal object on the same horizontal level, as shown in the figure below.

3.5mm          3.5mm
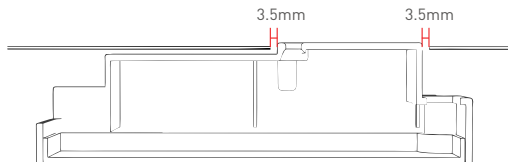
Cut a 45x32.5mm hole on the metal light panel to insert the sensor into it, and two screw holes are needed to be cut as well.

Screw hole φ2.6

32.5          45

Insert the sensor into the metal light panel (the sensor should be higher than the metal light panel), and then secure the sensor with screws.

# Dip Switch Settings

Dip switch 1-2: Sensibility. Sensor sensitivity can be selected by placing the dip switch in the on or off position to match different detection range.

Dip switch 3-5: Hold time. Lamp remains 100% illuminated over this time period after no motion is detected.

Dip switch 6-8: Stand-by period. Lamp remains at a low light level over this time period before it completely switches off in the long absence of people. When the stand-by period is set to " +∞ " mode, the low light level is maintained until a motion is detected.

Dip switch 9-10: Stand-by dimming. This low light level is used in periods of absence for enhanced comfort and safety.

Dip switch 11-12: Daylight threshold. The sensor can be set up to work based on the ambient light level. When the ambient light is 2lux, 10lux or even reaches 25lux, 50lux, the sensor will trigger the light fixture to turn on. "Disable" mode will disable the ambient light sensing feature, which means the light fixture will be triggered to turn on once a motion is detected regardless of the ambient light level.

**Sensibility**

| 1 | 2 | |
|---|---|---|
| ● | ● | 100% |
| ● | ○ | 75% |
| ○ | ● | 50% |
| ○ | ○ | 25% |

**Hold time**

| 3 | 4 | 5 | |
|---|---|---|---|
| ● | ● | ● | 5s |
| ● | ● | ○ | 30s |
| ● | ○ | ● | 1min |
| ● | ○ | ○ | 2min |
| ○ | ● | ● | 5min |
| ○ | ● | ○ | 10min |
| ○ | ○ | ● | 20min |
| ○ | ○ | ○ | 30min |

**Stand-by period**

| 6 | 7 | 8 | |
|---|---|---|---|
| ● | ● | ● | 0s |
| ● | ● | ○ | 5s |
| ● | ○ | ● | 1min |
| ● | ○ | ○ | 5min |
| ○ | ● | ● | 10min |
| ○ | ● | ○ | 30min |
| ○ | ○ | ● | 1hour |
| ○ | ○ | ○ | +∞ |

**Stand-by dimming**

| 9 | 10 | |
|---|---|---|
| ● | ● | 50% |
| ● | ○ | 25% |
| ○ | ● | 10% |
| ○ | ○ | 3% |

**Daylight threshold**

| 11 | 12 | |
|---|---|---|
| ● | ● | 2lux |
| ● | ○ | 10lux |
| ○ | ● | 50lux |
| ○ | ○ | Disable |

**NOTE:**

1. The higher the detection sensitivity you set, the farther the range the sensor can detect. In cases where microwaves pass through walls to mistrigger the light fixture to turn on, detection sensitivity needs to be reduced to narrow the detection area.

2. There are many factors that may affect the detection range of the sensor, such as mounting height, the height and speed of moving people, the position of people and the sensor, the size of the space for installation, and obstructive and reflecting objects.

3. Please do not place dip switches in positions that are not shown in the figure above.   Otherwise, the function may be affected.

# Coverage Pattern



Ceiling mounting pattern



Wall mounting pattern
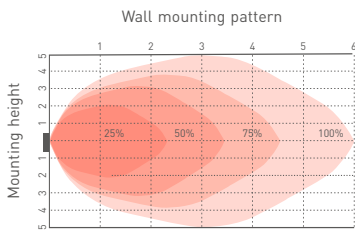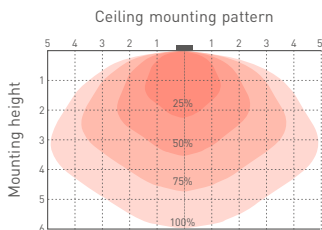
# Product Functions

Detect minor movements of humans during their normal daily lives and at the moments when they are not in the sleeping state.



Leaning forward



Bending backward



Lowering the head
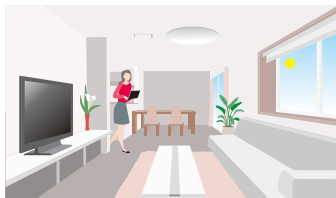


Raising the hand



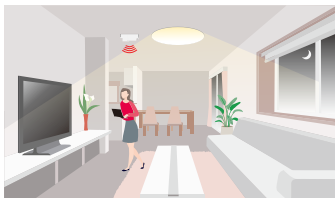Turning right



Turning left



Looking right



Looking left

## 1) Auto-on and auto-off (Set stand-by period to 0s)



① With sufficient ambient light (when light sensing feature enabled), the light fixture won't switch on even when a motion is detected.



② With insufficient ambient light (when light sensing feature enabled), the light fixture will switch on automatically when a motion is detected.
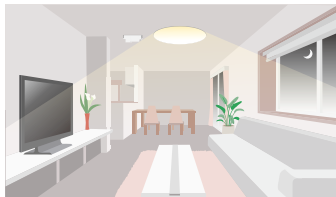




③ When the sensor does not detect a motion,time will start counting down according to the preset hold time. After the hold time ends, the light fixture will automatically switch off. If a motion is detected during the hold time, time will start counting down again after no motion is detected.
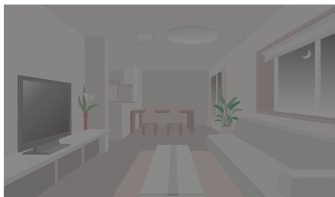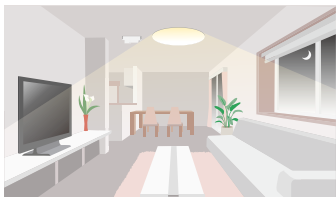
## 2) 2-step dimming function (Set stand-by period to +∞)
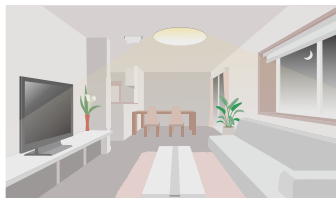


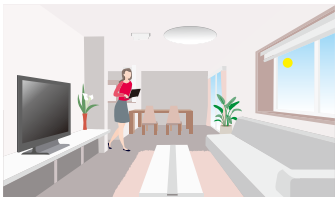① When no motion is detected, the light fixture will remain at the preset low light level (stand-by dimming level).



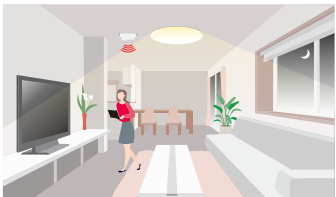② When a motion is detected, the light fixture will be 100% illuminated.
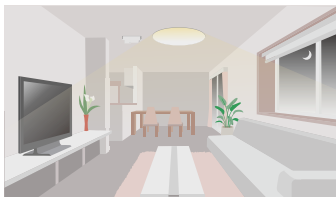
③ When the sensor does not detect a motion, time will start counting down according to the preset hold time. After the hold time ends, light will be adjusted back to a low level during the stand-by period. If a motion is detected during the hold time, time will start counting down again after no motion is detected.
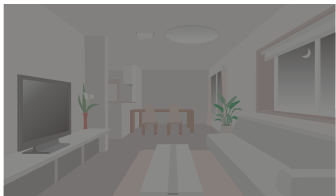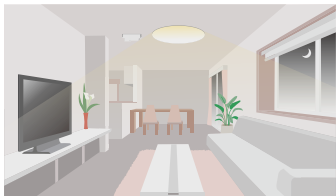
3) 3-step dimming function (Set stand-by period to 5s/1min/5min/10min//30min/1hour)




① With sufficient ambient light (when light sensing feature enabled), the light fixture won't switch on when a motion is detected.
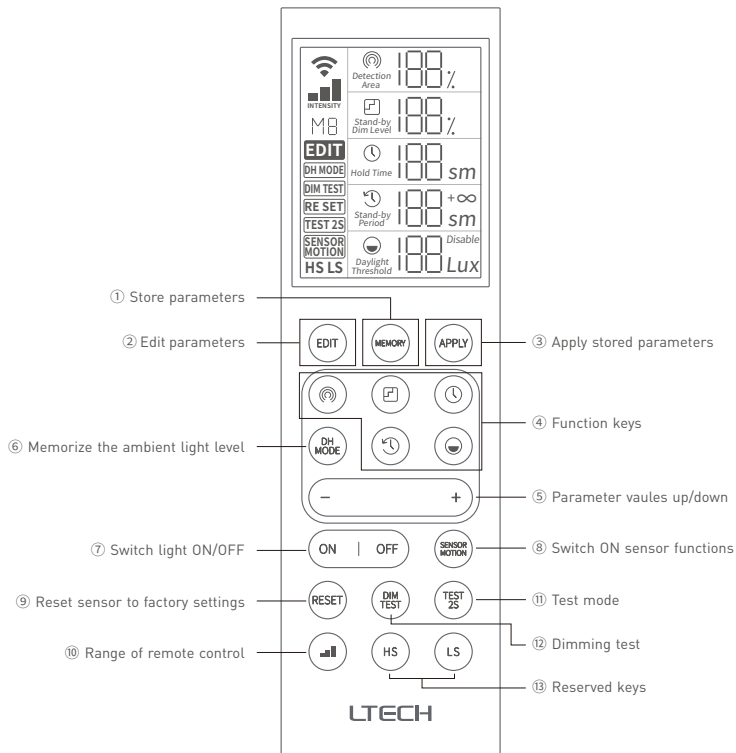
② With insufficient ambient light (when light sensing feature enabled) , the light fixture will switch on automatically when a motion is detected.




③ When the sensor does not detect a motion, time will start counting down according to the preset hold time. After the hold time ends, light will be adjusted back to a low level during the stand-by period. If no motion is detected after the stand-by period ends, the light fixture will switch off automatically.

# Infrared Remote

Configure the sensor parameters using the infrared remote. Please refer to the remote manual for detailed instructions.



① Store parameters

② Edit parameters

③ Apply stored parameters

④ Function keys

⑥ Memorize the ambient light level

⑤ Parameter vaules up/down

⑦ Switch light ON/OFF

⑧ Switch ON sensor functions

⑨ Reset sensor to factory settings

⑪ Test mode

⑩ Range of remote control

⑫ Dimming test

⑬ Reserved keys

# Attentions

- The sensor must be debugged and installed by qualified professionals.
- The sensor must be fixed on the ceiling if you test them, which cannot be placed on the table or on the floor.
- It is better to connect a lamp to the sensor before you test it, so that you can test the sensor work well or not by testing whether the lamp remains on.
- To avoid blocking microwave signals, please place the sensor away from metal panels, concrete walls and beams when you install.
- To avoid mistriggering light fixtures, please place the sensor away from glass, plasterboard and other objects that are easily penetrated by microwaves when you install.
- To avoid wireless signal interference, please place the sensor away from wireless devices such as interchangers and routers. The distance between the sensor and wireless devices should be at least 2m.
- If a pet passes through the detection area, light fixtures may be triggered.
- When several sensors are installed side by side, please be sure the distance between sensors is no less than 1m, so that each sensor functions individually and is not be affected other sensors.

＊ This manual is subject to change without prior notice. If there is inconsistency between the manual and the actual product, the actual product shall prevail. If you have any question, please feel free to contact our authorized distributor.

# Warranty Agreement

Warranty periods from the date of delivery: 5 years.
Free repair or replacement services for quality problems are provided within warranty periods.

Warranty exclusions below:

- Beyond warranty periods.
- Any artificial damage caused by high voltage, overload, or improper operations.
- Products with severe physical damage.
- Damage caused by natural disasters and force majeure.
- Warranty labels and barcodes have been damaged.
- No any contract signed by LTECH.

1. Repair or replacement provided is the only remedy for customers. LTECH is not liable for any incidental or consequential damage unless it is within the law.
2. LTECH has the right to amend or adjust the terms of this warranty, and release in written form shall prevail.

# LTECH

# MR02-LSA

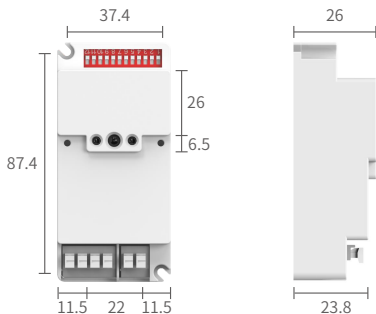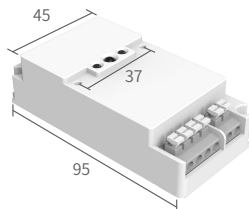## 微波调光感应器
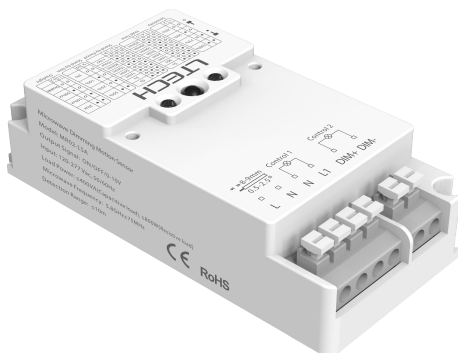
产 品 说 明 书

通断功能　　移动探测　　双鉴感光　　光感阀值　　三段调光

# 产品介绍

- MR02-LSA是一款具备微波感应和光感功能相结合的智能感应器。

- 可对继电器进行通断，0-10V/1-10V调光驱动器或灯具进行自由开/关或调光。

- 采用双光感检测技术和滤除红外干扰的光敏元件，智能控灯、高灵敏度、高抗干扰性。

- 支持开/关、两段调光和三段调光，适用走廊、楼道、办公室等不同场合的应用需求。

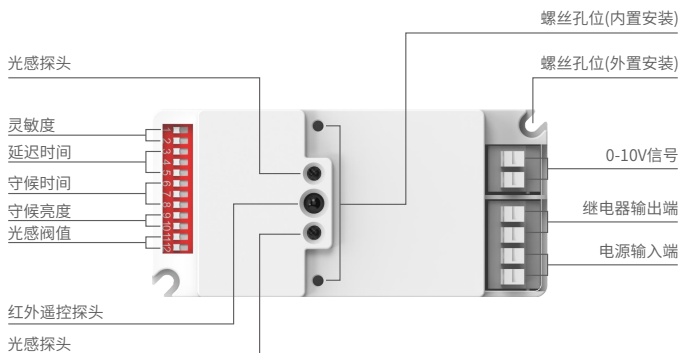- 超小尺寸支持外置和内置两种安装方式，轻松实现智能灯控。

- 可通过遥控器(LR1)和拨码开关进行参数设置，易于安装和调节。

# 技术参数

| 输入 | 工作电压 | 120-277 Vac，50/60Hz |
|------|----------|----------------------|
| 输出 | 工作模式 | 通断、0-10V多档调光 |
| | 待机功耗 | ≤0.5W |
| | 负载功率 | ≤400VA(容性负载)，≤800W(阻性负载) |
| 参数 | 微波频率 | 5.8GHz ± 75MHz |
| | 灵敏度 | 100%、75%、50%、25% |
| | 延迟时间 | 5S、30S、1min、2min、5min、10min、20min、30min |
| | 守候时间 | 0s、5S、1min、5min、10min、30min、1hour、+∞ |
| | 守候亮度 | 50%、25%、10%、3% |
| | 光感阈值 | 2lux、10lux、50lux、Disable |
| | 探测范围 | ≤10m |
| | 安装高度 | ≤6m |
| 环境 | 工作温度 | -20℃~60℃ |
| | 储存温度/湿度 | -40℃~80℃，10~95%RH |
| 其他 | 端子规格 | 线径：0.5-2.5mm²，剥线长度：8-9mm |
| | IP等级 | IP20 |
| | 安装方式 | 外置和内置安装 |
| | 产品重量 | 52g±10g |
| | 产品尺寸 | 95x45x26mm (LxWxH) |
| | 包装尺寸 | 99x49x29mm (LxWxH) |

# 产品尺寸

单位：mm



# 产品结构



光感探头
灵敏度
延迟时间
守候时间
守候亮度
光感阀值
红外遥控探头
光感探头

螺丝孔位(内置安装)
螺丝孔位(外置安装)
0-10V信号
继电器输出端
电源输入端

# 产品接线



火线输入(L)

零线输入(N)
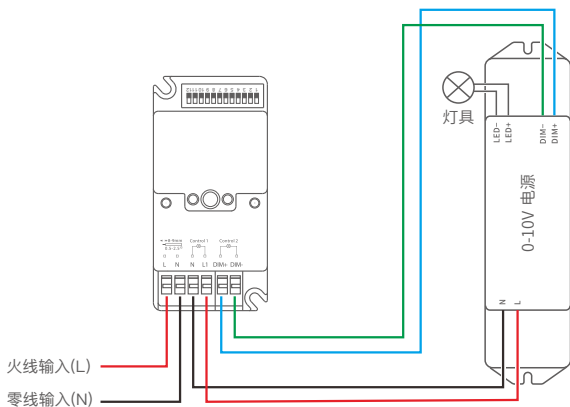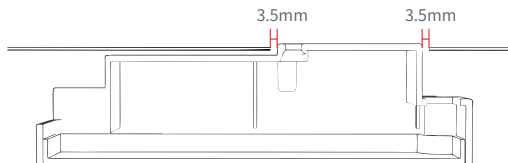
# 外置式安装

⚠ 本产品需由专业电工按照电工规范和产品说明要求进行安装。
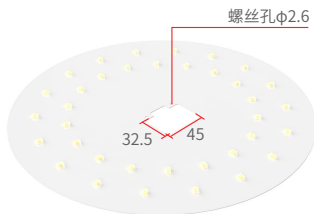
在安装、接线时请先断开电源,将感应器用螺丝固定在墙面即可。

# 内置式安装

注意：微波不能穿过金属，确保感应器上方没有金属；微波天线周围距离金属至少3.5mm，不允许将天线和金属放在同一水平面上，如下图所示。



1. 在金属面板开孔45x32.5mm便于感应器嵌入，螺丝孔处同样需开孔。



2. 将感应器嵌入金属面板中(感应器应高于金属面板)，用螺丝固定即可。

# 拨码开关定义

1-2位：   灵敏度。通过不同的拨码组合，对感应范围大小做出合适选择。

3-5位：   延迟时间。在没有检测到运动后，灯具保持100%全亮的时间。

6-8位：   守候时间。在长时间无人情况下，灯在完全关闭之前保持低亮度的时间。当设置为"+∞"模式时
         将一直保持低亮度，直至检测到运动为止。

9-10位：  守候亮度。在长时间无人的情况下，希望保持的低亮度。

11-12位： 光感阀值。可选择让感应器在什么条件下工作。"2lux、10lux"仅在黑暗时工作，"50lux"仅在微
         暗时工作；"Disable"关闭光感功能，无论环境亮度是否充足，只要当检测到物体运动，传感器
         都会打开。

### 灵敏度

| 1 | 2 | |
|---|---|---|
| ● | ● | 100% |
| ● | ○ | 75% |
| ○ | ● | 50% |
| ○ | ○ | 25% |

### 延迟时间

| 3 | 4 | 5 | |
|---|---|---|---|
| ● | ● | ● | 5s |
| ● | ● | ○ | 30s |
| ● | ○ | ● | 1min |
| ● | ○ | ○ | 2min |
| ○ | ● | ● | 5min |
| ○ | ● | ○ | 10min |
| ○ | ○ | ● | 20min |
| ○ | ○ | ○ | 30min |

### 守候时间

| 6 | 7 | 8 | |
|---|---|---|---|
| ● | ● | ● | 0s |
| ● | ● | ○ | 5s |
| ● | ○ | ● | 1min |
| ● | ○ | ○ | 5min |
| ○ | ● | ● | 10min |
| ○ | ● | ○ | 30min |
| ○ | ○ | ● | 1hour |
| ○ | ○ | ○ | +∞ |

### 守候亮度

| 9 | 10 | |
|---|---|---|
| ● | ● | 50% |
| ● | ○ | 25% |
| ○ | ● | 10% |
| ○ | ○ | 3% |

### 光感阀值

| 11 | 12 | |
|---|---|---|
| ● | ● | 2lux |
| ● | ○ | 10lux |
| ○ | ● | 50lux |
| ○ | ○ | Disable |

注意：

1. 探测灵敏度越高探测距离越远。如遇微波穿墙或误触发需降低灵敏度使用。

2. 感应器的探测距离与安装高度、人员身高及移动速度、人员与感应器的相对位置、安装环境大小是否有
   遮挡及反射物等因素相关。

3. 请勿将各参数拨码调至上图不涉及的档位，否则会影响使用。

# 感应范围图



吸顶安装(米)



墙面安装(米)
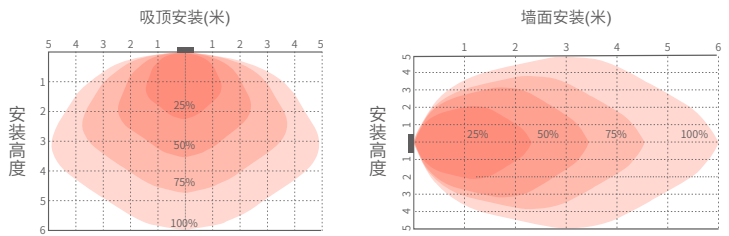
# 产品功能

人们在正常工作生活中身体轻微的运动感应, 在非睡眠条件下实现近似人体存在检测。
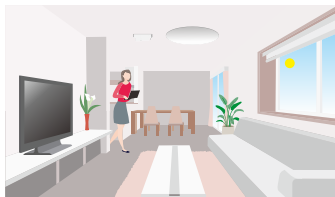


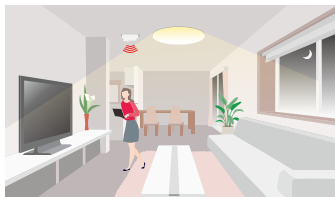前倾　　　　　后仰　　　　　低头　　　　　抬手



右转　　　　　左转　　　　　右看　　　　　左看

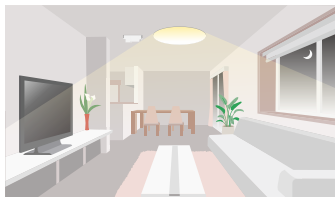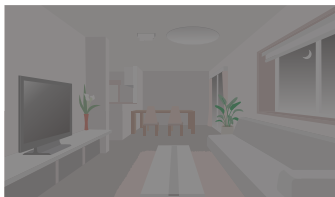## 1) 开/关功能 (守候时间设置为0s)
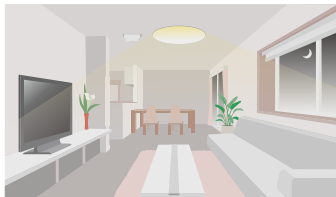


① 在环境光照充足的情况下(光感功能有效时),
　 即使有运动信号, 灯光也不会打开。



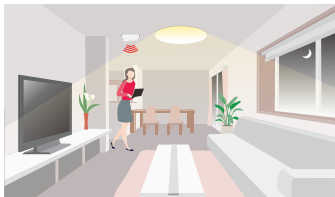② 在环境光照不足的情况下, 当检测到有运动
　 时, 感应器会自动打开灯光。



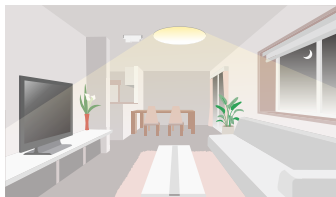③ 当感应器没有检测到运动后, 根据设置的延迟时间开始计时, 延迟时间结束后自动关灯。如延迟时间
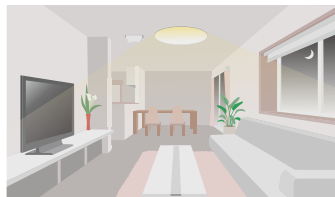　 内再次检测到人体运动, 则重新计时。

## 2) 2段调光功能 (守候时间设置为+∞)



① 没有检测到人体运动时, 灯光将一直保持所设置的守候亮度。
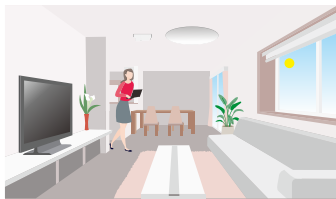
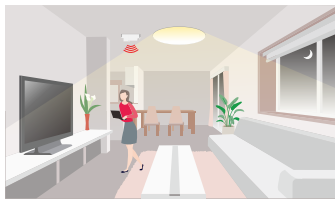

② 当检测到有运动时, 感应器会将灯光调节至100%亮度。





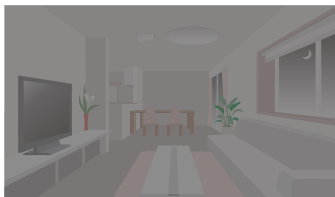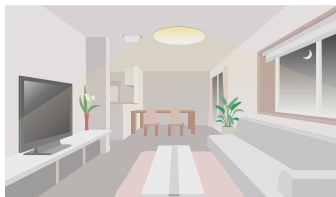③ 当感应器没有检测到运动后, 根据设置的延迟时间开始计时, 延迟时间结束后灯光调节至守候状态时的低亮度。如延迟时间内再次检测到人体运动, 则重新计时。

## 3) 3段调光功能 (守候时间设置为5s/1min/5min/10min//30min/1hour)



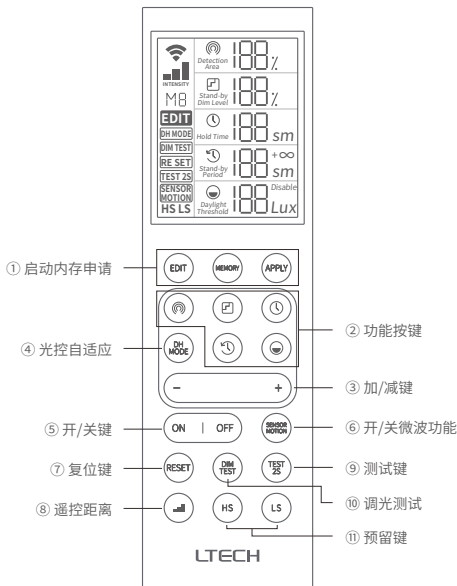① 在环境光照充足的情况下(光感功能有效时), 即使有运动信号, 灯光也不会打开。



② 在环境光照不足的情况下, 当检测到有运动时, 感应器会自动打开灯光。

③ 当感应器没有检测到运动后，根据设置的延迟时间开始计时，延迟时间结束后灯光调节至守候状态时的低亮度。守候时间结束后还是没检测到人体运动时，灯光将自动关闭。

# LR1红外遥控器

支持红外遥控器配置参数功能，与拨码优先级为后操作有效原则，详细操作请参考遥控器使用说明书。



① 启动内存申请
② 功能按键
④ 光控自适应
③ 加/减键
⑤ 开/关键
⑥ 开/关微波功能
⑦ 复位键
⑨ 测试键
⑧ 遥控距离
⑩ 调光测试
⑪ 预留键

# 注意事项

- 请由具有专业资格的人员进行调试安装;
- 本产品适合室内安装使用;
- 良好的散热条件会延长产品的使用寿命,请把产品安装在通风良好的环境;
- 感应器测试时需固定在天花板上,不可放置在桌上或地上进行测试;
- 感应器测试时最好接入灯具,通过灯具是否常亮来判断感应器是否工作;
- 安装时远离金属板、混凝土墙,横梁,以避免遮挡微波信号;
- 安装时应远离玻璃、石膏板等易被微波穿透物质,以免误触发;
- 感应器应远离交换机、路由器等无线设备,安装间隔至少2米,避免无线电干扰;
- 如监测区域内有宠物经过,可能触发感应;
- 在多个感应器并排安装的情况下,应相距1米以上,保证感应器相互独立,不受影响。

＊ 本说明书内容如有变更,恕不另行通知。若内容与您使用的功能有所不同,则以实物为准。如有疑问,欢迎向我司授权的经销商咨询。

# 保修条例

- 自出厂之日起保修服务期为5年。
- 在保修服务期内出现产品质量问题雷特将给予免费修理或更换服务。

非保修条例:

属下列情况不在免费保修或更换服务范围之内:

- 已经超出保修服务期;
- 过高电压、超负载、操作不当等人为造成的损坏;
- 产品外形严重损坏或变形;
- 自然灾害以及人力不可抗拒原因造成的损坏;
- 产品保修标签和产品唯一条形码损坏;
- 无雷特签订的合同或发票凭证。

1. 修理或更换是雷特对客户的唯一补救措施。雷特不承担任何附带引起的损害赔偿责任,除非在适用法律范围之内。
2. 雷特享有修正或调整本保修条款的权利,并以书面形式发布为准。