LTECH

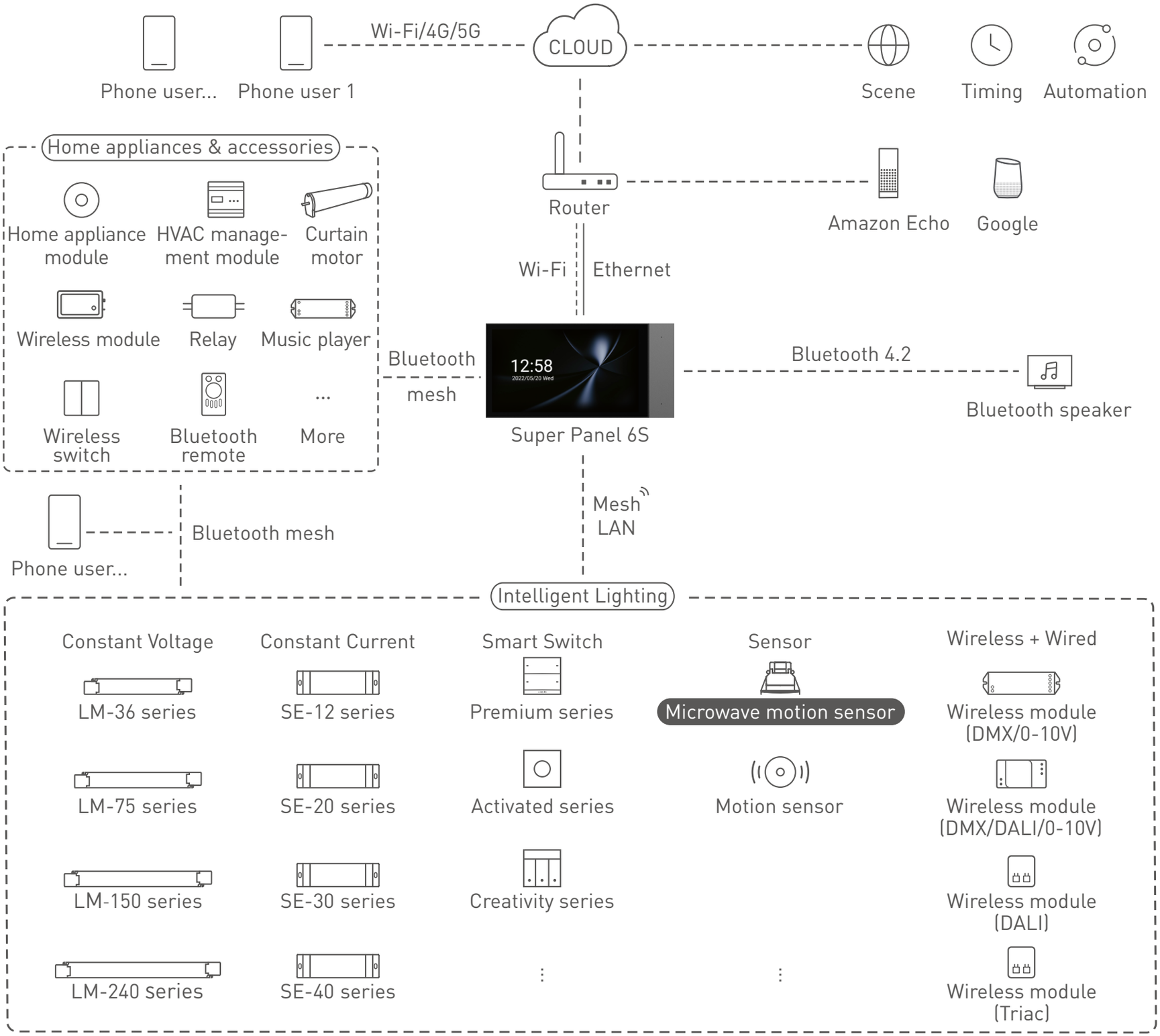
MR03-B3P

Microwave Motion Sensor

Manual

www.ltech-led.com

System Diagram



Product Features

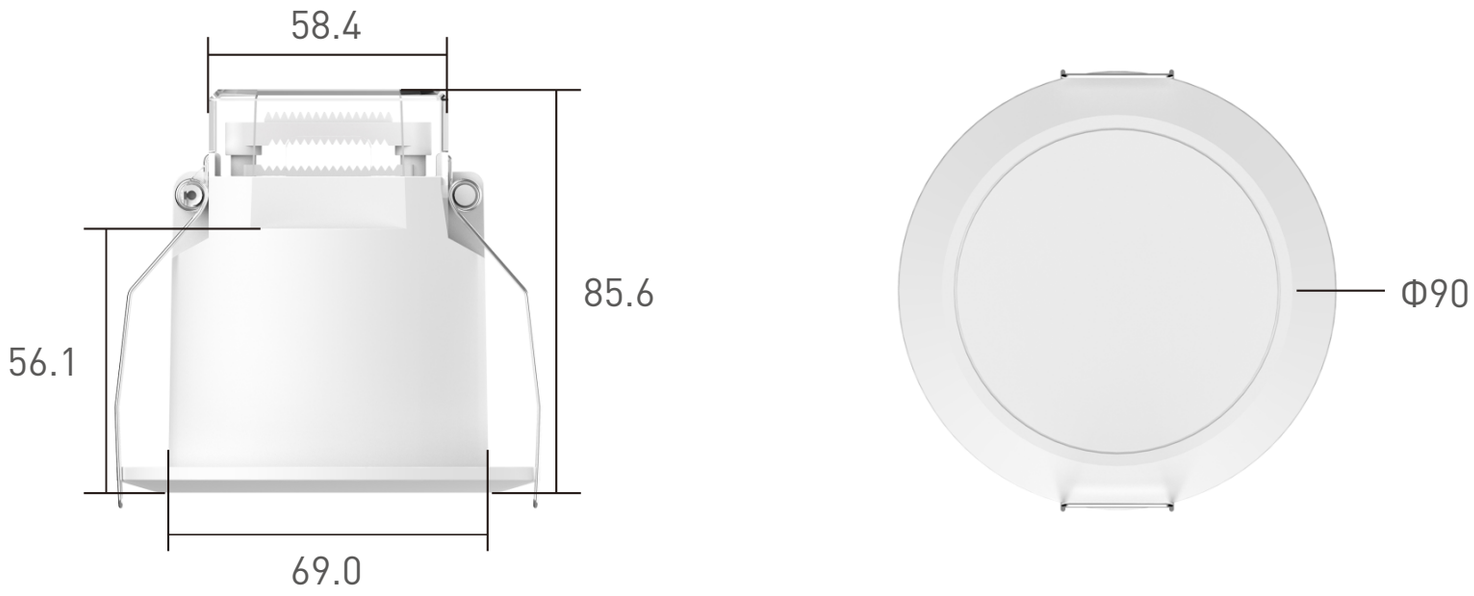
- Apply motion sensing technology to detect human motions in a detection area.
- Running on the Bluetooth 5.0 SIG Mesh system, the sensor outputs DALI or 0-10V dimming signal and support wired and wireless control.
- Work with a smart gateway to trigger cloud scenes or advanced lighting linkage, making application scenarios enriched.
- Support execution of local scenes without a gateway or the Internet needed, which run faster and stably.
- Support sensor grouping function to easily control multiple lights from one location.
- Control lights intelligently and accurately with high sensitivity and high anti-interference capacity.
- Turn relay turns on/off and support 2-step dimming and 3-step dimming, making sensors ideal for corridors, stairways, offices, etc.
- Use zero-crossing detection technology so current flowing through the relay contacts is close to zero at the moment when the relay is turned on or off, effectively improving the lifetime of a relay.
- Ceiling mounted sensors fit well for homes, offices, shopping malls and more to easily achieve smart lighting control.
- Easily set parameters via dip switches, the infrared remote, or via the mobile APP.

Technical Specs

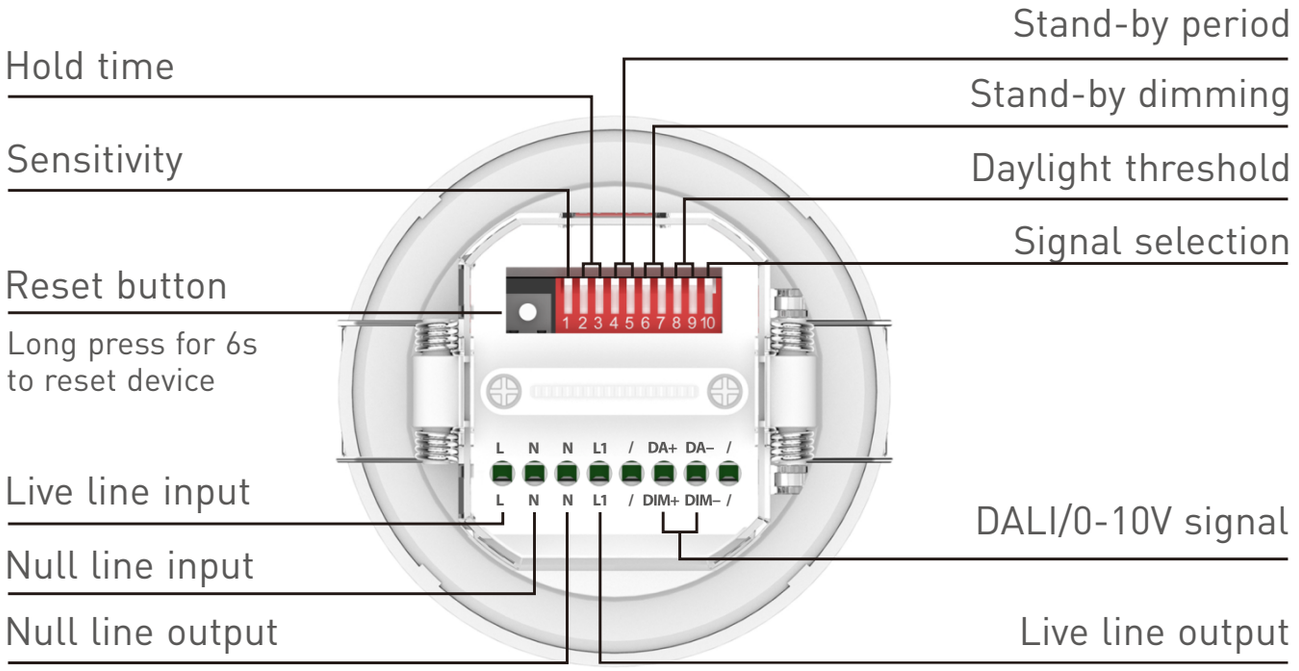
Input	Input voltage	120-277Vac, 50/60Hz
	Inrush current test	2KV
Output	Operating mode	Bluetooth 5.0 SIG Mesh , DALI dimming(with built-in DALI bus power supply), 0-10V dimming, ON/OFF
	DALI output	Max. 70mA
	Load type	Capacitive/resistive load
	Load capacity	⩽400VA(Capacitive load), ⩽800W(Resistive load)
	Transmit power	0.3mW
	Stand-by power consumption	⩽1.5W
Parameters	Operating frequency	5.8GHz
	Sensitivity	100%,50% (APP/Remote offers sensibility options: 100%, 75%, 50%, 25%)
	Hold time	5S, 30S, 1min, 10min
	Stand-by period	10S, 30S, 10min, ∞
	Stand-by dimming	50%, 30%, 10%, Disable
	Daylight threshold	2lux, 10lux, 50lux, Disable
Environment	Working temperature	-20°C~55°C
	Storage temperature	-40°C~80°C
Othors	Terminal specs	Wire diameter: 0.5-2.5mm^2 /22-14AWG Strip length: 5-6mm
	IP grade	IP20
	Mounting type	Ceiling mount
	Hole size for installation	ϕ70mm-ϕ80mm (recommend ϕ75mm)
	Net weight	149g
	Dimensions	Φ90×85.6mm
	Package size	103×103×105mm(LxWxH)

Product Size

Unit: mm

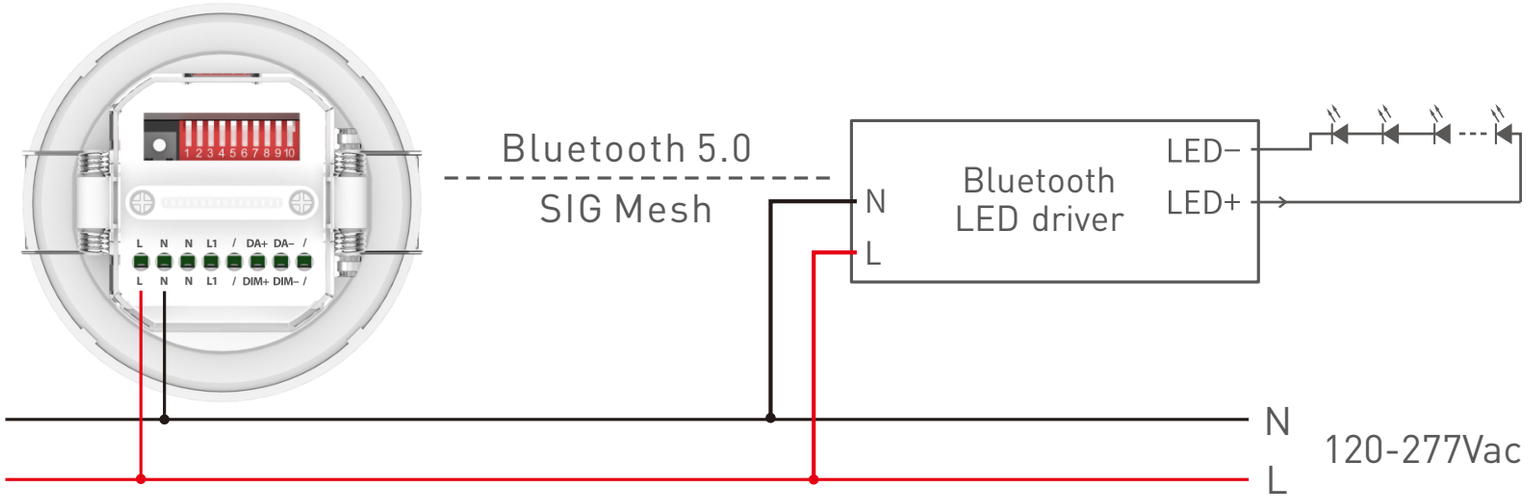


Product Structure



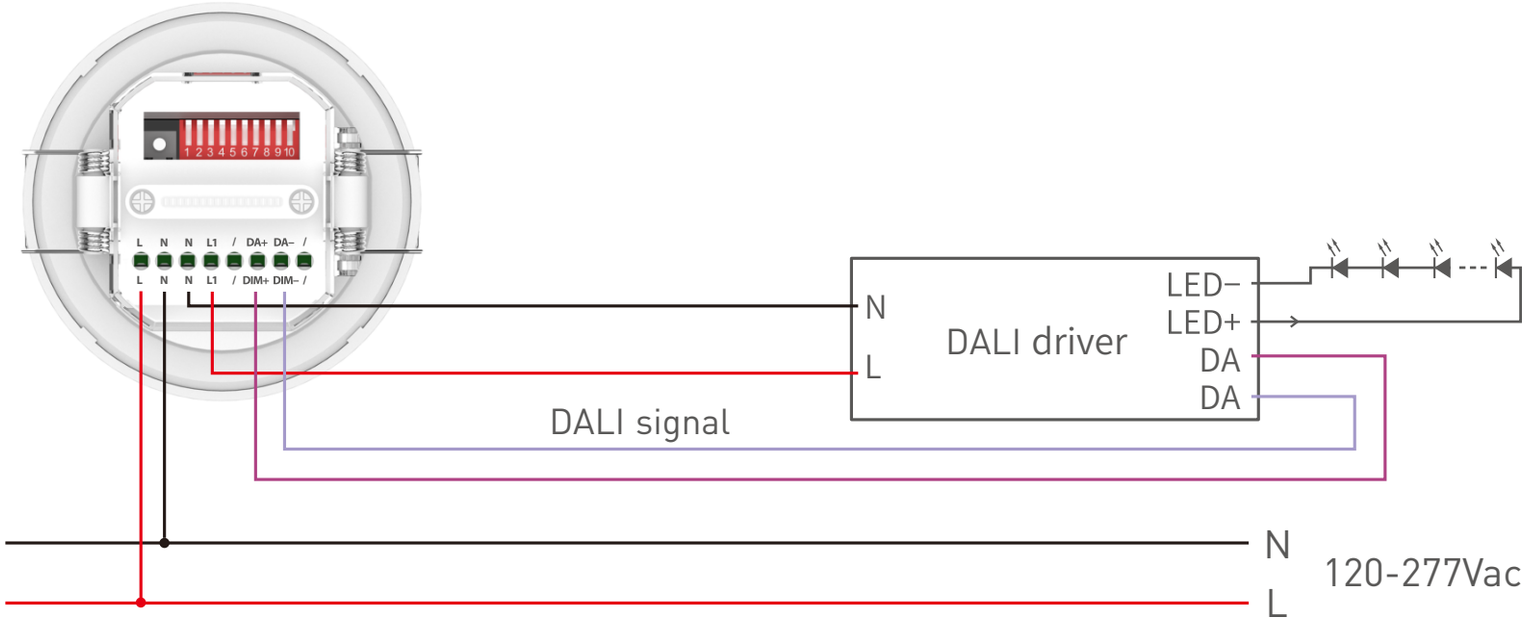
Wiring Diagram

Bluetooth driver connection

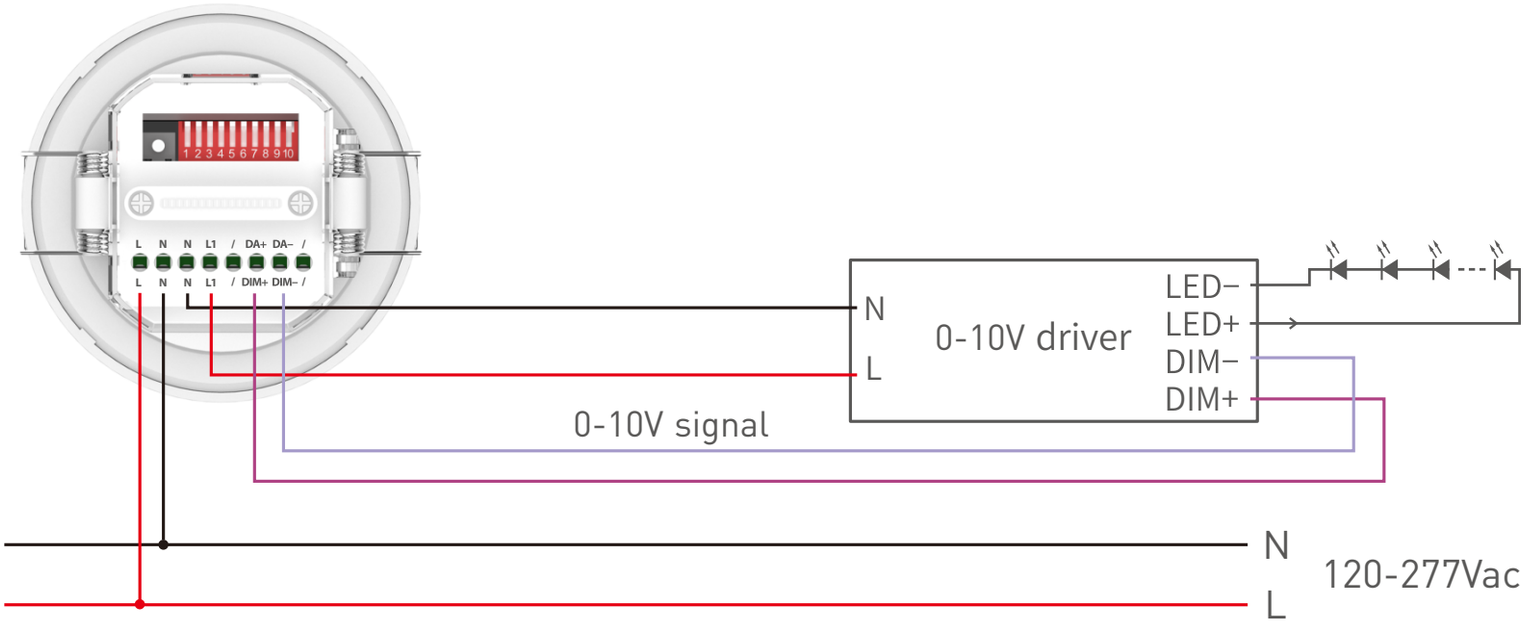


Note: When a smart device is connected to the port of the relay and the relay turns off, the smart device won't respond to any control commands since it has no power supply.

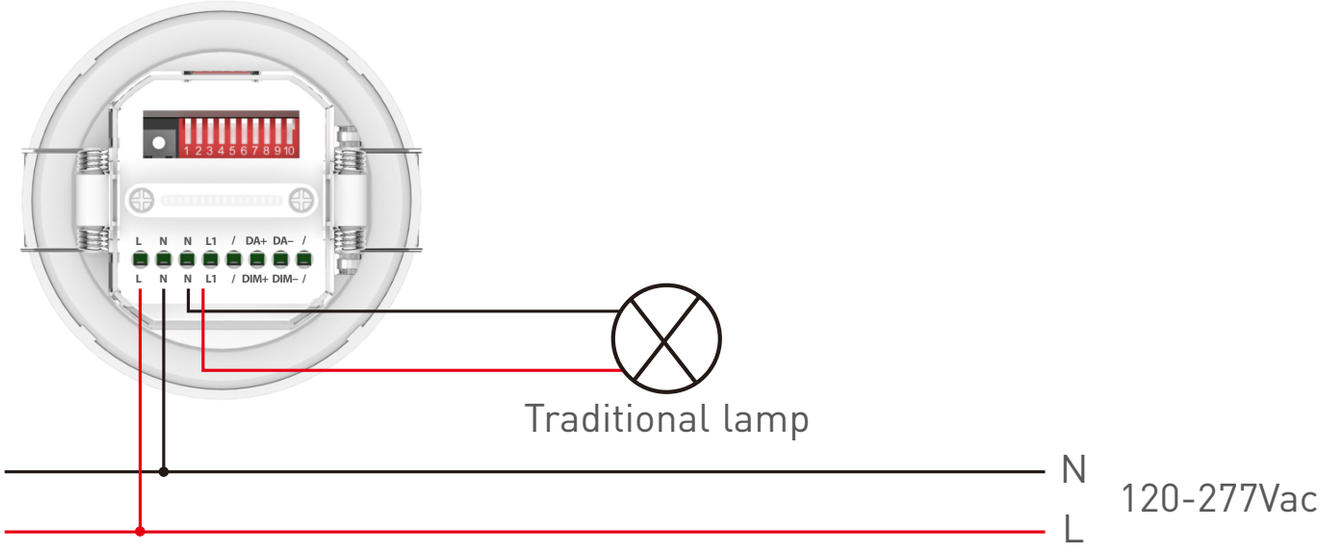
DALI driver connection



0-10V driver connection



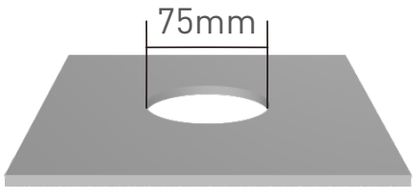
Traditional lamp connection



- The built-in relay allows max. 8A of resistive load or inrush current of less than 65A.

Installation Steps

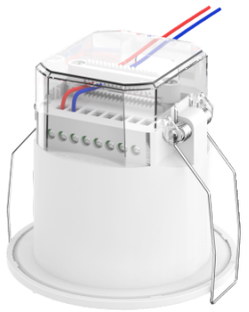
1. Drill a 75mm hole (2.95 inches) in a desired position of the ceiling.



2. Use a small flat head screwdriver to pry the cover off.

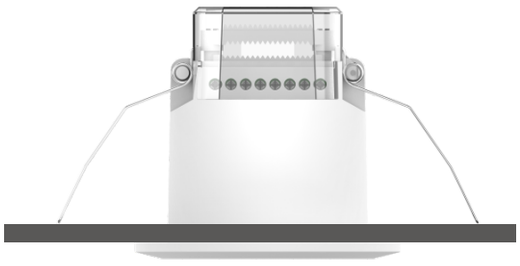
3. Connect the wires.

4. Secure the small board to fix the wires and close the cover.

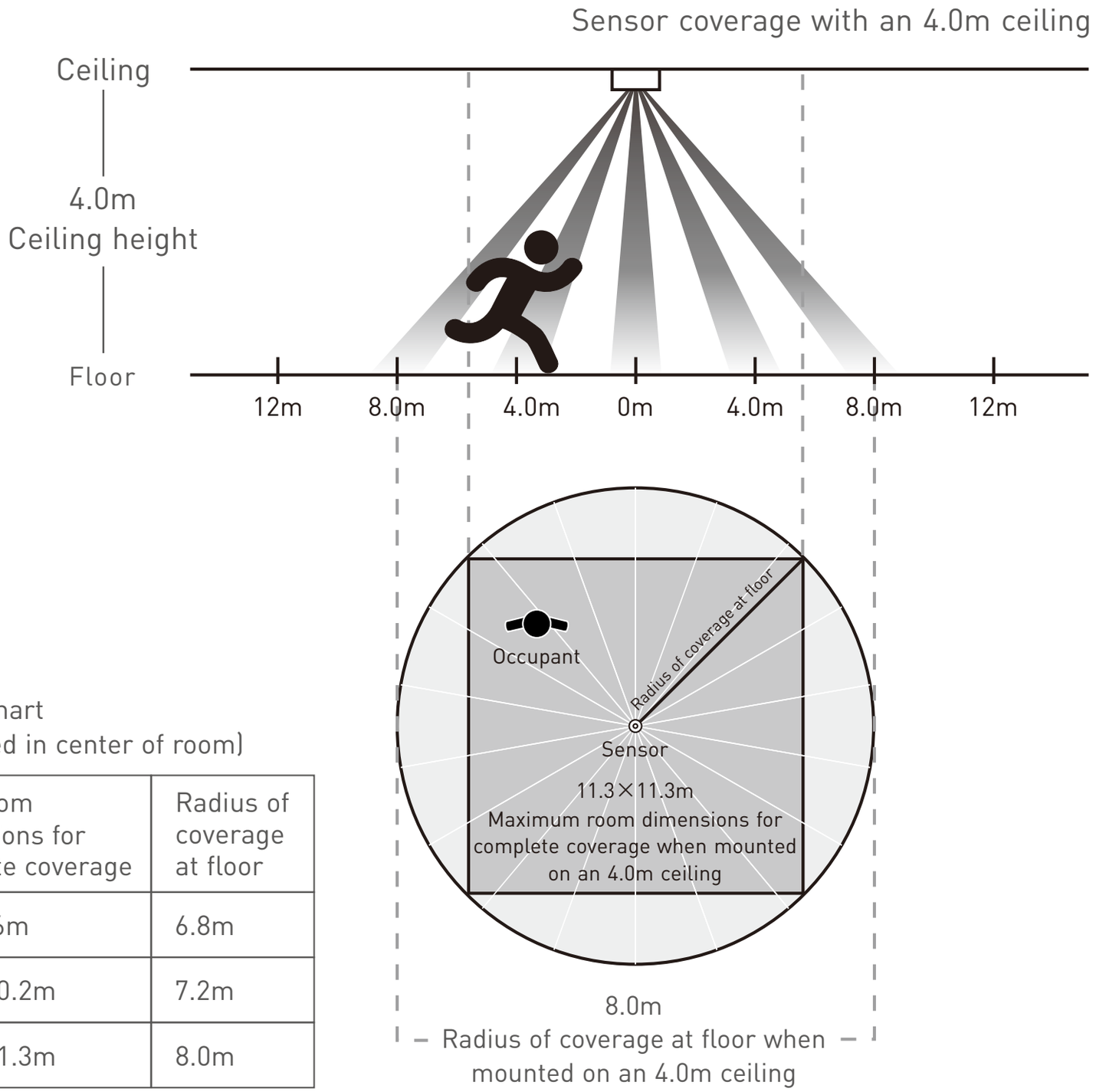


5. Pull the spring clip upward while insert the sensor into the predrilled hole.

6. Please make sure you can mount it flat on the ceiling.



Range Diagrams for Big Motion Detection

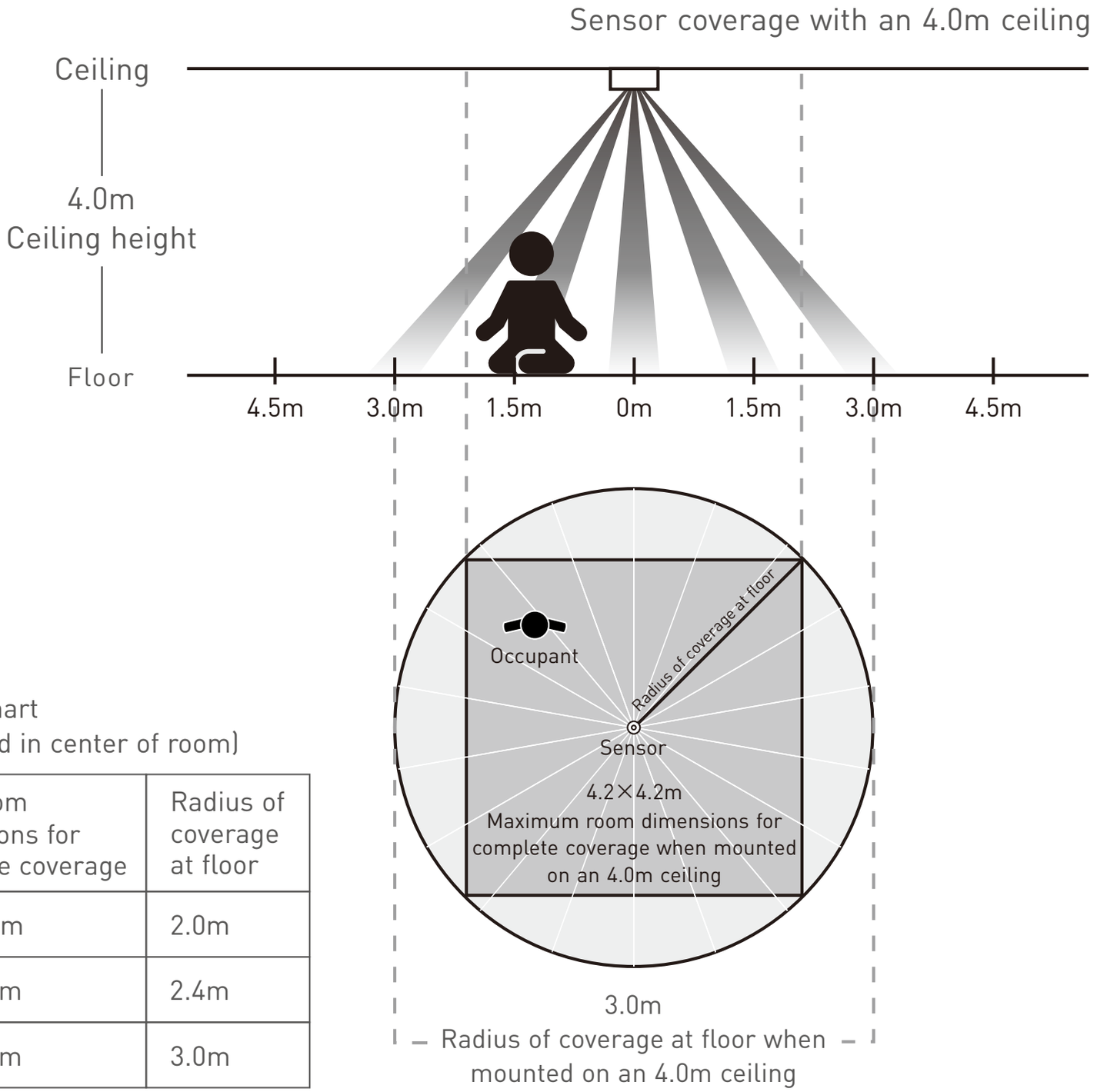


Sensor coverage chart
(for sensor mounted in center of room)

Ceiling height	Max. room dimensions for complete coverage	Radius of coverage at floor
2.5m	9.6×9.6m	6.8m
3.0m	10.2×10.2m	7.2m
4.0m	11.3×11.3m	8.0m

Note: Multiple sensors can be added for extended coverage-refer to product specification submittals of receiving device to determine system limits

Range Diagrams for Minute Motion Detection

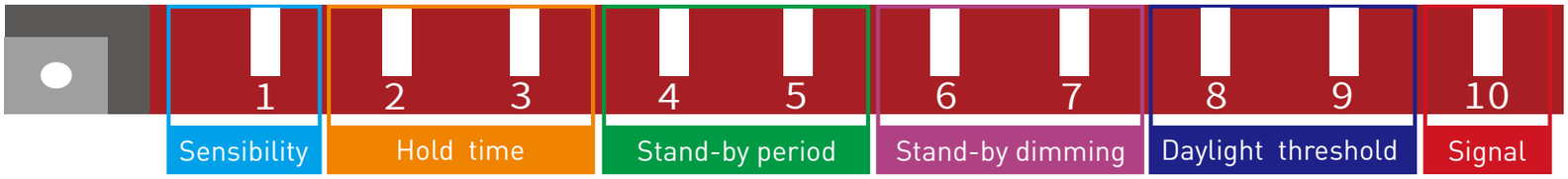


Sensor coverage chart
(for sensor mounted in center of room)

Ceiling height	Max. room dimensions for complete coverage	Radius of coverage at floor
2.5m	2.8×2.8m	2.0m
3.0m	3.4×3.4m	2.4m
4.0m	4.2×4.2m	3.0m

Note: Multiple sensors can be added for extended coverage-refer to product specification submittals of receiving device to determine system limits

Dip Switch Settings



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

Dip switch 2-3: Hold time. Lamp remains 100% illuminated over this time period after no motion is detected.

Dip switch 4-5: 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 6-7: Stand-by dimming. This low light level is used in periods of absence for enhanced comfort and safety.

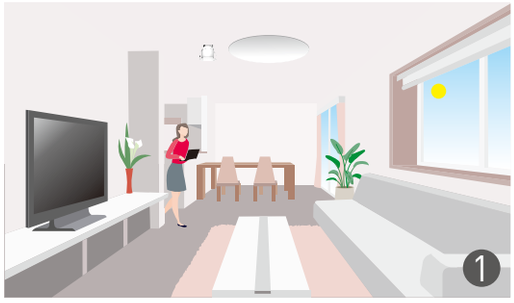
Dip switch 8-9: Daylight threshold. The sensor can be set up to work based on the ambient light level. When the ambient light is 2lux, 10lux or even reaches 25lux, 50lux, the sensor will trigger the light fixture to turn on. "Disable" mode will disable the ambient light sensing feature, which means the light fixture will be triggered to turn on once a motion is detected regardless of the ambient light level.

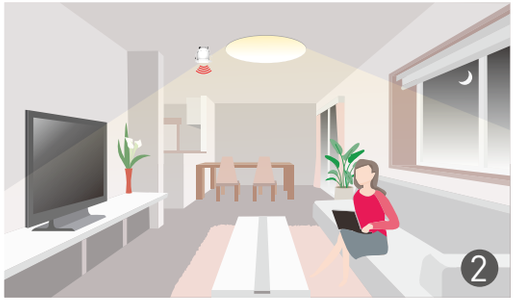
Dip switch 10: Signal. 0-10V or DALI signal option.

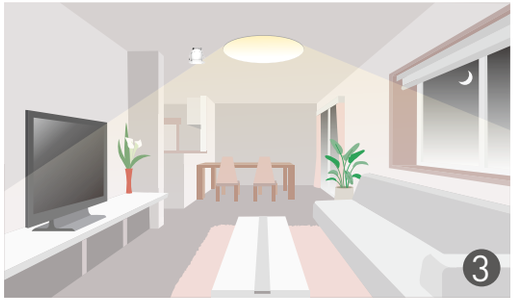
	Sensibility		Hold time			Stand-by period			Stand-by dimming			Daylight threshold			Signal	
ON	1		2	3		4	5		6	7		8	9		10	
	●	100%	●	●	5s	●	●	10s	●	●	50%	●	●	2Lux	●	0-10V
			●	○	30s	●	○	30s	●	○	30%	●	○	10Lux		
	○	50%	○	●	1min	○	●	10min	○	●	10%	○	●	50Lux	○	DALI
			○	○	10min	○	○	∞	○	○	Disable	○	○	Disable		

Functions

Auto-on and auto-off (Set stand-by dimming to “Disable”)





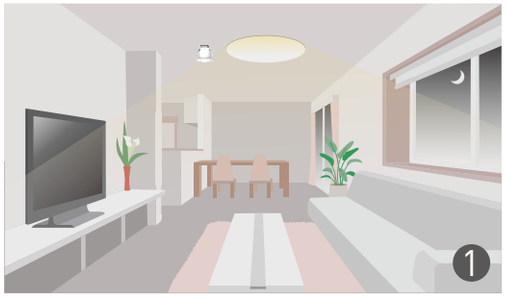


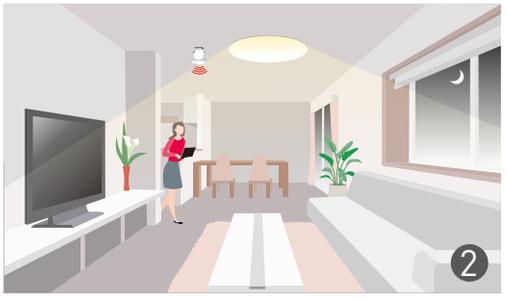
❶ With sufficient ambient light (when light sensing feature enabled), the light fixture won’t switch on even when a motion is detected.

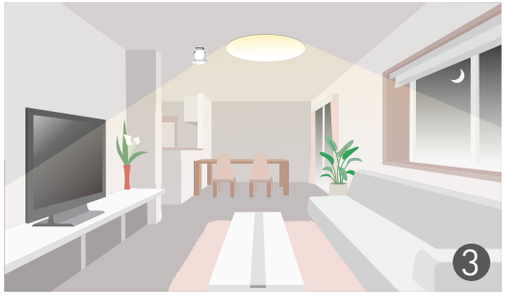
❷ With insufficient ambient light (when light sensing feature enabled), the light fixture will switch on when a motion is detected.

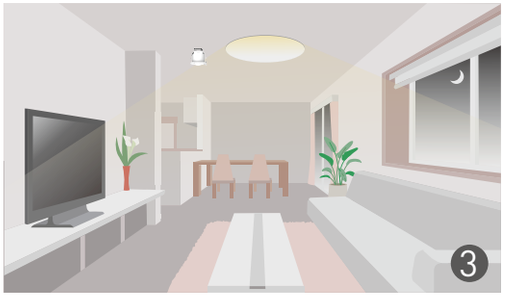
❸ When the sensor does not detect a motion, time will start counting down according to the preset hold time. After the hold time ends, the light fixture will automatically switch off. If a motion is detected during the hold time, time will start counting down again after no motion is detected.

2-step dimming function (Set stand-by period to ∞)







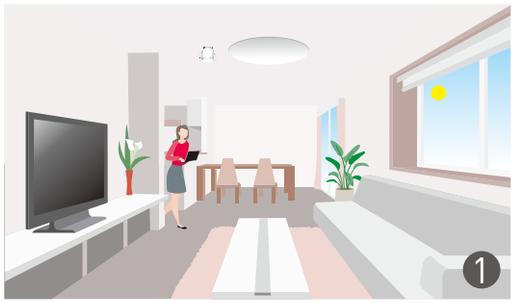


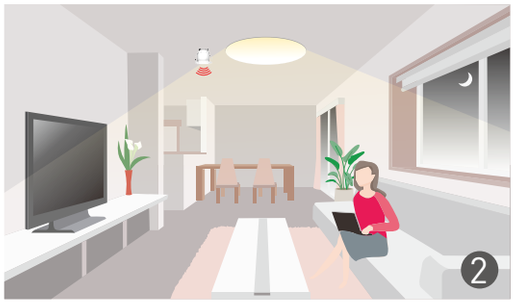
❶ When no motion is detected, the light fixture will remain at a low light level (stand-by dimming level).

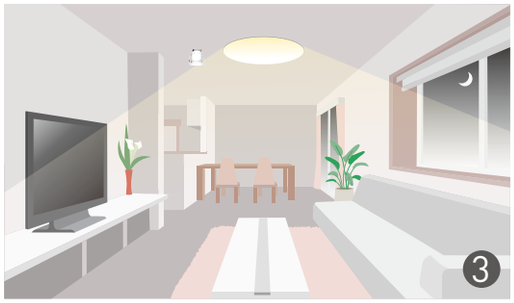
❷ When a motion is detected, the light fixture will be 100% illuminated.

❸ 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-step dimming function



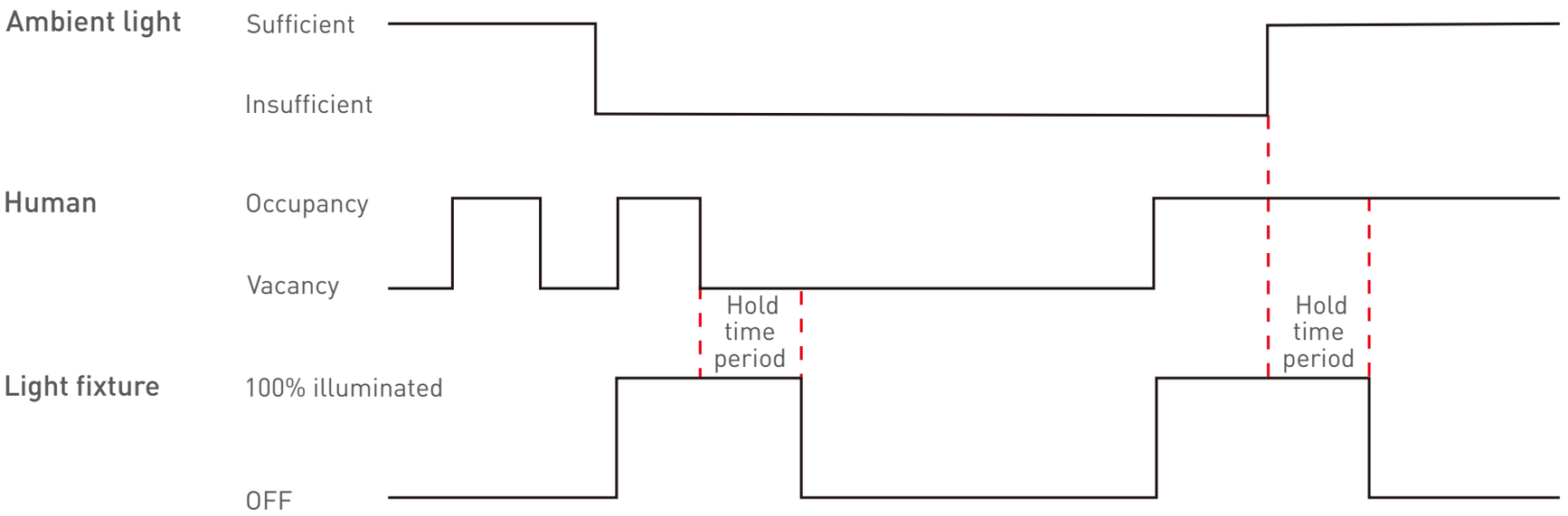




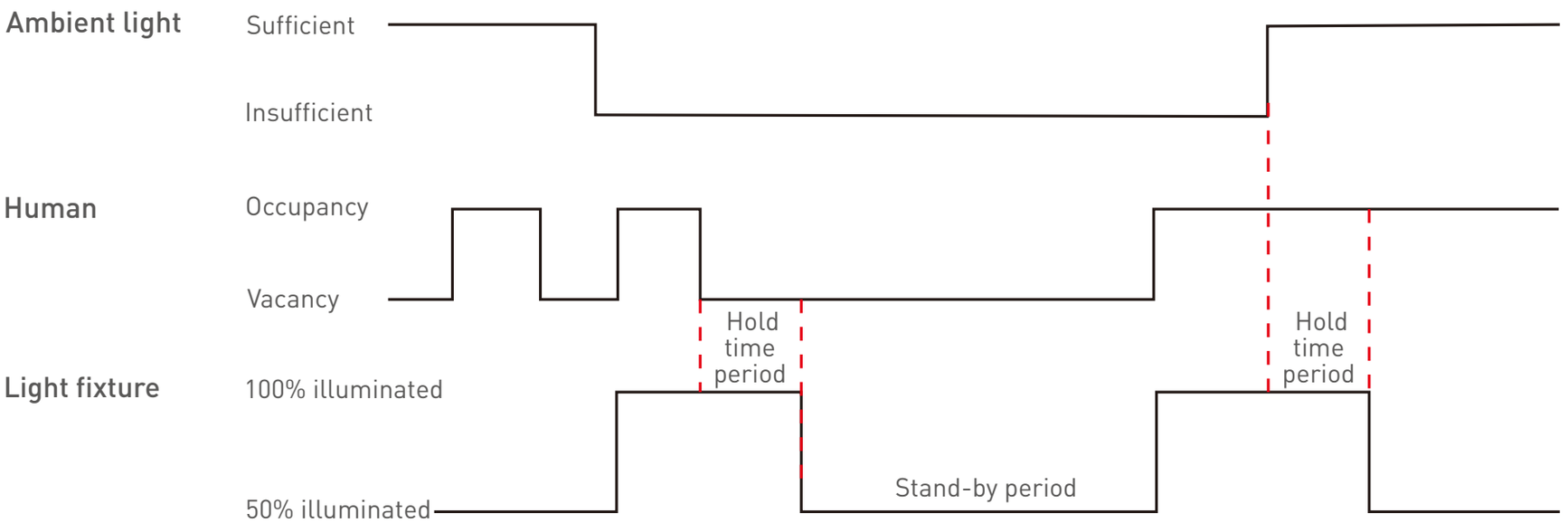
1. With sufficient ambient light (when light sensing feature enabled) , the light fixture won't switch on when a motion is detected.
2. With insufficient ambient light (when light sensing feature enabled) , the light fixture will switch on automatically when a motion is detected.
3. When the sensor does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

Sensor Working Principle Diagram

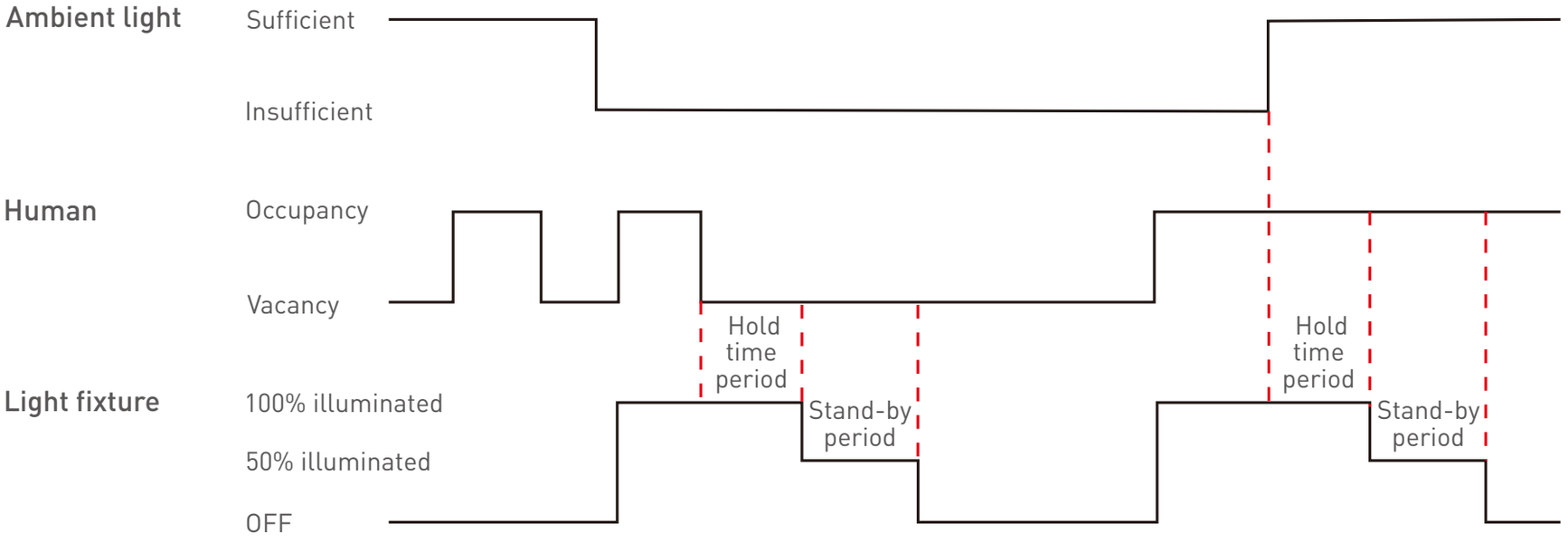
Auto-on and auto-off



2-step dimming function (For example, set brightness at 100% when human are detected, and set stand-by dimming at 50%)

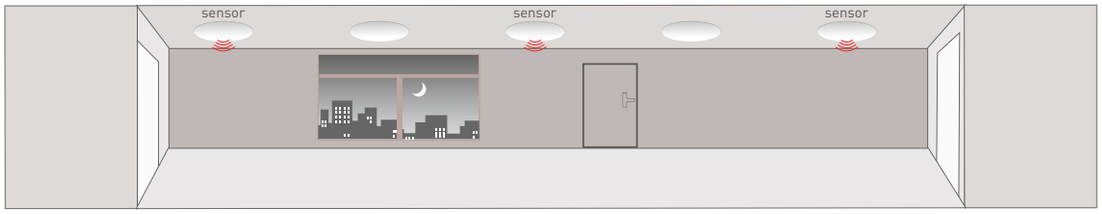


3-step dimming function (For example, set brightness at 100% when human are detected, and set stand-by dimming at 50%)

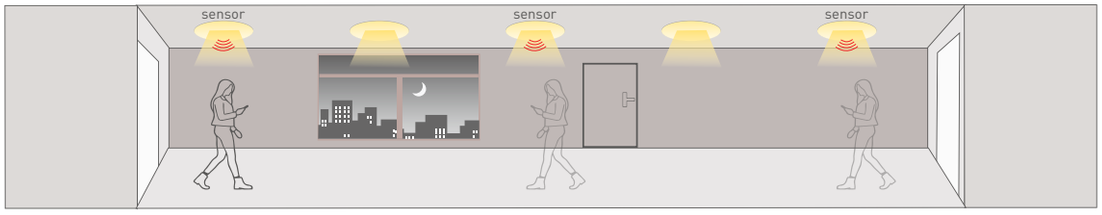


Group Control Function

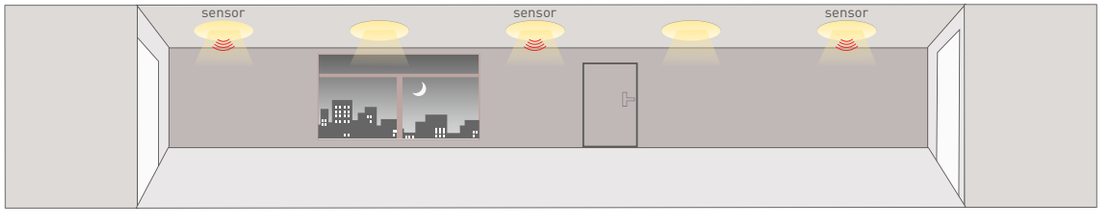
When multiple sensors are installed in a certain area and are grouped together, all lights will turn on/off simultaneously once any sensor detects human motions. This function can expand the sensor coverage area and effectively reduce both false detections and missed detections (Please refer to Page 17 in this manual for more details).



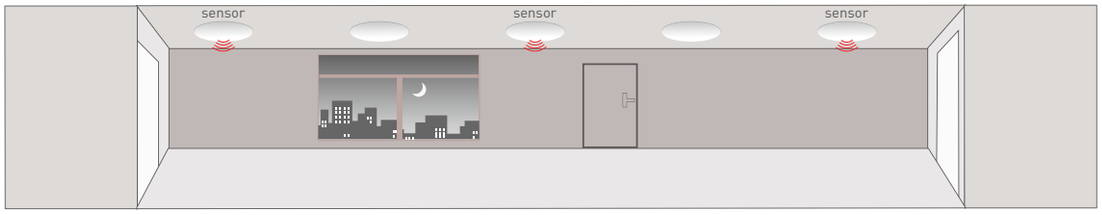
❶ When no motion is detected, all lights will turn off.



❷ When the ambient light is insufficient and a motion in any direction is detected, all lights will turn on.



❸ After the delay time ends and no motion is detected, all lights will be adjusted to a low brightness level simultaneously.



❹ After the stand-by time ends and no motion is detected, all lights will turn off simultaneously.

Recommended Applications

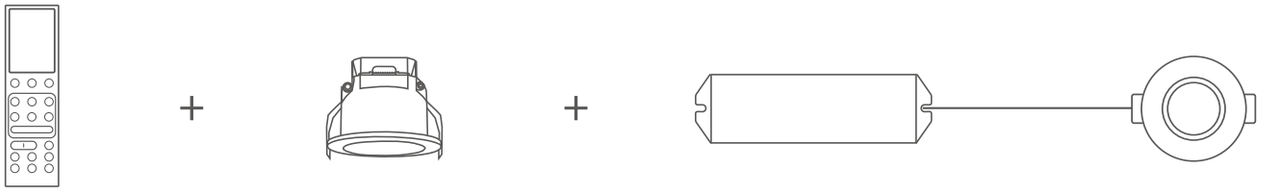
1. Work with a Bluetooth LED driver to wirelessly control the lamp.

Phone + Microwave motion sensor + Bluetooth LED driver Lamp

2. Wired lighting control with DALI/0-10V signal output makes different application scenarios enriched.

Phone + Microwave motion sensor + DALI/0-10V driver Lamp

3. Work with a smart gateway to realize visual control and automated linkage.



IR remote + Microwave motion sensor + LED driver Lamp

4. Link the Super Panel 6S with App to achieve cloud scenes and automation.

Phone + Super Panel 6S + Microwave motion sensor + Home appliance module + Curtain ...

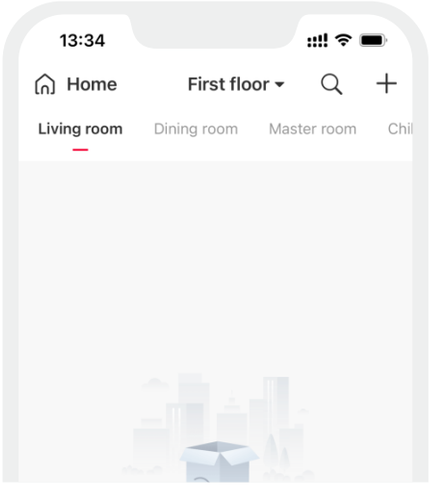
App Operating Instructions

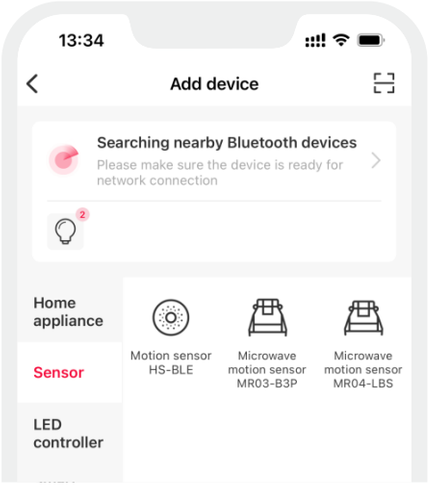
1. Register an account

Scan the QR code below with you mobile phone and follow the prompts to complete the app installation. Then open the App and log in or register an account.

2. Connect to the network

Create a home if you are a new App user. Long press the reset button of the sensor for more than 6s to trigger network connection until the buzzer beeps. Click【 + 】icon in the upper right corner of “Room” interface to access “Add device” page. Pick【Microwave motion sensor】and follow the on-screen prompts to add the device.

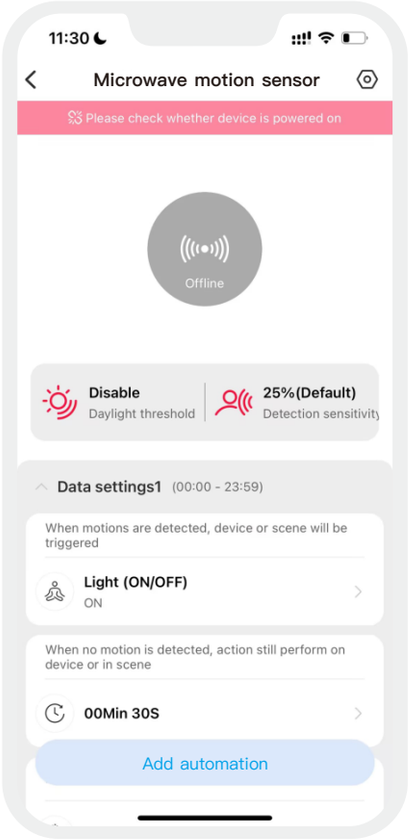


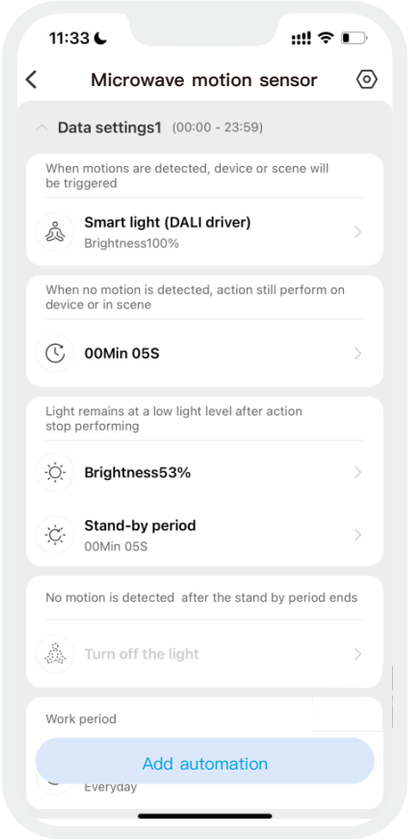


3. Control interface settings

In【Room】interface, click the microwave motion sensor you have added to access its control interface. Tap【 】icon to enable/disable the sensor,【 】icon to set the daylight threshold and【 】icon set the detection sensibility.

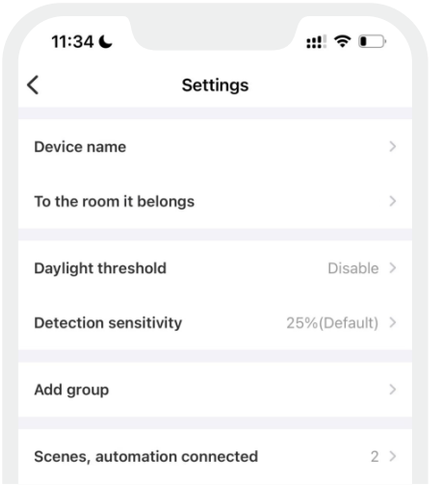
In "Sensor settings", click【When motions are detected, the following will be triggered】to select a trigger action such as a light (ON/OFF), a smart light (with a 0-10V/DALI driver), a smart device, a local scene or no action performed; Click【When no motion is detected, action still performs within】to set the hold time; Click【Light remains at a low light level after action stop performing】to set the stand-by period and device status in this period; Click【No motion is detected after the stand-by period ends】to set the device status after no motion detected (only when you select a smart device or a local scene as a trigger action can you change the device status after no motion detected; when you select a light (ON/OFF) or a smart light (with a 0-10V/DALI driver) as a trigger action, the default state for the light is "OFF" after no motion detected.





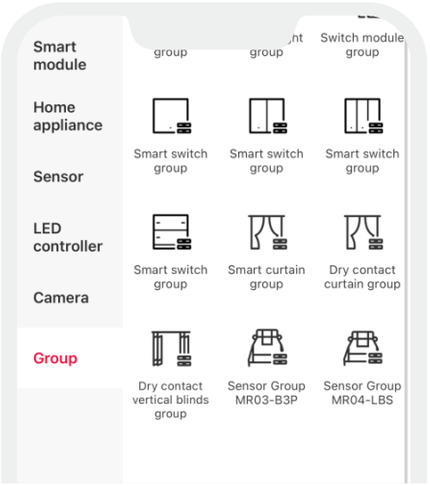
4. Power on relay always

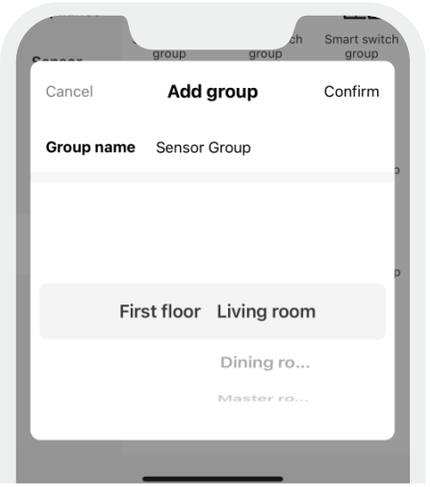
In “Sensor settings”, when you click【When motions are detected, the following will be triggered】to select a trigger action such as a smart device, a local scene or no action performed, go to “Settings” page by clicking【 ⚙ 】at the top-right corner where “Power on relay always” button is displayed. When the button is turned on, the relay will remain powered and won’t turn off in the automation/scene despite the setting. When it is turned off, the relay status will change according to the microwave detection situation. The relay will turn on when motions are detected and will turn off when no motion is detected. You also can go to automation/scene setting to set the executing action as the relay turning on/off.



5. Sensor group

Click the【+】icon at the top-right corner of the "Room" interface and pick【Group-Sensor group】from the device list. Create a group and set the group name and the room it belongs to. Then click the devices you want to group together. Once the group is created successfully, the device data of the group will be synchronized to the group to achieve synchronous control.

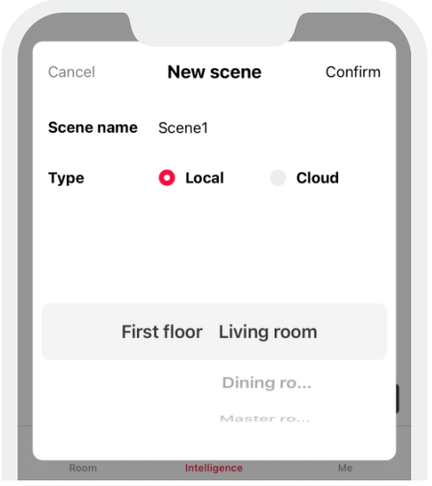




6. Local scene

Create a local scene: Switch to the "Intelligence" interface and click 【+】icon at the top-right corner to create a local scene. After you set the executing action, the local linkage between Bluetooth devices can be achieved.

Bind a local scene: In the control interface, click【Sensor settings】—【Local scene】to pick a scene and save it. When the preset condition is triggered, the bound local scene can be performed.

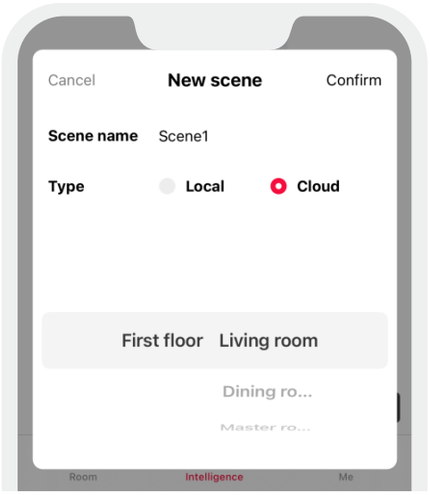


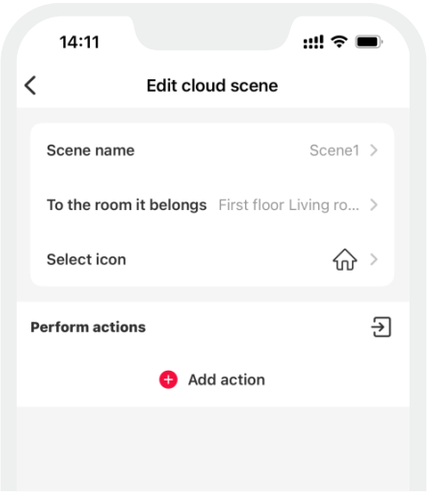
Create a local scene

Bind a local scene

7. Cloud scene

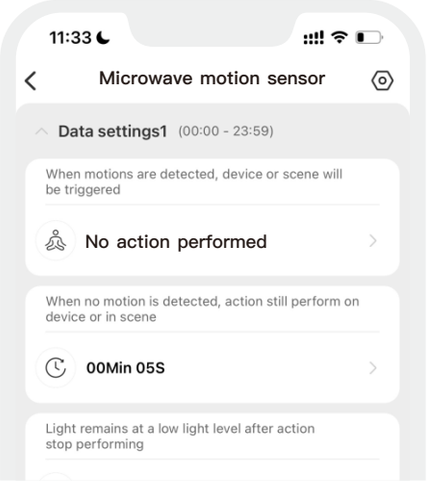
Please be sure a smart gateway is added to your home, such as Super Panel 6S.
Tap【+】in “Intelligence” interface and click【+】icon to create a cloud scene. After you set the executing action for the scene, the remote linkage can be achieved.





8. Automation

Before setting automation, you need to click【When motions are detected, the following will be triggered】in sensor settings to pick “No action performed”, which is used as the trigger condition or as the executing action in the automation for multiple set time periods. In sensor settings, set up hold time, then the executing action for sensor automation will be delayed over a period of time when the sensor detects no motion.



For example, set the hold time to 30 seconds.

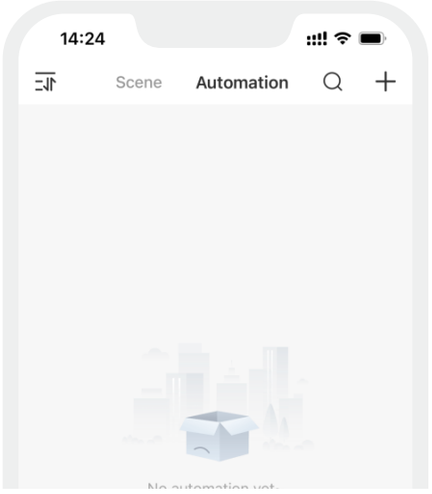
Execution period of automation	Trigger condition	Executing action
8:30~12:00	Sensor detects occupancy	Lights on
14:00~19:00	Sensor detects occupancy	Lights on

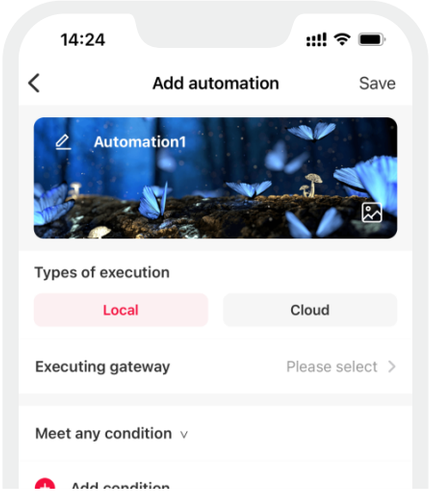
When the sensor detects no motion, the executing action for automation will have a 30 second delay.

Execution period of automation	Trigger condition	Executing action
8:30~12:00	Sensor detects vacancy	Lights off
14:00~19:00	Sensor detects vacancy	Lights off

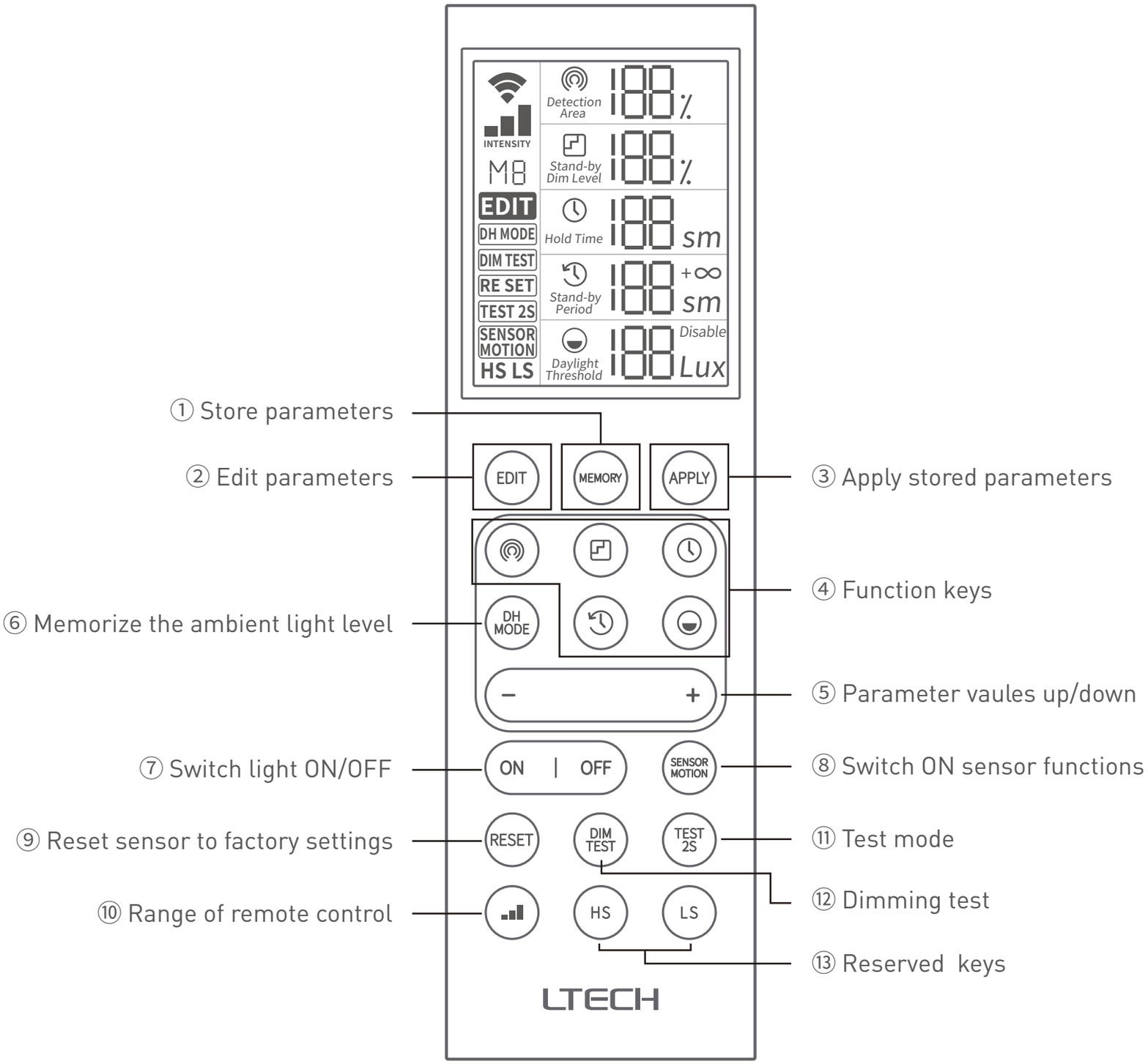
Tap【Automation】in "Intelligence" interface and tap【+】icon at the top-right corner to create automation, then set a trigger condition and an executing action. When the condition you set are met, a series of device actions will be automatically triggered to perform and remote linkage is achieved as well.

Note: Sensor can be set as a trigger condition or as an execution action.





Infrared remote control



Note: Please refer to LR1 manual for specific instructions of infrared remote control.

FAQs

1. How to reset a switch to factory defaults?

Method 1: In the sensor's control interface of the APP, tap【⚙】icon in the upper right corner to go to the settings, and click【Delete device】.

Method 2: Long press the reset button on the microwave motion sensor for more than 6s until the buzzer makes three beeps, meaning the sensor has been reset to factory defaults.

2. What should I do if I fail to search the device via APP?

- Please make sure the device is powered on normally and is in the activated state.
- Please keep you mobile phone and device as close as possible. The recommended distance between them is no more than 15 meters.
- Please make sure the device hasn't been added yet. If it has, please reset the device to factory defaults manually.

Attentions

- This product should be installed and commissioned by a qualified professional.
- The higher the sensitivity you set, the farther the range the sensor can detect. If microwaves pass through walls or a mistrigger is caused, sensitivity needs to be lowered to shorten the detection range.
- The installation area should keep away from metal boards, concrete walls and beams to prevent microwave signal being blocked.
- The installation area should keep away from glass, plasterboards and other materials that microwave can easily pass through to avoid accidental triggers.
- The sensor should keep away from exchangers, routers and other wireless devices. The installation distance should be at least 2 metersaway from them to avoid radio interference.
- If pets move through the detection area, they might mistrigger the sensor.

- If multiple sensors are installed side by side, they should be more than 1 meter apart to ensure the sensors can work individually.
- This product is non-waterproof (special models excepted). Please avoid the sun and rain.
- When installed outdoors, please ensure it is mounted in a water proof enclosure.
- Good heat dissipation will extend the life the product. Please install the product in a environment with good ventilation.
- If a fault occurs, please do not attempt to fix the product by yourself. If you have any question, please contact the supplier.

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.