CTL-SEN-Mini/2105.F51

60.99.2105

Mini-24G-DALI/LTC

24GHz Radar Presence Sensor
Direction Adjustable

Product Manual (LTC version)

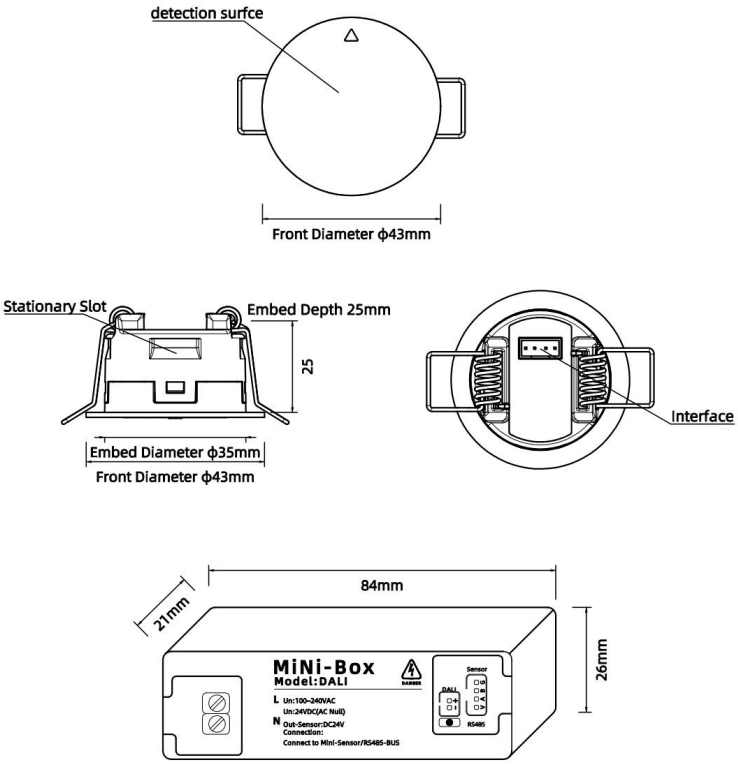
Installation Manual

CREATROL

CONTENTS

Appearance

The product has an outer diameter of 43mm, a depth of 25mm, and an opening of 35mm.



Default Parameters

No.	Function	Default value
1	Detection Distance	500cm
2	Sensitivity	50%
3	Detection Mode	Motion + Presence
4	Indicator Light	On
5	Lux highset	2000Lux
6	Lux lowset	0Lux

Detection Principle

24Ghz FMCW frequency modulation continuous wave radar can detect the expansion of chest and abdomen during breathing, so as to accurately detect the static, micro-motion and moving state of the living body.

Applications

Home

Bathroom | Entrance hall/Walkway/Staircase | Bedroom | Cloakroom

Accurately detect the presence, the light is on when people come, automatically turned off when they leave, and the light is not turned off when people in the static state.

Control light according to the change of environmental illumination.

Office

Office | Meeting Room | Shared Office Space

When people come, the office equipment is turned on. When people leave, the office equipment is turned off automatically.

Save energy consumption and improve human efficiency.

Hotel

Guest Room | Toilet | Walkway/Stair

Assist to judge whether the room is occupied or not, save energy consumption and improve human efficiency.

School/Library

Classroom | Reading Room | Study Room

Accurately detect the presence, turn on the light/equipment when people come,

and turn off the light/equipment when people leave.

Precise energy saving can be realized.

Elderly Care

Rooms | Toilets | Walkways/Stairs

Accurately detect the presence and assist in abnormal monitoring.

Accurately detect the presence, turn on the light/equipment when people come,

and turn off the light/equipment when people leave, so that the energy efficiency is saved and the human efficiency is improved.

Specifications

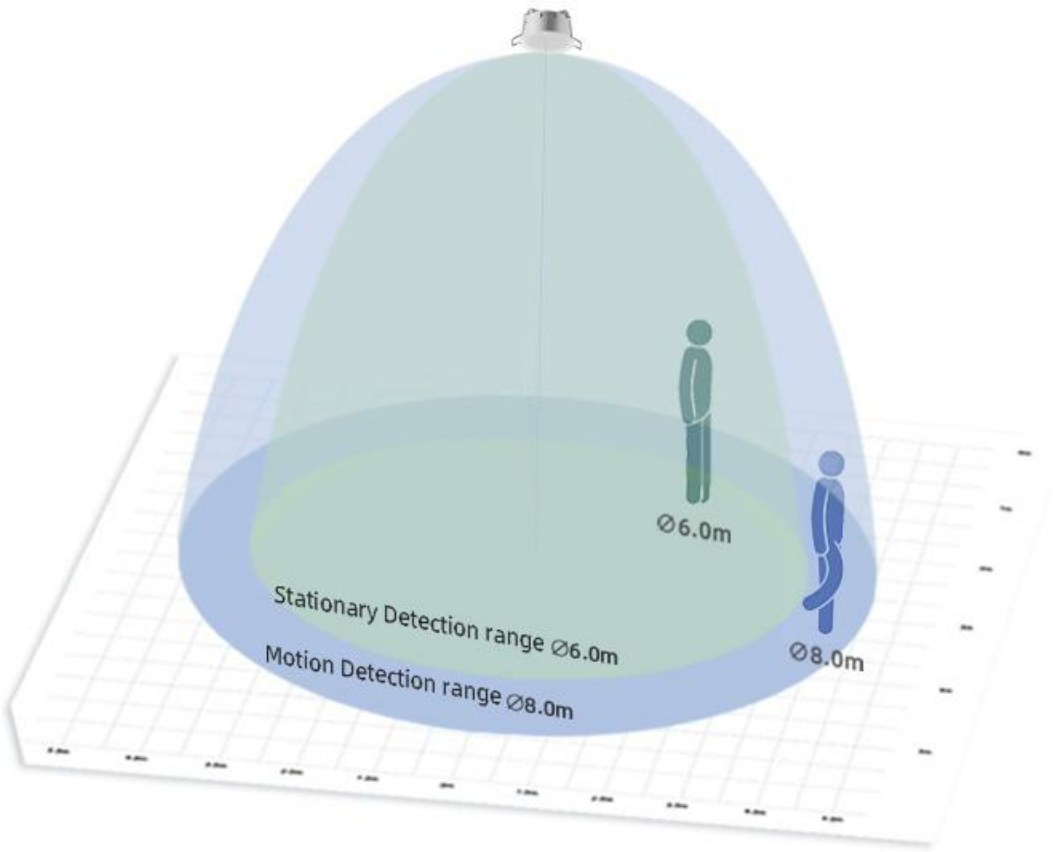
Detection Mode		24 GHz mmWave radar FMCW Technology
Communication Protocol		DALI
DALI Deveice		<64
Slave Address		1~9
Mounting Height		2.0 ~ 4.0 米
Detection Angle		360°
Detection Range		When the installation height is between 2.5 and 3.5 meters ① Micro-movement and motion detection diameter ≤ ϕ8.0 meters ② Maximum diameter for stationary detection ≤ ϕ6.0
Detection Distance		1.5 ~ 5.0m
Detection Sensitivity		0% ~ 100%
Illumination Sensing		0 ~ 32000 Lux (Precision ± 4%)
Product Size		ϕ43mm*25mm
Hole Size		ϕ35mm
BOX Size		84*21*26mm
Product Weight		52g
Work Temperature		Temperature -20 ~ 45 ℃ Humidity < 95%
Mini BOX	Power Input	100~240VAC
	Power Output	24VDC(<500mA)
Sensor	Power Input	24VDC(<500mA)
LED Indicator		① Flash for 3 seconds after receiving the configuration command ② It is always on when someone is detected, and the brightness of the indicator light is automatically adjusted with the ambient illumination. ③ The off mode can be set (it will not be on when someone is detected)

Detection Range

Installed at a Height Of 2.5-3.5m

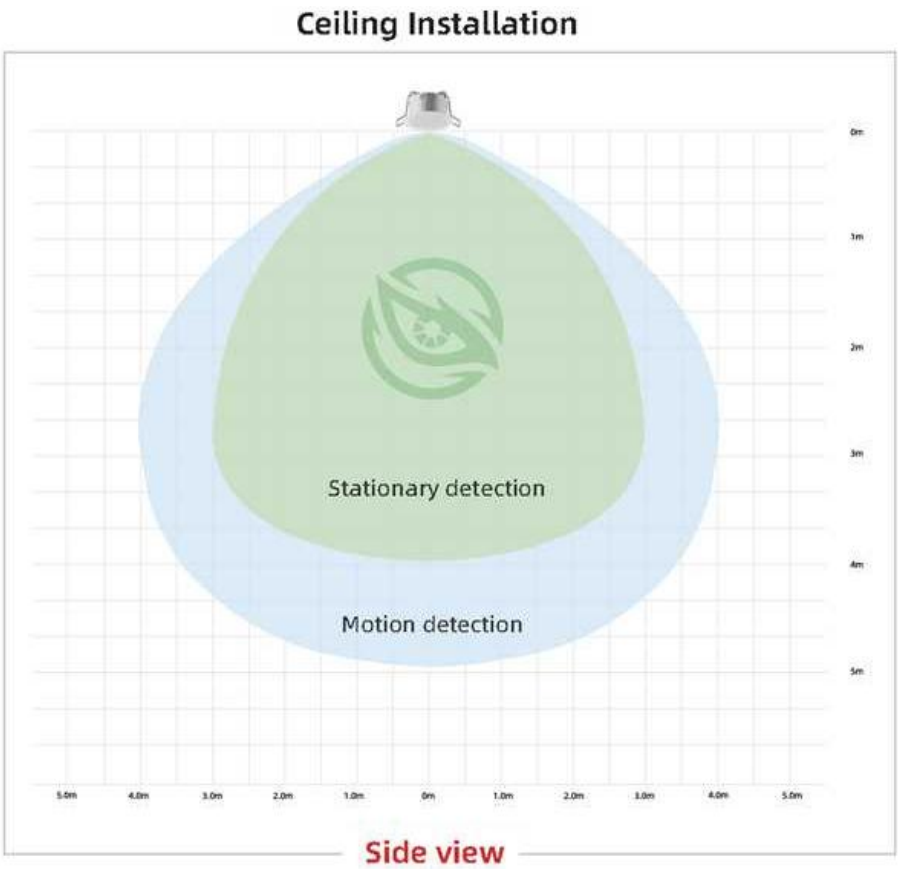
①Maximum detection diameter for micro-motion and movement is approximately 8.0m

②Maximum detection diameter for sitting still is approximately 6.0m

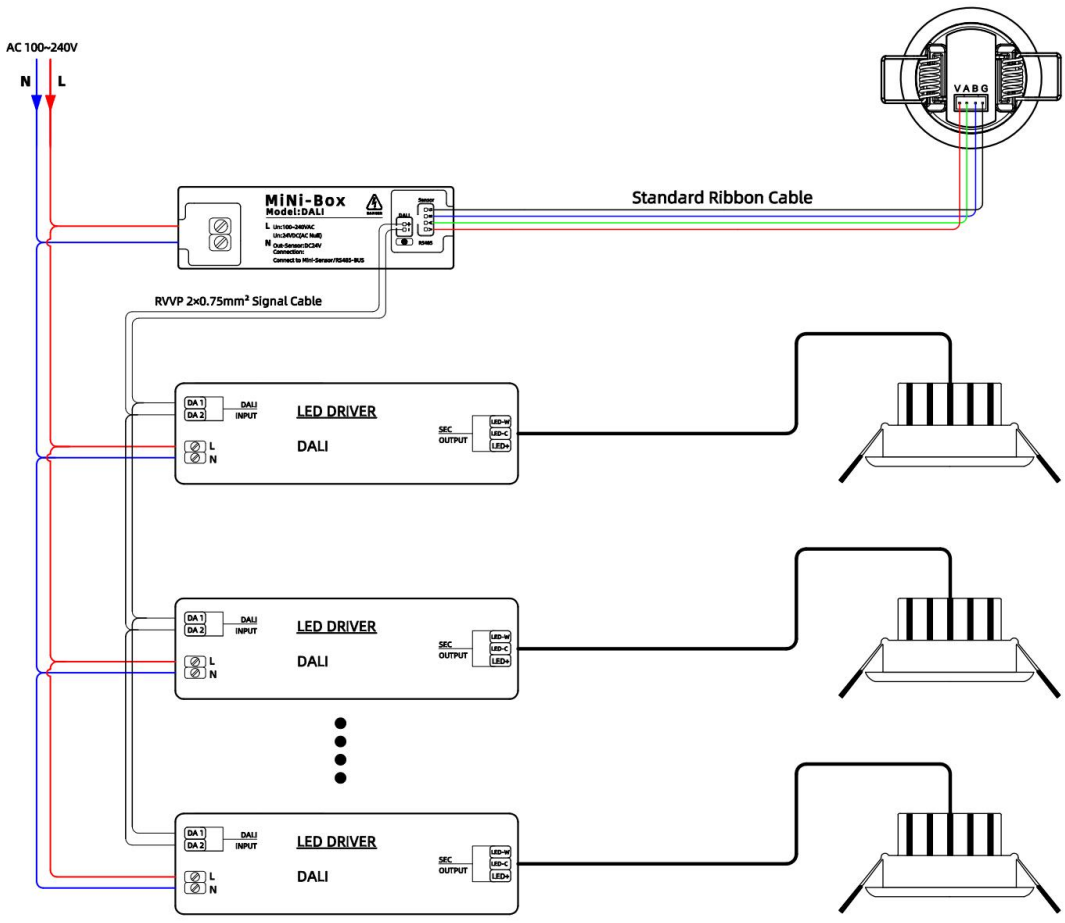


Top view at 2.7 meters installation height

Detection Range



Wiring


AC 100~240V
N
L
VABG
MiNi-Box
Model:DALI
Standard Ribbon Cable
RVVP 2×0.75mm² Signal Cable
DA 1
DA 2
DALI
INPUT
L
N
LED DRIVER
DALI
SEC
OUTPUT
LED-W
LED-C
LED+

Set up

APP Download

Tuya Smart

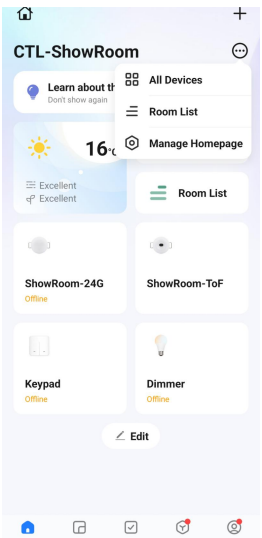
Smart Life

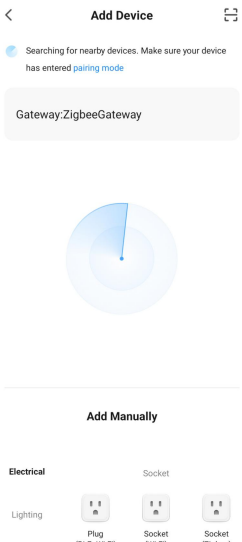
Scan the QR code to download

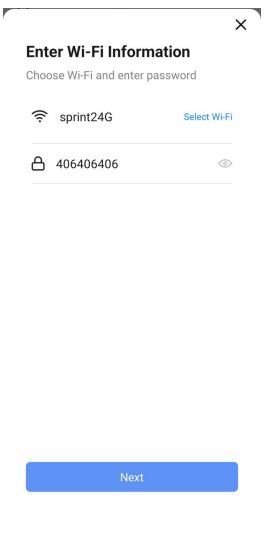
You can download by scanning this QR code, or directly search for the app name in the application market to download.

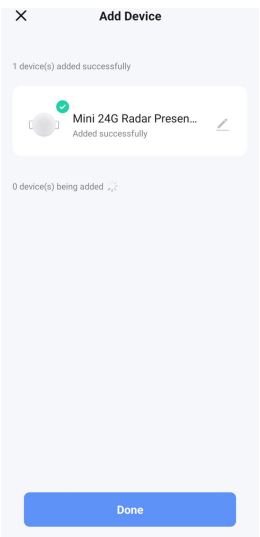
Device Networking

After connecting the sensor to a power source, wait until its indicator light begins flashing to indicate it has entered network configuration mode. Open the app, tap "Add Device," and wait for the system to detect the sensor. Select the sensor and connect it to a 2.4GHz Wi-Fi network, then tap "Complete" to finish the setup.



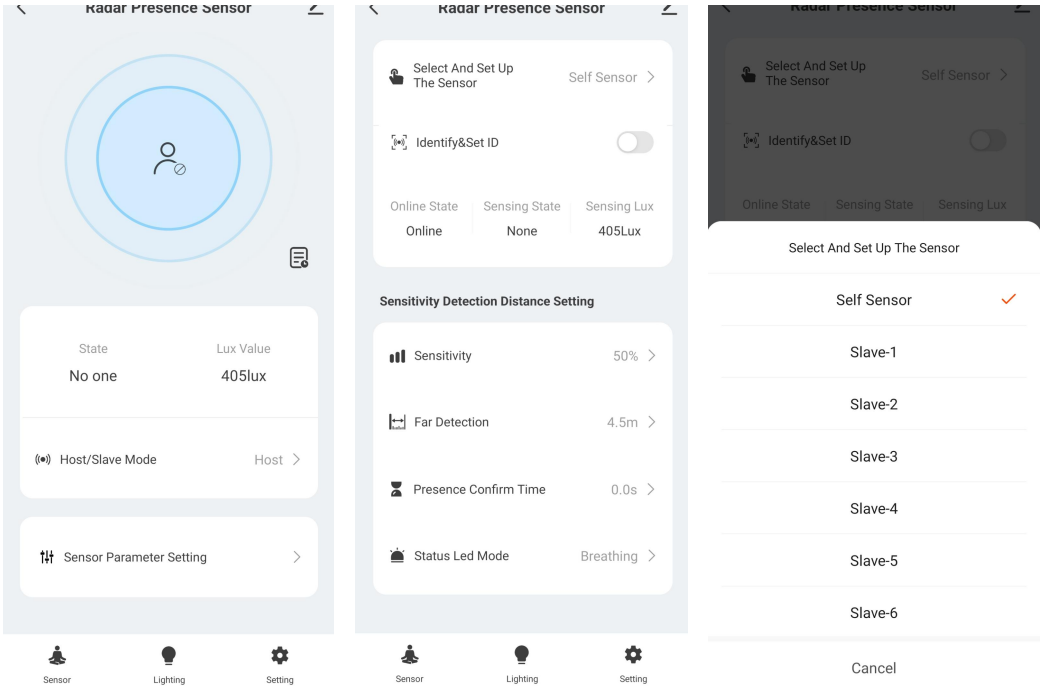






Set up

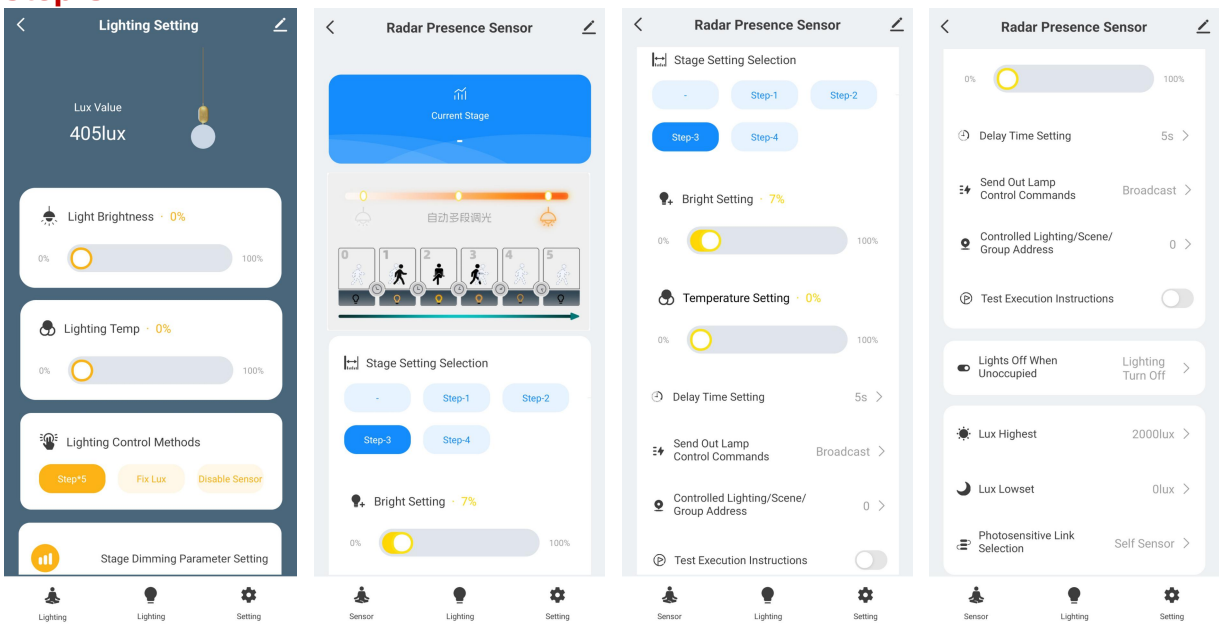
Sensor



1. The sensor's default working mode is host mode. When set to slave mode, other sensors will not be displayed on the interface.
2. Sensor parameters can be configured via the interface and also support broadcast mode synchronization.
3. **Sensitivity**: The detection sensitivity level for targets
4. **Detection distance**: Straight-line measurement from the human thorax to the sensor
5. **Target confirmation time**: Duration of continuous target detection required for valid recognition.
6. When sensitivity is set to 0%, the sensor enters disabled state.

Set up

Step*5



Lighting Bright 0%~100%

The lighting control system supports four operation modes: broadcast control, group control, scene control, and individual light control.

Phase 1: Unoccupied → Occupied (Activate Preset Scene 1)

Trigger Condition: When the environment transitions from unoccupied to occupied (motion detected).

Action: The system activates Preset Scene 1, adjusting light brightness and color temperature to accommodate occupant needs.

Phase 2: Occupied → Sustained Occupancy (Activate Preset Scene 2)

Trigger Condition: Continuous human activity detected.

Action: The system switches to Preset Scene 2, fine-tuning brightness and color temperature to maintain optimal comfort.

Phase 3: Sustained Occupancy → Unoccupied (Activate Preset Scene 3)

Trigger Condition: Occupants leave the monitored area.

Action: The system initiates Preset Scene 3, gradually dimming lights to conserve energy.

Phase 4: Unoccupied Delay 1 → Unoccupied Delay 2 (Activate Preset Scene 4)

Trigger Condition: No motion detected after the first delay period.

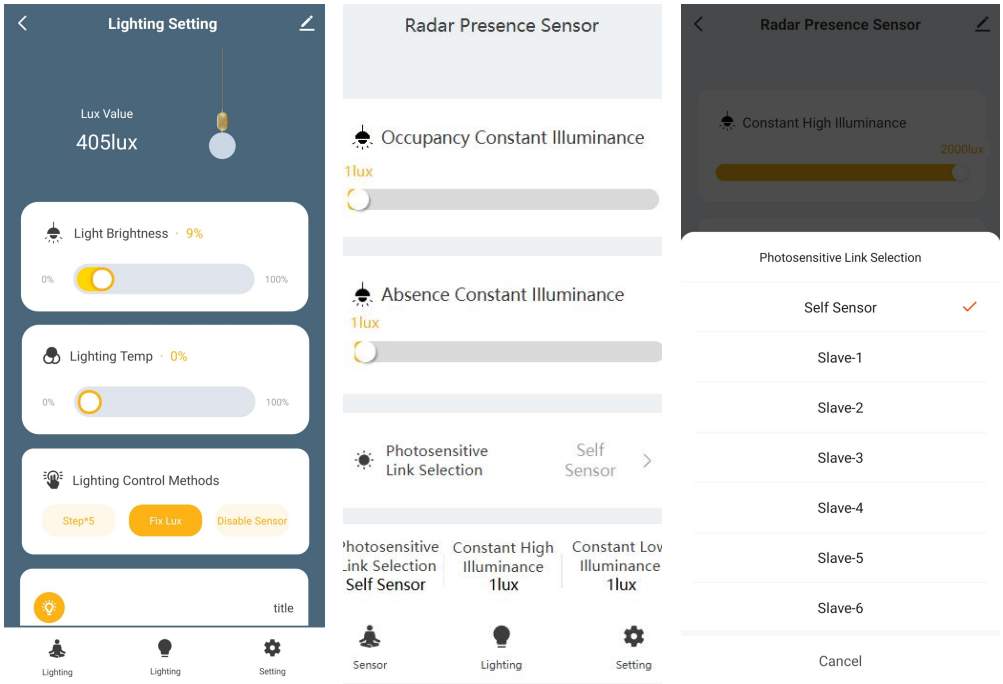
Action: The system engages Preset Scene 4, further reducing brightness or adjusting color temperature for enhanced energy efficiency.

Phase 5: Unoccupied Delay 2 (Activate Preset Scene 5)

Trigger Condition: No motion detected after the second delay period.

Action: The system executes Preset Scene 5, either turning off lights or setting them to minimum brightness for maximum energy savings.

Fix Lux



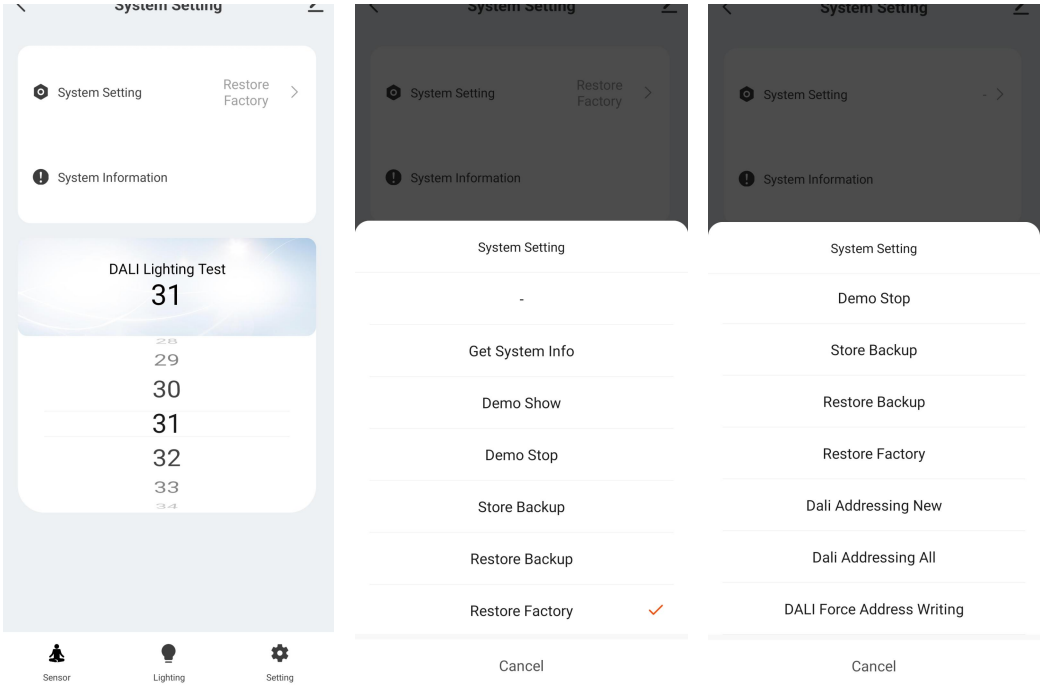
Constant illuminance (occupied): Lighting level maintained when presence is detected.

Constant illuminance (unoccupied): Lighting level maintained when no presence is detected.

If multiple sensors are connected to the communication bus, the light control system can additionally select secondary nodes for photosensitive linkage.

Set up

System Parameters



DALI Lighting Test: A DALI luminaire addressing function. When multiple fixtures are connected to the DALI bus, it selects the specific address of the fixture requiring verification.

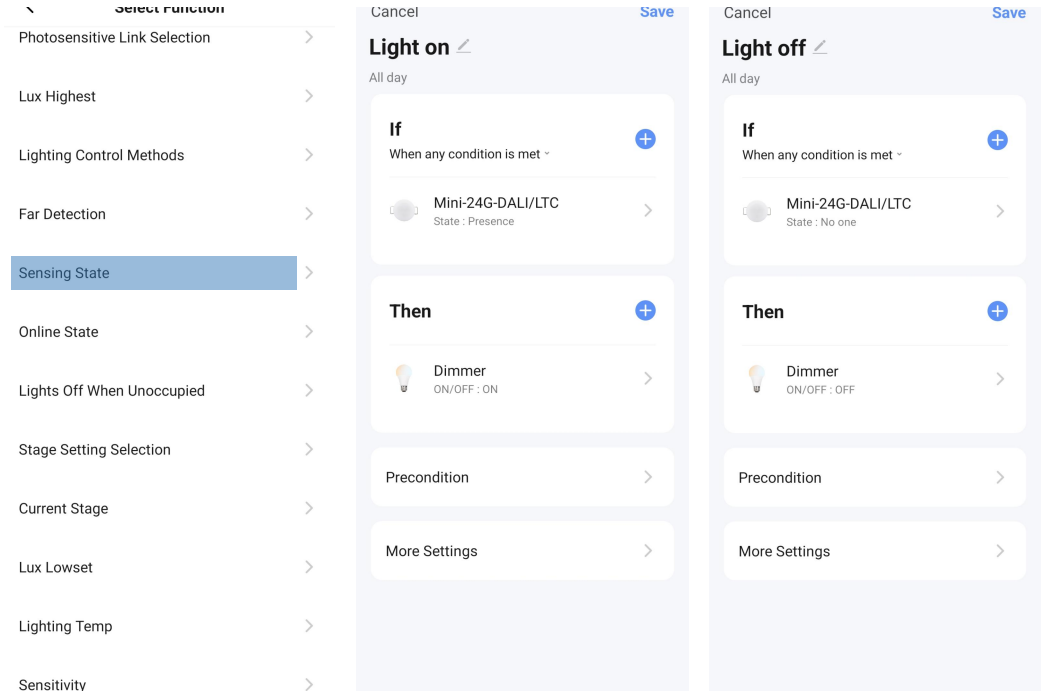
Only the addressed fixture remains illuminated while others stay off.

Demo Mode: Automatically demonstrates multi-stage dimming functionality.

End Demo: Terminates the demonstration process.

Set up

Automation

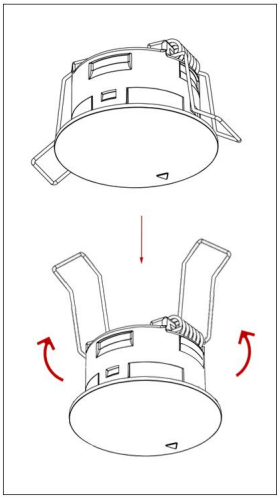


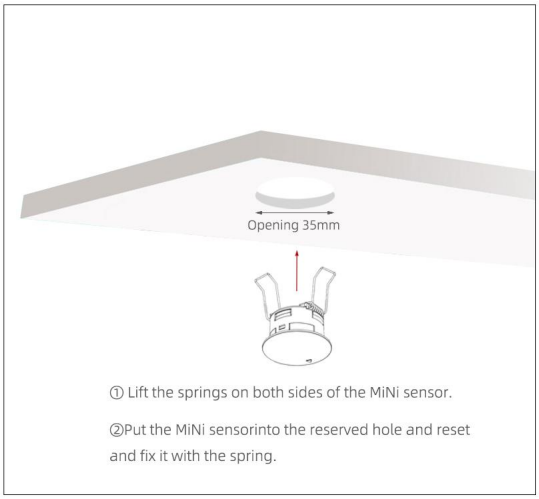
When a sensor is integrated into the Tuya system, it enables the creation of automation rules to control luminaires within external systems

Installation

Note: Installation depth varies across sensor versions. Always reference the specified dimensions in product specifications and maintain sufficient installation clearance.

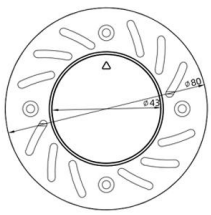
OPERATION STEPS FOR CEILINGINSTALLATION



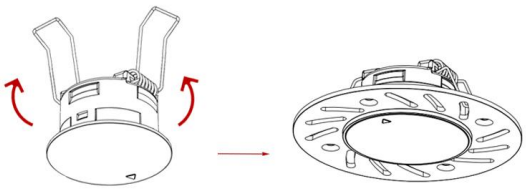


Installation

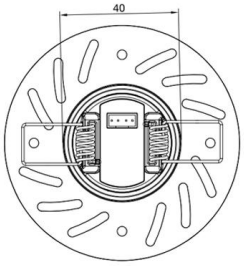
OPERATION STEPS FOR EMBEDED INSTALLATION



① Prepare MiNi embedded parts, which shall be installed on the ceiling Install the accessories at the hole position in advance, andopen the hole for 40mm

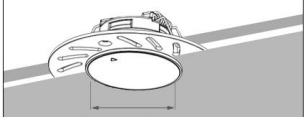


② Lift the spring of MiNi sensor
Passing through embedded parts in the Ceiling

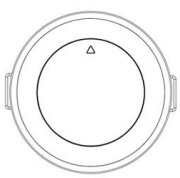


③ spingresetand fixation

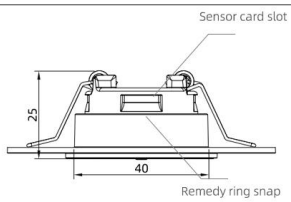
④ Complete frameless installation



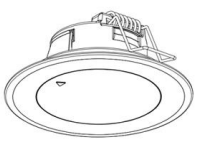
NOTE: LF THE RESERVED OPENING FOR CEILING INSTALLATION IS TOO LARGE, THE REPAIR RING CAN BE USED FOR INSTALLATION. COMBINE THE CLAMPING GROOVE ON THE SIDE OF MINI SENSOR WITH THE BUCKLE OF THE REPAIR RING TO CONFIRM THAT IT IS STABLE AND WIL NOT FALLOFF, AND THEN CONTINUE TO INSTALL AND FIX IT ON THE CEILINGNORMALLY.



MiNi repair ring



Install the repair ring on the sensor



Proceed with the installation

Installation

Installation instructions

Installation environment requirements

To ensure the correct operation and accuracy of this product, please install it according to the following environmental requirements. Test results may be disturbed by operating in an unsuitable environment:

Dynamic distractors: Please avoid non-human objects that move continuously in the sensing area, such as animals, curtains that swing continuously, large green plants facing the draught, etc.

Strong reflective material: there should be no large area of strong reflective material in the sensing area, for example, the strong reflective material facing the millimeter wave radar sensor may cause interference.

Installation position: Avoid installing this product on the metal bottom box, metal top surface, mirror surface, water ripple ceiling and other large area reflectors, or in the ventilation duct, which may cause self-excitation and false alarm of the equipment.

Packaging and installation

1. When using sharp tools to open the packing box, pay attention to safety and avoid scratching the product or itself.
2. After unpacking, check whether the quantity of products and accessories is complete in time.
3. To avoid suffocation of infants or children, the packaging should be destroyed immediately after disassembly or kept out of the reach of children.
4. Do not discard the packaging at will, and handle it properly according to the regulations of the local sanitation department.

Electrical safety

1.Make sure that the power supply is disconnected before connecting the wires.

2.Please conduct wiring operation in strict accordance with the wiring diagram and requirements.

3. Handle carefully during installation to avoid collision with circuit board components and prevent equipment from falling or shell deformation and damage.

4. All line voltage and main cables must use cables certified by the state or professional testing institutions.

5.Appropriate short circuit and overload protection must be provided on the distribution cabinet, and ensure that the voltage does not exceed the voltage specified in the product instructions.

Mounting distance and stability

1. When installing multiple millimeter-wave radar sensors, the distance between them should not be less than 4 meters to avoid mutual interference.

2. Ensure that the installation position of the sensor is firm and stable, and avoid shaking the equipment itself, which may affect the accuracy of the test results.

3. Ensure that there is no movement or vibration of objects on the back of the radar. Due to the penetration of radio frequency, moving objects at close range on the back may also be detected.

4. Ensure that the radar antenna is facing the detected area and there is no shelter around it, so as to facilitate the transmission and reception of the waveform.

Product Specifications and Changes

Product design specifications are subject to change without notice. The physical product may vary slightly from the illustration.

Disclaimer

Please strictly follow the above installation guidelines. The Company shall not be liable for any interference or equipment performance problems caused by improper installation. Ensure that all installation steps and environmental requirements are properly executed to ensure optimum performance and accuracy of the equipment. If you have any questions or problems during the installation process, please contact us for help in time.

Maintenance

Clean the exterior of the detector

Regularly: When the surface of the detector's lens is dirty or obstructed.

Cleaning materials: Soft cloth - wipe with clean water that does not contain any chemical agents.

- Note!

Do not use products containing chlorine, abrasive materials, or alcohol to remove particularly noticeable dirt.

1. Clean the top cover of the body with a cloth soaked in water.
2. Wipe with a dry cloth after cleaning.

Disposal and Waste

- Important Notice!

Do not dispose of discarded components or any other product materials carelessly in the environment.

Seek assistance from a waste recycling company for disposal.

Fault Treatment

Fault	Cause	Solution
The LED indicator is not on	Incorrect supply voltage (Disconnected, low voltage)	Check the power supply and voltage according to the specification sheet.
	The led light is set to off	Set the LED light to on
No one is in the detection area,but the indicator light is also on.	There are moving objects in the area(swinging curtains, rotating fans. etc)	Remove the moving objects or change the position of the sensor.
	The person does not leave the detection zone completely	The person leaves the detection area, and wait for the time delay ends.
	Detection distance is too large	Adjust the detection distance according to the size of the detection area.
	The wiring is wrong	Please connect the wires in the correct way.
LED indicator light is on,but no signal output	The person does not leave the detection zone completely	The person leaves the detection area, and wait for the time delay ends.
	Illumination value set too low	Detect light values, turn off or adjust light values

Warranty

Warranty period

The equipment is guaranteed for 3 years from the date of original purchase.

Maintenance mode

During the warranty period, the equipment shall be replaced free of charge for non-man-made faults.

The replacement unit is covered for the remainder of the original 3-year warranty period.

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