

MiNi-ToF-REL

ToF Small-Angle Occupation Sensor

Product Manual (Dry Contact Version)

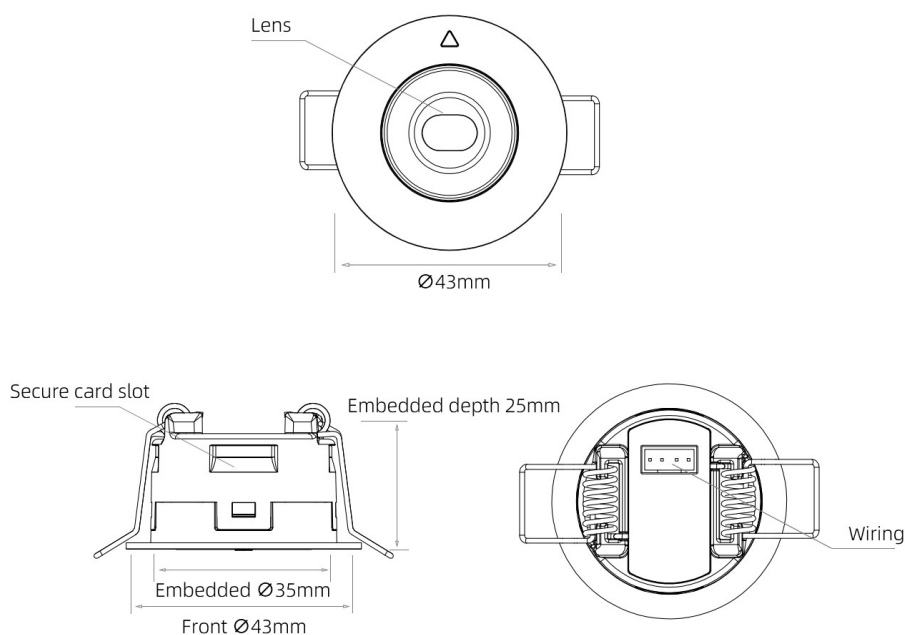
Installation Manual

CREATROL

Appearance	01
Detection Principle	02
Applications	02
Specification	04
Detection Range	05
Wiring	06
Setup	07
Installation	12
Maintenance	19
Fault Treatment	20
Warranty	20

Appearance

The front diameter of the product is 43mm, the depth is 25mm, 35mm hole-cut. Ceiling mounted, 86 panels wall mounted, surface mounted, surface-mounted bracket, embedded installation.

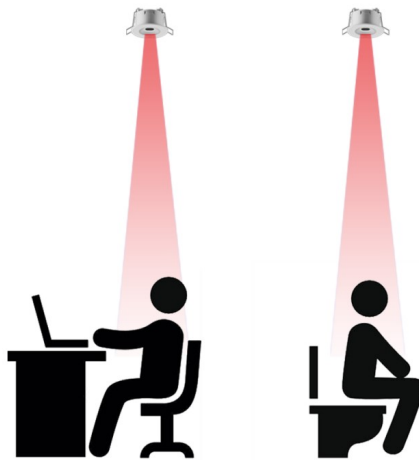


Default Parameters

No.	Function	Default value
1	Delay	1 second
2	Illumination	Close
3	Detection distance	120 cm
4	Dry contact output mode	Normally Open
5	Indicator light	Open

Detection Principle

The ToF (Time-of-Flight) Occupation Sensor utilizes time-of-flight technology to accurately detect the presence of a target by measuring millimeter-level changes in distance between the precise detector and the detected object. It features high precision, a narrow angle, and a fast response. This sensor is suitable for various precision detection applications including workstation detection, public restroom occupancy, proximity and distance measurement, and motion detection.



Applications

Home

Stair | Toilet

Accurately detects the presence of a target: it turns the light on when people approach, automatically turns it off when they leave, and keeps the light on in a static state.

Can intelligently controls light based on changes in environmental illumination.

Office

Workstation Detection

Accurately locate each station, perform occupancy detection, and manage station usage. When people are present, the office equipment is activated; when people leave, both the lights and office equipment are automatically turned off.

Museum/Exhibition Hall

Exhibits | Exhibition Wall | Advertising Space

Accurately perceive the status at each display point, triggering the display scene upon arrival and immediately shutting it down upon departure.

Enhance automation and effects while simultaneously managing data statistics.

School/Library Energy Saving

Classroom | Reading Room | Study Room

Accurately locate each position, turning on lights/equipment when occupied and turning off when unoccupied.

Precisely save energy and accurately monitor the usage of each reading area.

Elderly Care

Restrooms | Stairways

Accurately detect the presence of targets, assisting in anomaly monitoring.

Lights on when people are present, automatically turn off when people leave, saving energy and improving efficiency.

Smart parking lot

Entrances | Driving Lanes | Parking Spaces

Accurately detect the presence of targets, lights turn on when cars arrive, and automatically turn off the lights at that spot when people leave their cars.

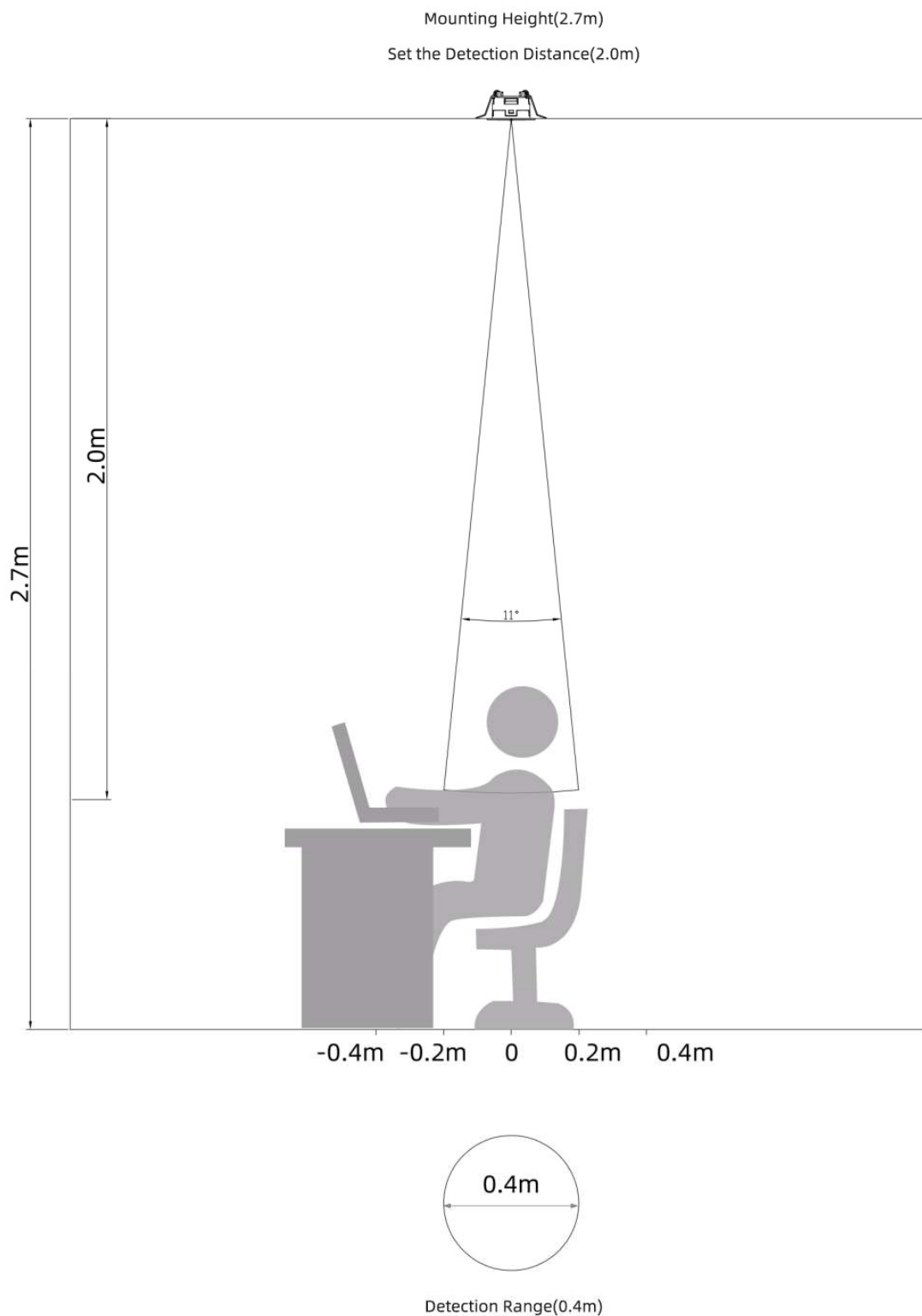
Allows for precise monitoring of each parking space's usage, facilitating guidance and management.

Control light based on changes in environmental illumination.

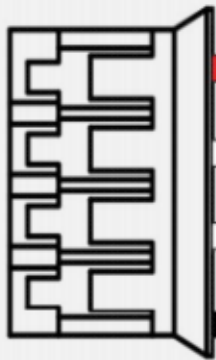
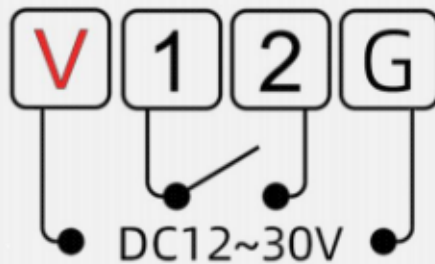
Specifications

Detection Mode	ToF	
Mounting Height	2.0 ~ 4.0m	
Detection Angle	11°	
Detection Range	Detection distance can be set to 0.1-3.2m, When 2.0 m is set, the range diameter ϕ is 0.4 m. (Note that the pure white and black color will reduce the detection accuracy)	
Detection Distance	0.1-3.2m	
Illumination Sensing	0 ~ 32000 Lux (Precision $\pm 1\%$)	
Product Size	43mm*25mm	
Hole Size	$\phi 35\text{mm}$	
Product Weight	18g	
Operating Voltage	DC12~30V(<0.5W)	
Work Temperature	Temperature -20 ~ 45 °C Humidity < 95%	
Dry Contact Output	Delay Time	1 ~ 3600 seconds
	Relay Load	$\leq 36\text{V(AC/DC)}, \leq 100\text{mA}$
	Output Type	Solid state relay 1 set, support normally open/normally closed/normally open pulse/normally closed pulse
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



Wiring

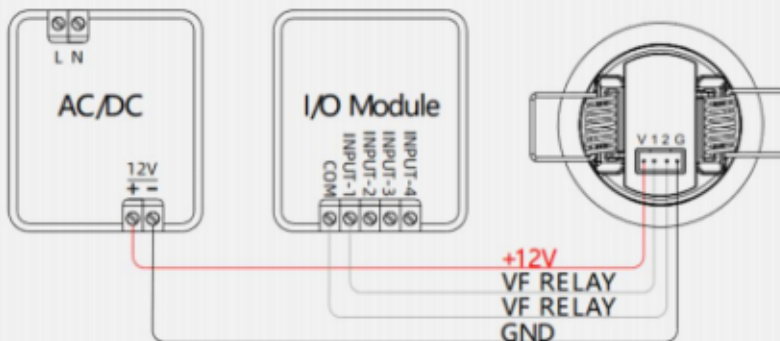


V-Red: The power supply input is positive VCC

1-White: Passive dry contact output

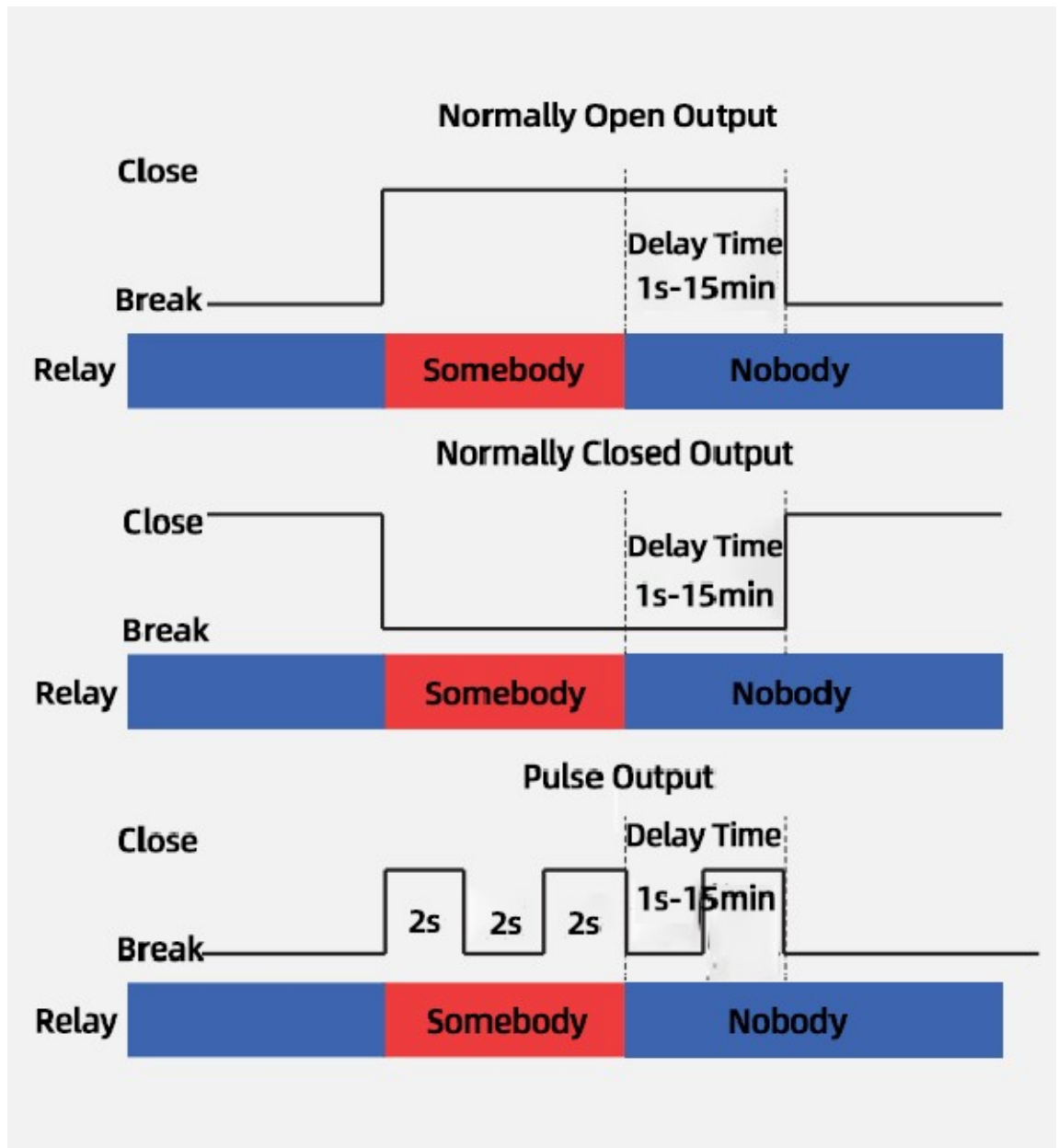
2-White: Passive dry contact output

G-Black: The power supply input is negative GND



Set up

Schematic diagram of dry contact output is as follows:



Set up •

Use any set-top box remote controller at your hand to set and query of sensor parameters, including delay time, illumination threshold, sensitivity, detection distance, etc.



Set up

Use only the number keys 1-9 * # to set and query parameters as follows:



1. Set the parameters and press the following buttons in turn



Start setting: the indicator light flashes.

Set successfully: the indicator light quickly flashes for 1 second.

Error: the indicator light keeps on for 3 seconds.

2. Query parameters and input them by remote controller in turn



Start query: the indicator light flashes

Query result: the number of times the indicator light flashes indicates the query result.

For example, query the set illuminance value you set, press * 2 # , and the indicator light replies:

Flash 3 times (number 3)

On for 2 seconds (digit 0)

Flash 7 times (number 7)

Off or Breathing Light (Exit)

Indicates 307 Lux

Set up

Function code and parameter comparison table

1. Comparison table of common parameter settings

Function Code		Parameter value
1	Time Delay (1-3600s) Set/Query	0-9999
2	Illumination Threshold (0-32000 Lux) Set/Query	
3	Detection Distance (150-450 cm) Set/Query	

Setting example:

Set the delay time to 60s and press * 1 # 60 #

Query the delay time you set and press * 1 # #

Set illumination threshold to 70 Lux, press * 2 # 70 #

Query the illumination threshold you set, press * 2 # #

Set the detection distance to 200 cm, press * 3 # 450 #

Query the detection distance you set, press * 3 # #

2. Comparison table of more function parameter settings

Function Code		Parameter value
5	Real-time illumination value query	/
7	Dry contact mode setting/query	1: Normally open 2: Normally closed 3: Normally open pulse 4: Normally closed pulse
9	①LED Indicator ②Factory Reset	1.Indicator On 2.Indicator Off 9.Factory Reset

Setting example:

Query the real-time illuminance value, press * 5 # , and the number of flashes of the indicator light represents the query result.

For example, if the measured real-time illuminance value is 50 Lux, the indicator light will reply.

Flash 5 times (number 5)

On for 2 seconds (digit 0)

Off or Breathing Light (Exit)

Set the working mode of dry contact to normally closed mode, input * 7 # 2 #

Set the working mode of dry contact to normally open pulse, input * 7 # 3 #

Set the working mode of dry contact to normally closed pulse, input * 7 # 4 #

Query the protocol mode and input * 7 # #

Set indicator on, press * 9 # 1 #

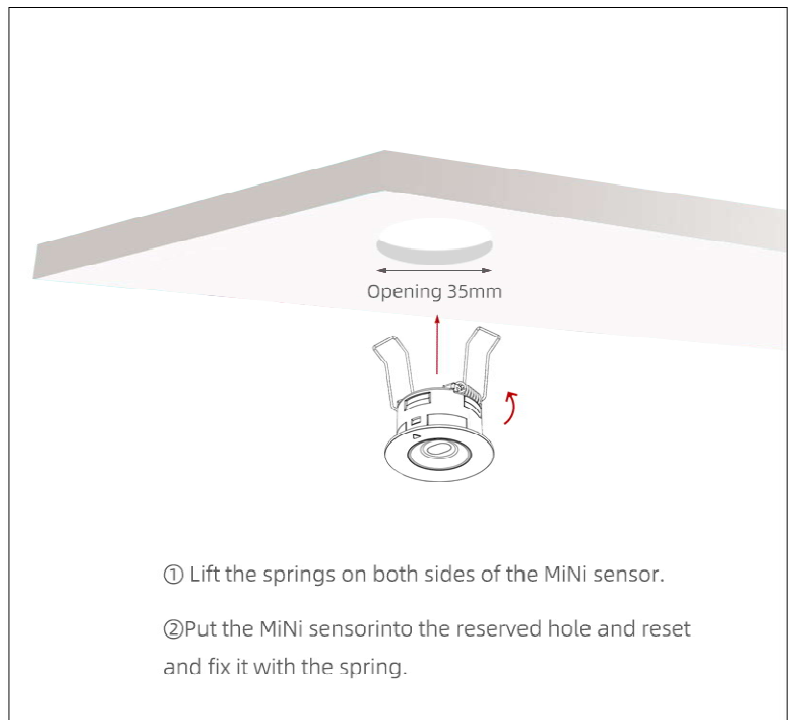
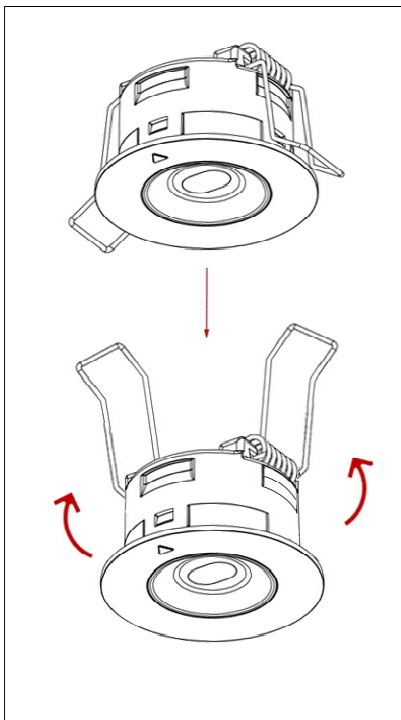
Set indicator light off, press * 9 # 2 #

Factory reset, press * 9 # 9 #

Installation



OPERATION STEPS FOR CEILING INSTALLATION

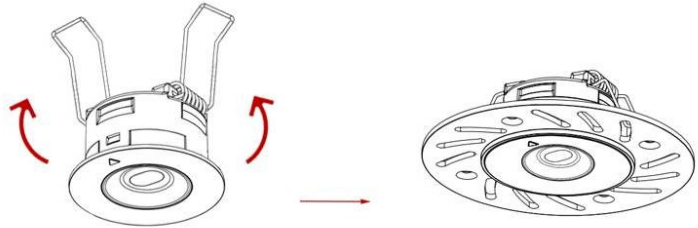


Installation

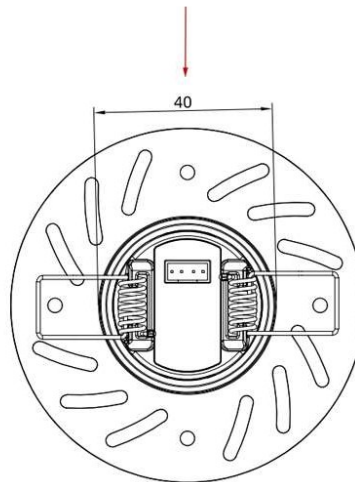
OPERATION STEPS FOR EMBEDDED INSTALLATION



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

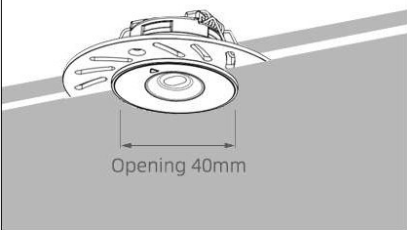


② Lift the spring of MiNi sensor, passing through embedded parts in the ceiling.

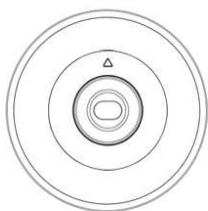


③ spring reset and fixation

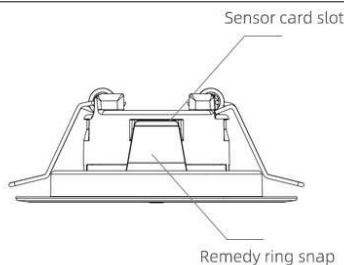
④ Complete frameless installation



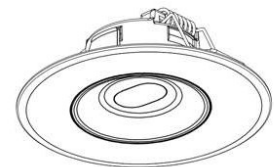
NOTE: IF THE RESERVED OPENING FOR CEILING INSTALLATION IS TOO LARGE, THE REPAIR RING CAN BE USED FOR INSTALLATION. COMBINE THE CLAMPING GROOVE ON THE SIDE OF MINI SENSOR WITH THE BUCKLE OF THE REPAIR RING TO CONFIRM THAT IT IS STABLE AND WILL NOT FALL OFF, AND THEN CONTINUE TO INSTALL AND FIX IT ON THE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



MiNi repair ring



Install the repair ring on the sensor



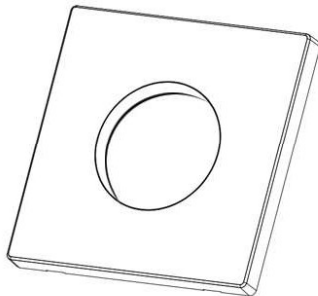
Proceed with the installation

Installation

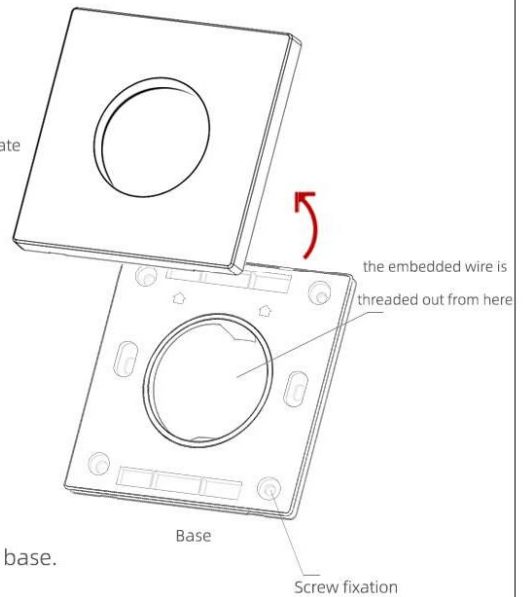
WALL MOUNTING

① Prepare the MiNi wall mount 86 box mounting kit and disassemble it into a cover plate and a base plate.

② Fix the base at the opening position with screws, and thread the embedded wire out of the hole.



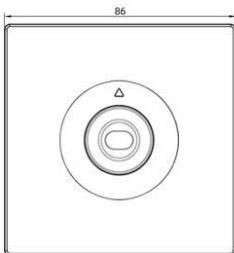
Cover plate



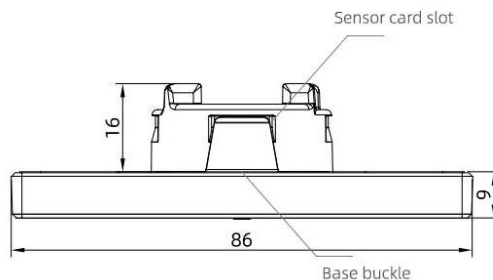
③ Connect the embedded wire with the MiNi sensor, then put the sensor into the base vertically, and fix it with the clamping groove on the side of the sensor and the buckle on the base.

④ Close the cover plate to complete the installation of MiNi wall

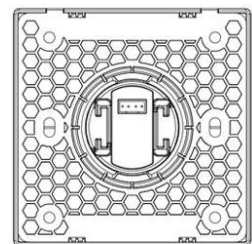
NOTE: DURING INSTALLATION, IF THE SENSOR IS PUT INTO THE BASE AND THERE IS NO CLICK SNAP SOUND, IT IS NECESSARY TO CONFIRM WHETHER THE SENSOR HAS BEEN FIXED. IF NOT, THE SENSOR CAN BE SLIGHTLY TURNED TO COMPLETELY FIX THE CLAMPING GROOVE AND THE BUCKLE. SO AS NOT TO AFFECT THE DETECTION EFFECT



Back of wall mounting



Wall mounted side

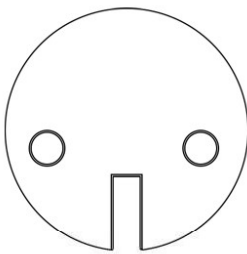


Back of wall mounting

Installation

SURFACE MOUNTING /EXTERNALMOUNTING

① MAGNETIC FIXATION

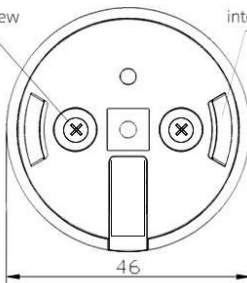


① Prepare a MiNi exposed magnetic patch
Fix it at the installation point, and pull out
the embedded wire from the gap

Magnetic suction nail

fixed by screw

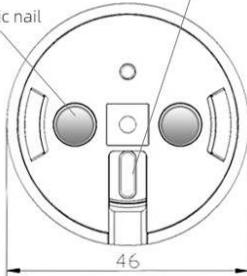
internal snap



Front

wiring hole position

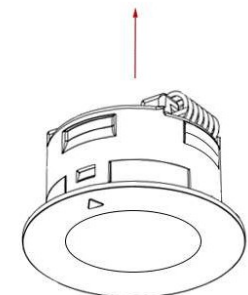
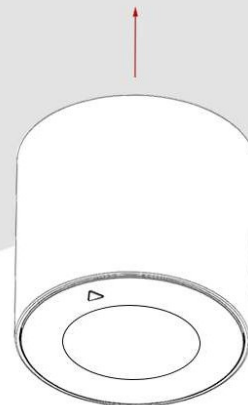
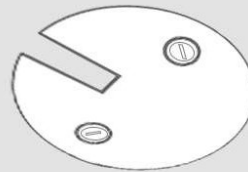
Back magnetic nail



Back

② Align the notch with the patch
and pull out the embedded wire
Use the magnetic nail on the back of the MiNi
surface mount kit to attach it to the patch

④Finishing open installation/ external installation

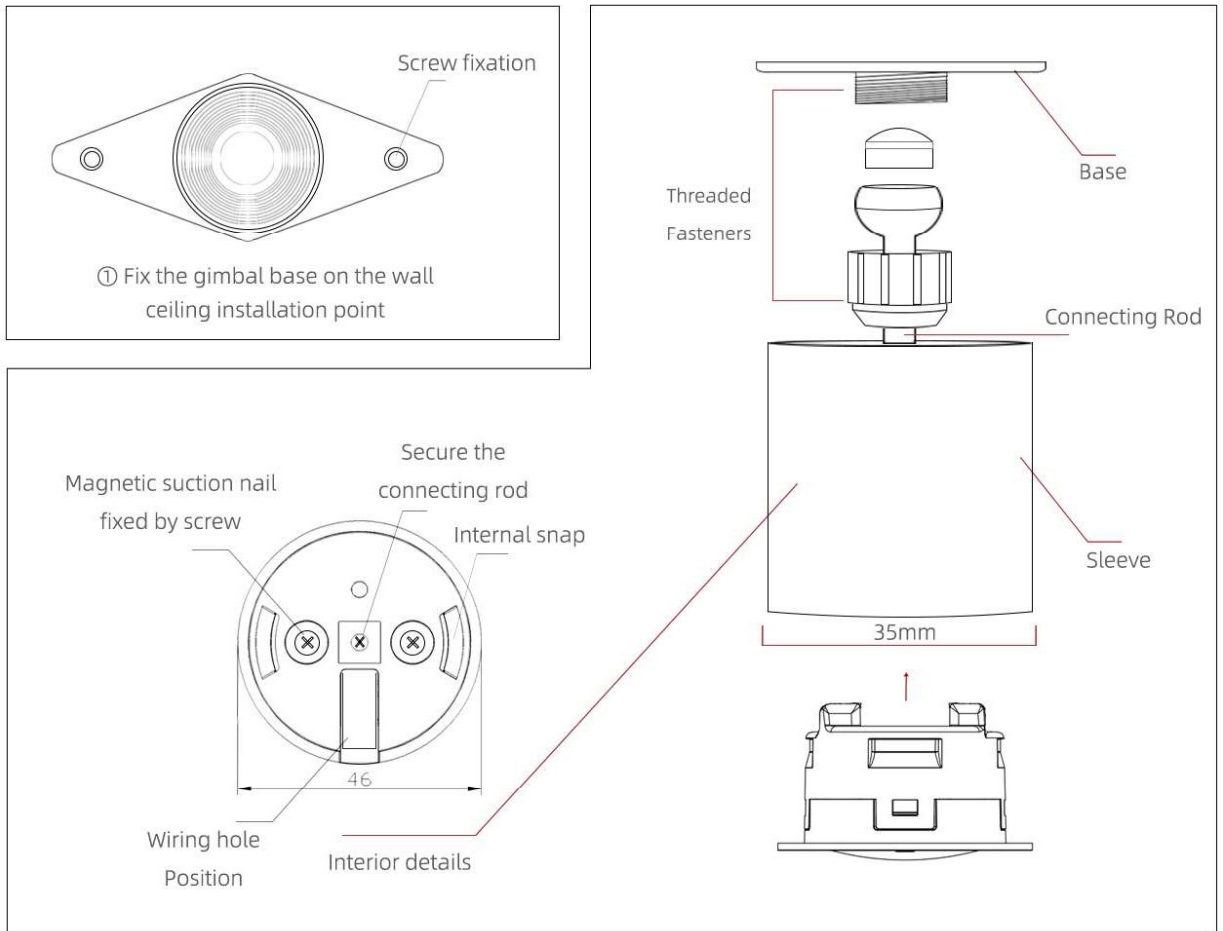


③connect that embedded wire with the MiNi sensor,
The sensor is vertically placed in the base and fixed by
the clamping groove on the side of the sensor
and the buckle on the base.

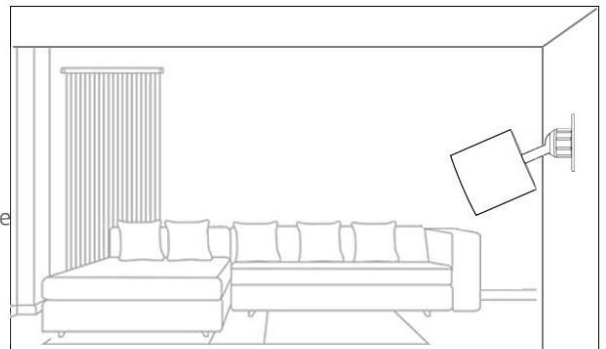
Installation

SURFACE MOUNTING /EXTERNAL MOUNTING

② INSTALLATION OF GIMBAL



- ② Thread the buried wire out of the wiring hole on the back of the accessory and connect it to the MiNi sensor
- ③ Put the MiNi sensor vertically into the opening of the accessory, and fix it with the card slot on the side of the sensor and the buckle inside the accessory. If it is not fastened, slightly rotate the sensor to connect the card slot with the buckle to ensure that the sensor is more stable.
- ④ Finally, tighten the threaded fasteners of the accessories to complete the installation, and adjust the direction according to the actual situation.



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.

Static interferent:

1. there are blocking objects in the sensing area, such as cartons, large green plants, etc.;
2. High brightness or strong reflectors are present in the sensing area. High brightness can interfere with detection and reduce accuracy or distance.
3. A direct light source will greatly reduce the distance.
4. High brightness or strong reflectors are present in the sensing area. High brightness can interfere with detection and reduce accuracy or distance.
5. Note that dark objects will reduce the detection accuracy.

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 power distribution cabinet, and ensure that the voltage does not exceed the voltage specified in the product instructions.

Mounting distance and stability

1. During installation, ensure that the sensor is not blocked within the setting distance.
2. When installing, ensure that there is no super-strong or direct light source in the installation environment.
3. When installing on the wall, ensure that the sensor is more than 30cm above the ground, and there is no wall within 1m of the side.

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 outside of the detector

Periodically: when the external lens surface of the sensor is stained or blocked.

Material used: Soft cloth-Scrub with clean water without any chemical agent.

- Attention!

Do not use chlorinated or abrasive products or alcohol to remove visible dirt.

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

Disposal and scrapping

- Important!

Do not discard scrap parts or any other product materials in the environment.

Seek the assistance of recycling waste companies.

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
There is no one in the detection area. 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 by according to the settings table
	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 2 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 2-year warranty period.

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