Operation Instruction

Make your choice...

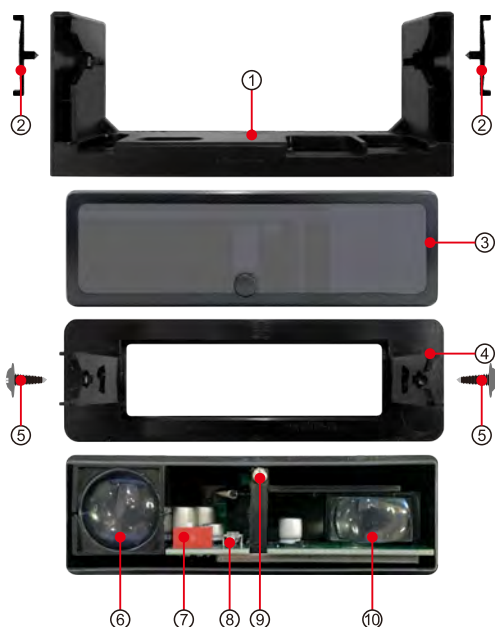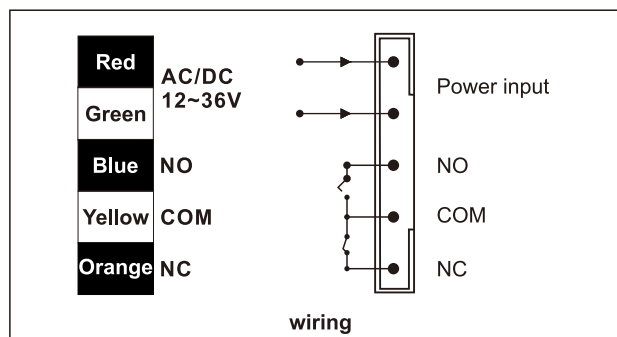## M-220 Infrared presence detector

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1 Safety Instruction

⚠ This device without rain and snow protection design, please avoid rain and snow pressure; It is not allowed to repair this equipment without authorization or training, and avoid contact with electronic circuits and optical lenses during installation and debugging.

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2 Product Overview

① Rotating bracket (for expose installation)
② External mounting bracket fitting (use with ①)
③ Front cover, with optical lense
④ Decorative Cover(for hidden installation)
⑤ Fixing screw(use with ④)
⑥ Infrared transmitting
⑦ Light and dark background selection switch
⑧ LED Indicator
⑨ Scanning adjustment screw
⑩ Infrared receiver

NOTE: For LED indicator light, blue indicator light in standby state, red indicator light in detection state.

Red	AC/DC 12~36V	Power input
Green		
Blue	NO	NO
Yellow	COM	COM
Orange	NC	NC

wiring

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3 Installation mode

Notes: Maximum installation height should not over 3000 mm

Rotating bracket with gear for expose installation

Embedded design with decorative cover for hidden installation

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4 Operating principle

This system is active infrared presence sensor based on the triangulation principle. The intersection of the transmitting and receiving optical axes is the maximum scanning range. In order to adapt to the background change characteristics of the rotating body, this system with background supppression operating mode, related background will be detected but not be noticed, there must be reflections from objects within the scanning range during detection, then the system will product action signal. The suppressed background change(such as: ground material, humidity, small objects, light exposure) will not affect the detection.
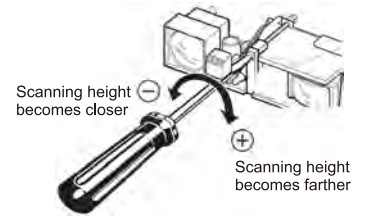**Background suppression technology characteristics:**
Reliable and effective protection measures for rotating objects; Not affected by the reflectance of the background.

5   Adjustment

[1] Scanning height adjustment

1, Complete the sensor installation.
2, Adjust the infrared ray of sensor to background position (like ground), and power on.
3, If the scanning height is close, please adjust the scanning adjustment screw clockwise until the anti-pinch objects is sensitively detected.
4, If the scanning height is far, and appear self-induction, please adjust the scanning adjustment screw counterclockwise until no self-induction phenomenon (Background has been suppressed), but can also anti-pinch detection sensitively.
5, In order to improve background suppression reliability, and the sensitivity of detecting objects, please adjust the scanning adjustment screw to proper position, until the detection distance of 200mm from the background is the best.
6, The sensor works normally and enters the anti-pinch detection state.
NOTE: Using the screwdriver to adjust the scanning screw, tilt the screwdriver so as not to accidentally touch the beam. After each adjustment, neen to check the scanning height again.
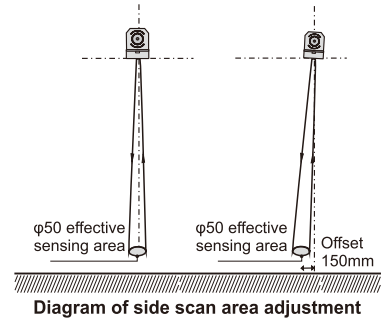
[2] Side scan area adjustment

In order to adjust the side detection range accurately, this device supports the side scanning area micro-distance adjustment. Loose the fixing screws of the main sensor, rotate the sensor and adjust to the proper position, then tighten the screws.

[3] Light and dark background option

For the common background floor, like mable, ceramic tile, terrazzo,etc. They have better light reflection performance and belong to the bright background. The switch should be set to the left position "⬅ON" and the factory defaults to this setting. For the carpet, rough-faced stones, etc. They have poor light reflection performance and belong to the dark background. The switch should be set to the right position "➡ON".

Scanning height becomes closer ⊖
⊕ Scanning height becomes farther

φ50 effective sensing area   φ50 effective sensing area   Offset 150mm

Diagram of side scan area adjustment

⚠ **Note: Generally, most of the ground on the site is bright background, so it is more commom for the switch to be set on the left.**

6   Troubleshooting

Symbol	Methods
Sensor doesn't work, LED indicator doesn't light up	Check working voltage and input/output connection (see article 4)
Sensor doesn't work when someone enters	Installation height should not over 3000mm, adjust the scan height screw clockwise, to extends scanning range to close the ground more
Keep the action state when no one enter	Scanning range has reached the ground background, adjust the scan height screw counterclockwise, expand the distance and stay away from the ground background.
Induction action in a fixed location when on one enters	There are objects in the vertical detection area, like alloy frames. Adjust the scanning area of the detector
Inaccurate switching time of induction action	Make micro-distance adjustment near the switching point, when adjust the scan height by screwdriver.

7   Parameter

Vertical scan range adjustment	800x2500mm	Adjust the screws with tools
Side scan range adjustment	Can offset 150mm	
Bright/dark difference	<400mm	When 2000mm height
Effective induction area	φ50mm	When 2000mm height
Divergence Angle	About 1.4°	
Maximum height of installation	3000mm	
Light type	Pulse, intermittent IRED	
Working voltage	AC/DC 12~36V	1A 12VDC
Residual corrugated	Maximum 10%	
Static Current	28mA	Action Current 70mA
Mode of operation	Background	
Signal output	Relay contact signal output, with COM, NO, NC 3 option	
Function display	Green light in standby mode, Red light in action mode	
Housing materials and colors	ABS black/lake mulberry	The front cover with bracket / optical window
Dimension	102x33x45.5mm(Sensor) 148x48x50mm(with rotating bracket)	Length*width*height
Hole size	118(L)x35(W)x50(H)mm	The distance between the screws and holes: 129mm
Temperature	-20°C~+60°C	
Humidity	0-90% of relative humidity	
Weight	About 238 grams	

8   Packing List

Parts	PCS	Remark	Parts	PCS	Remark
Infrared presence detector	1		Bracket with hidden installation	1	
Instructions	1		Screws bag	1	
Bracket with expose installation	1		5-Pin wiring	1	165mm