MS42

Stainless steel, touchless actuator
with remote control ability

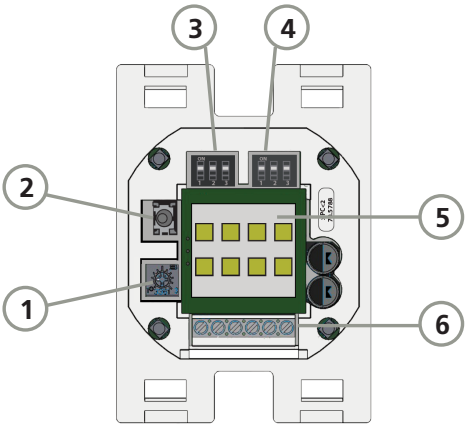
PLATE OPTIONS

SINGLE GANG

DOUBLE GANG

ROUND

CUBE DESCRIPTION



1 sensitivity potentiometer

2 remote control receiver

3 DIP bank 1 (color logic)

4 DIP bank 2 (output/buzzer)

5 antenna

6 terminal block

TECHNICAL SPECIFICATIONS

TECHNOLOGY / PERFORMANCE	
Technology	microwave motion sensor
Detection mode	motion (bidirectional)
Detection range	4 – 24" (adjustable)
Product temperature range	-4 – 131 °F (-20 – 55 °C)
Output hold time	0.5 sec (in PULSE mode)
Speed of target to create detection	5 Hz (min) or ±1 in/s 200 Hz (max) or ±3 ft/s
ELECTRICAL	
Supply voltage*	12 – 24 VAC ±10% 12 – 24 VDC +30% / -10%
Supply frequency	50 – 60 Hz
Radiated frequency	24.150 GHz
Radiated power	< 20 dBm EIRP
Radiated power density	< 5 mW/cm2
Power consumption	< 1.5W
Output*	Electronic relay (galvanic isolation - polarity free)
max. voltage	42 VDC / 30 VAC
max. current	100 mA
max. switching power	15 W
Cable	Stranded cable up to 16 AWG - 1.5mm2
PHYSICAL	
IP rating	IP55 (apply silicone gasket to achieve IP65)
COMPLIANCE	
Certification	Electromagnetic compatibility (EMC) according to 2004/108/EC FCC: G9B-210161 IC: 4680A-210161

* External electrical sources must be within specified voltages (max 15 W) and ensure double insulation from primary voltages.

Specifications are subject to change without prior notice.
All values measured in specific conditions.

FCC APPROVAL

This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada.
Operation is subject to the following two conditions:

*this device may not cause harmful interference, and
*this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

*Reorient or relocate the receiving antenna
*Increase the separation between the equipment and receiver
*Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
*Consult the dealer or an experienced radion/TV technician for help

WARNING: CHANGES OR MODIFICATIONS TO THIS EQUIPMENT NOT EXPRESSLY APPROVED BY BEA INC. MAY VOID THE FCC AUTHORIZATION TO OPERATE THIS EQUIPMENT.

PRECAUTIONS

- ❑ Shut off all power going to header before attempting any wiring procedures.
- ❑ Maintain a clean and safe environment when working in public areas.
- ❑ Constantly be aware of pedestrian traffic around the door area.
- ❑ Always stop pedestrian traffic through the doorway when performing tests that may result in unexpected reactions by the door.
- ❑ *ESD (electrostatic discharge)*: Circuit boards are vulnerable to damage by electrostatic discharge. Before handling any board, ensure you dissipate your body's ESD charge.
- ❑ Always check placement of all wiring before powering up to ensure that moving door parts will not catch any wires and cause damage to equipment.
- ❑ Ensure compliance with all applicable safety standards (i.e. ANSI A156.10) upon completion of installation.
- ❑ DO NOT attempt any internal repair of the components. All repairs and/or component replacements must be performed by BEA, Inc. Unauthorized disassembly or repair:
  1. May jeopardize personal safety and may expose one to the risk of electrical shock.
  2. May adversely affect the safe and reliable performance of the product resulting in a voided warranty.

BEA, INC. INSTALLATION/SERVICE COMPLIANCE EXPECTATIONS

BEA, Inc., the sensor manufacturer, cannot be held responsible for incorrect installations or incorrect adjustments of the sensor/device; therefore, BEA, Inc. does not guarantee any use of the sensor/device outside of its intended purpose.

BEA, Inc. strongly recommends that installation and service technicians be AAADM-certified for pedestrian doors, IDA-certified for doors/gates, and factory-trained for the type of door/gate system.

Installers and service personnel are responsible for executing a risk assessment following each installation/service performed, ensuring that the sensor/device system performance is compliant with local, national, and international regulations, codes, and standards.

Once installation or service work is complete, a safety inspection of the door/gate shall be performed per the door/gate manufacturer's recommendations and/or per AAADM/ANSI/DASMA guidelines (where applicable) for best industry practices. Safety inspections must be performed during each service call – examples of these safety inspections can be found on an AAADM safety information label (e.g. ANSI/DASMA 102, ANSI/DASMA 107, UL294, UL325, and International Building Code).

Verify that all appropriate industry signage, warning labels, and placards are in place.

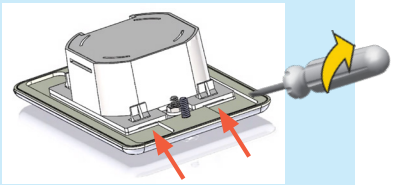
INSTALLATION TIPS

- ✓ When wiring multiple devices together to create a system configuration, it is best to ensure that each device works independently. This will reduce troubleshooting if a discrepancy occurs.
- ✓ Prior to installing any equipment in either new or existing circuits, verify correct line voltage and line stability. Always remember to shut off the power before performing circuit wiring.
- ✓ Do not place the sensor in the door's opening range, where the sensor may see door movement.
- ✓ Do not place moving objects in front of the sensor.
- ✓ Do not use harsh cleaning agents to clean polycarbonate materials. Harsh cleaning agents (e.g. ammonia) can cause damage to these materials. BEA recommends using clean, lukewarm water and a soft, lint-free cloth to clean sensor windows and other polycarbonate surfaces on our products.

REMOVING THE FACE PLATE

To separate the cube from the face plate, simply insert a screwdriver into the top or bottom set of snap fittings and twist.

Only two snap fittings must be loosened.



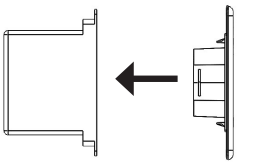
1 INSTALLATION

1. Install an electrical box.

If using a metal eletrical box, ensure that the sensor and related wiring does not come in contact with the box to avoid shorting the unit.

2. Clip the cube to the face plate. *Be sure to observe the cube orientation with respect to wiring (step 2).*

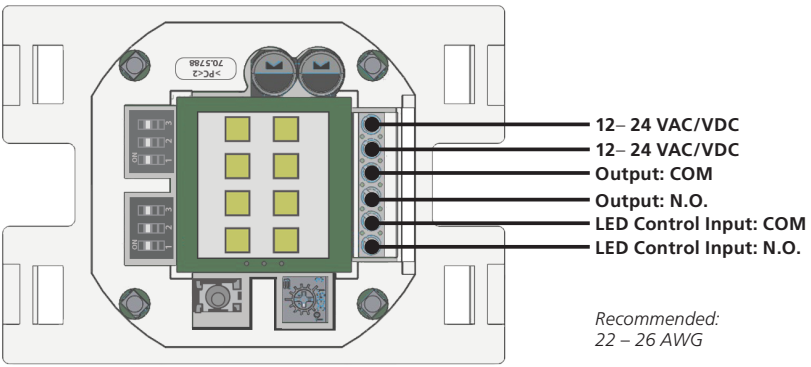
3. Secure the face plate (with cube attached) to the electrical box with the provided screws.



2 SETUP

Wire the MS42 to the door control according to the diagram shown here.

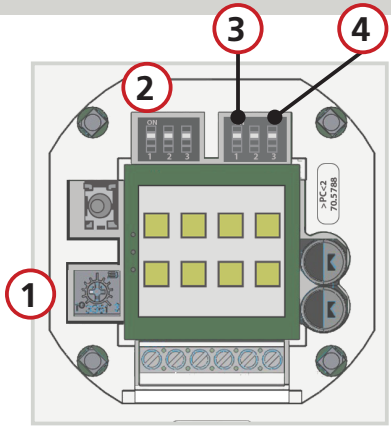
NOTE: Use either N.O. or N.C. – not both. Refer to the door control manual to determine which must be used.



3 SETUP

Four adjustments can be made to the sensor:

1. sensitivity potentiometer
2. LED color logic (DIP bank 1)
3. output mode (DIP bank 2, DIPs 1, 2)
4. buzzer style (DIP bank 2, DIP 3)



See next page for descriptions and possible settings.

1 Sensitivity potentiometer:

adjust detection field from 4 to 24 inches (rotate potentiometer clockwise to increase)

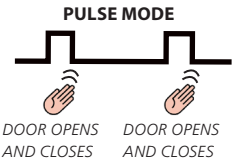
2 LED color logic: DIP bank 1 determines LED color (see table)

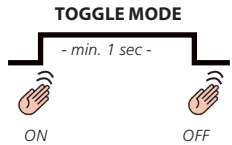
DIP1	DIP2	DIP3	NO DETECTION	DETECTION
↓	↓	↓	green	red
↑	↓	↓	red	green
↓	↑	↓	blue	green
↑	↑	↓	off	green

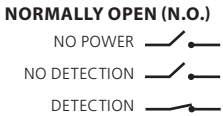
DIP1	DIP2	DIP3	NO DETECTION	DETECTION
↓	↓	↑	green	off
↑	↓	↑	off	off
↓	↑	↑	off	blue
↑	↑	↑	blue	off

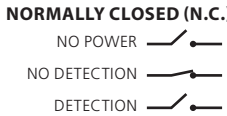
3 Output Mode switch: determines the relay hold mode and relay type

DIP1	DIP2	MODE	RELAY
↓	↓	pulse	N.O.
↑	↓	toggle	N.O.
↓	↑	pulse	N.C.
↑	↑	toggle	N.C.









4 Buzzer sound (when in detection):

DIP3	BUZZER
↓	off
↑	on

For additional adjustments via remote control, see page 6.

SETTINGS VIA REMOTE CONTROL

When all actuators are disengaged

RANGE

To change these settings by remote control, the potentiometer must be set to minimum.

0	1	2	3	4	5	6	7	8	9
small	>	>	>	>	>	>	>	>	large

OUTPUT MODE

To change these settings by remote control, DIP 2 must be set to OFF.

0	1	2	3	4	5
pulse N.O.	toggle N.O.	pulse N.C.	toggle N.C.	pulse frequency	toggle frequency

HOLD TIME

When OUTPUT MODE is set to pulse

0	1	2	3	4	5
0.5 s	1 s	2 s	3 s	4 s	5 s

TIMER

When OUTPUT MODE is set to toggle

0	1	2	3	4	5
none	1 min	5 min	15 min	30 min	60 min

LED COLOR

To change these settings by remote control, DIPs 1, 2, and 3 (Color Logic bank) must all be set to OFF.

	0	1	2	3	4	5	6	7
A	off	red	green	blue	yellow	pink	turquoise	white
B	off	red	green	blue	yellow	pink	turquoise	white

LED ANIMATION

F1	1	2	3	4	5	6	7	8

LED BRIGHTNESS

D	1	2	3

continued...

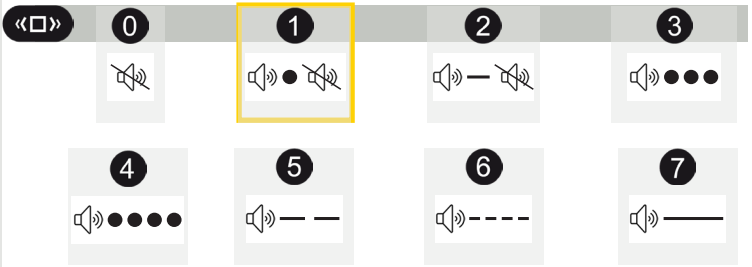
SETTINGS VIA REMOTE CONTROL

When all actuators are disengaged

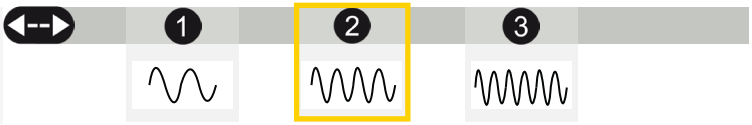
BUZZER

short *long*

To change these settings by remote control, DIP 3 must be OFF.



BUZZER TONE

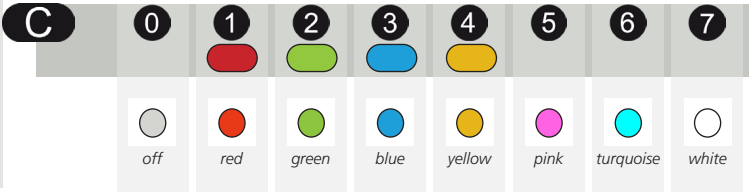


FACTORY RESET

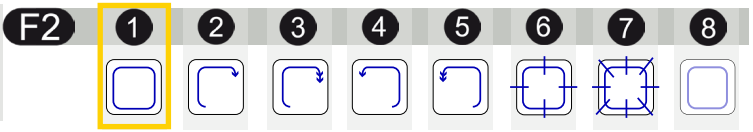
SETTINGS VIA REMOTE CONTROL

When the control input is engaged

COLOR LOGIC*

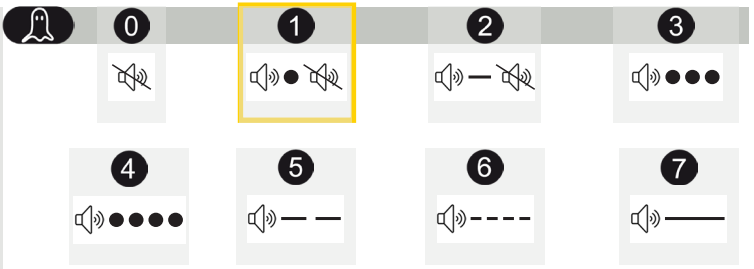


LED ANIMATION



BUZZER

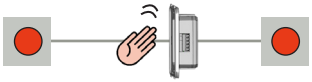
when in detection



short *long*

CONTROL INPUT SETTINGS

Connect the input to an external signal to lock the switch and make the LED red.

Input closed 	Sensor is in standby and does not detect. 
Input open 	Sensor operates normally.

⚠ **Input signal must be a dry contact (no voltage).**

TROUBLESHOOTING

Door does not open even when moving the hand towards the sensor	Bad or no power supply	Check power supply. If LED switches on or flashes, power connection is OK.
	Detection range is too short	Adjust the detection range.
		Remove any metal plates in front of the sensor.
	Incorrect wiring / connection	Check wiring and relay connection.
Sensor stays in detection	The environment influences the good functioning of the sensor	Remove any moving object around the sensor.
	Incorrect wiring / connection	Check wiring, relay, and electric strike connection(s).
Door remains open after detection/activation	Wrong output mode	Switch the output mode to PULSE.
	Incorrect wiring / connection	Check wiring and relay connection.