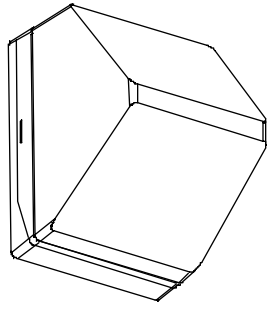


# 7201 Presence Sensor

## Microwave Request to Exit Door Actuator / Presence Sensor

Models: 7201N  
7201W

### Installation Instructions



With the 7201 Presence Sensor you can virtually eliminate the threat of injuries caused by automatic doors closing on employees or customers. It is ideal for **Request to Exit** applications, and provides two Form C relays for activating/deactivating devices.

The 7201 Presence Sensor is a microwave door actuator with true presence detection. It uses two channels of information, Motion and Presence, to actuate and hold open the door.

The 7201 sensor projects a precise (adjustable) detection pattern in front of the door. When a person enters the pattern, the Motion sensor detects the movement and sends a signal to open the door. A timer adjustment allows you to set the amount of time the door remains open (from 1 to 5 seconds).

If a person stops in the doorway, the highly sensitive Presence sensor detects the presence and sends a signal to hold the door open. The 7201 can also be set to sound a warning beeper if a person remains in the doorway for longer than 7 seconds.

### FEATURES

- Patented presence sensing technology
- Precise, sharply defined detection patterns
- Adjustable detection pattern ranges
- Adjustable hold time
- Distinguishes between living beings and inanimate objects
- Color-coded light bar for testing and set-up of pattern sensitivity
- Hazard warning tone
- Streamlined, surface mounted sensor

### MOUNTING

The 7201 sensors should be mounted approximately 2 to 12 inches above the door. The unit can be mounted on the wall, or secured to a single gang box.

First, use a small screwdriver to depress the latches through the slot on the sides of the 7201. Then, gently pull the front and rear housings apart.

#### To mount the 7201 on the wall:

1. Use the template on page 4 to mark the location where you will drill the mounting and wiring holes.

**Note:** When mounting on a wall, it is not necessary to remove the PCB from the rear housing. Use only the three accessible mounting holes to mount the unit.

2. Drill the holes, and insert the mounting screws part way into the wall. (*Recommended screws: #6 or #8 pan head.*)
3. Pull the wires through the hole in the wall, and through the round/oval hole on the left side of the 7201 rear housing.

**Note:** Avoid removing the PCB from the unit when mounting the unit on the wall. The PCB and antenna feedhorn should be secured in the rear housing before mounting.

4. Place the rear housing on the mounting screws and tighten the screws. (Only 3 screws are accessible.)

To complete the installation, refer to the WIRING and ADJUSTMENT sections.

#### To mount the 7201 to a single gang box:

1. Remove the antenna feedhorn (and waveguide filter) by unscrewing the four screws holding it in place.
2. Unplug the microwave at jumper **J2**, located on the right side of the printed circuit board (PCB).
3. Remove the PCB by pressing outward on the latches holding it in place. Pull the PCB up and out of the rear housing.
4. Insert the screws part way into the screw holes in the single gang box.
5. Place the rear housing on the mounting screws (use the two middle knockout holes) and tighten the screws. (Refer to the *Mounting Template* on page 4.)
6. Carefully slide the printed circuit board over the microwave source, and snap it back into place with the PCB latches. (Refer to *7201 Assembly* on page 3.)
7. Re-install the waveguide filter and antenna feedhorn, and plug in the microwave at **J2**. (Refer to *Changing the Antenna Feedhorn* section on page 2.) To ensure proper waveguide filter installation, **tighten all screws evenly.**

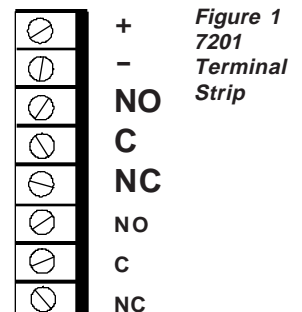
To complete the installation, refer to the WIRING and ADJUSTMENT sections.

**NOTES:** To replace the front cover of the 7201, match the notch on the bottom of the front housing with the tab on the bottom of the rear housing and snap the housings together. Once closed, secure the front and rear housings with the screws provided. There are knockouts inside the rear housing and holes on each side tab for this purpose. (Refer to *7201 Assembly* on page 3.)

### WIRING

The 7201 sensor can be powered with DC or AC voltages. If wiring for DC, the top terminal is positive. Polarity is unimportant for AC wiring. (Use 22 to 14 AWG.)

There are two Form C relay outputs. One relay output can be used for auxiliary purposes.



## 7201 ADJUSTMENTS

### Step 1: Pattern Adjustment

For maximum Presence detection, tilt the angle of the antenna feedhorn as far downward as possible. Do this by turning the adjustment screw counterclockwise\*. The tilt adjustment screw is located at the top right corner of the antenna feedhorn bracket. Refer to Figure 3.

**\*Warning:** DO NOT turn the adjustment screw too far counterclockwise because the screw and spring may come loose.

If the motion of the door closing is being detected too easily, adjust the antenna angle slightly upward.

Turn the adjustment screw clockwise to adjust the angle upward (lengthens the pattern and moves it away from the front of the door). Turn the adjustment screw counterclockwise to adjust the angle downward (widens and shortens the pattern, and moves it closer to the front of the door).

### Step 2: Presence Range Adjustment

The Presence range can be adjusted with the Presence potentiometer and light located on the right side of the PCB (see Figure 2). Set the Presence range at maximum by turning the potentiometer clockwise as far as it will go.

Adjust the Presence range by standing in the detection pattern. Decrease the Presence sensitivity by turning the potentiometer counterclockwise, just until the Presence light starts to flash with minimal movement.

Check the Presence range by standing *just outside* of the detection pattern. Watch to make sure the Presence light does not flash. The Presence detector should not be so sensitive that the closing door trips the Presence light. If necessary, turn the Presence potentiometer counterclockwise to reduce the range.

### Step 3: Motion Range Adjustment

The Motion range can be adjusted with the Motion potentiometer located on the right side of the antenna feedhorn. Refer to Figure 2.

To adjust the Motion range, use the vertical row of lights (the Adjustment Lights) at the lower right-hand side of the PCB to determine the strength of the Motion signal. The green lights indicate a weak signal. The red lights indicate a strong signal (near detection).

1. Set the Motion potentiometer to mid-range.
2. Walk into the detection pattern and observe the adjustment lights to determine where the signal is weak or strong, and when detection will occur.
3. Make sure to reduce the Motion range sufficiently so the 7201 *will not detect the motion of the door closing*. (The motion of the door closing should not make the yellow or red adjustment lights flash at all.)

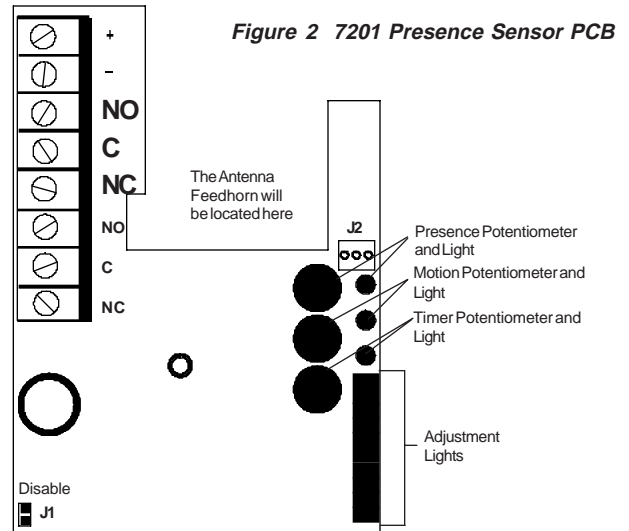


Figure 2 7201 Presence Sensor PCB

### Step 4: Timer Adjustment

The timer determines how long the door will stay open after detection. The Timer potentiometer is located below the Motion potentiometer on the right side of the PCB (refer to Figure 2).

To increase the time the door stays open (from 1 to 5 seconds), turn the Timer potentiometer clockwise. The timer light indicates when detection occurs and the timer is activated.

When the set time has elapsed, the doors will close, unless the Presence sensor detects a person or object still in the doorway. If the Presence sensor detects a person or object standing in the doorway for more than 7 seconds, the 7201 will sound a warning beeper (if set to do so).

The sensor is factory set with the warning beeper **Disabled**. To **Enable the Warning Beeper**: remove the jumper on position **J1** (located at the lower left-hand corner of the PCB), and place the jumper on one pin only.

After making adjustments, replace the front housing and walk-test the 7201. **Every time you make an adjustment, remember to walk-test the sensor with the front housing attached.**

### Changing the Antenna Feedhorn:

The detection pattern can also be adjusted by changing the antenna feedhorn. The Narrow antenna feedhorn projects a 3' x 4' pattern in front of the door. The Wide antenna feedhorn projects a 7' x 5' pattern in front of the door.

1. For easier access to the feedhorn screws, adjust the tilt upward (turn the screw clockwise) as far as it will go.
2. Remove the existing feedhorn and waveguide filter.
3. Attach the new feedhorn and re-install the waveguide filter\* with the same four screws. Be sure to install the waveguide filter with **the notch at the top**. (Refer to *7201 Assembly* on page 3.)

**\*Note:** The waveguide filter must be installed to comply with FCC requirements.

## 7201 ASSEMBLY

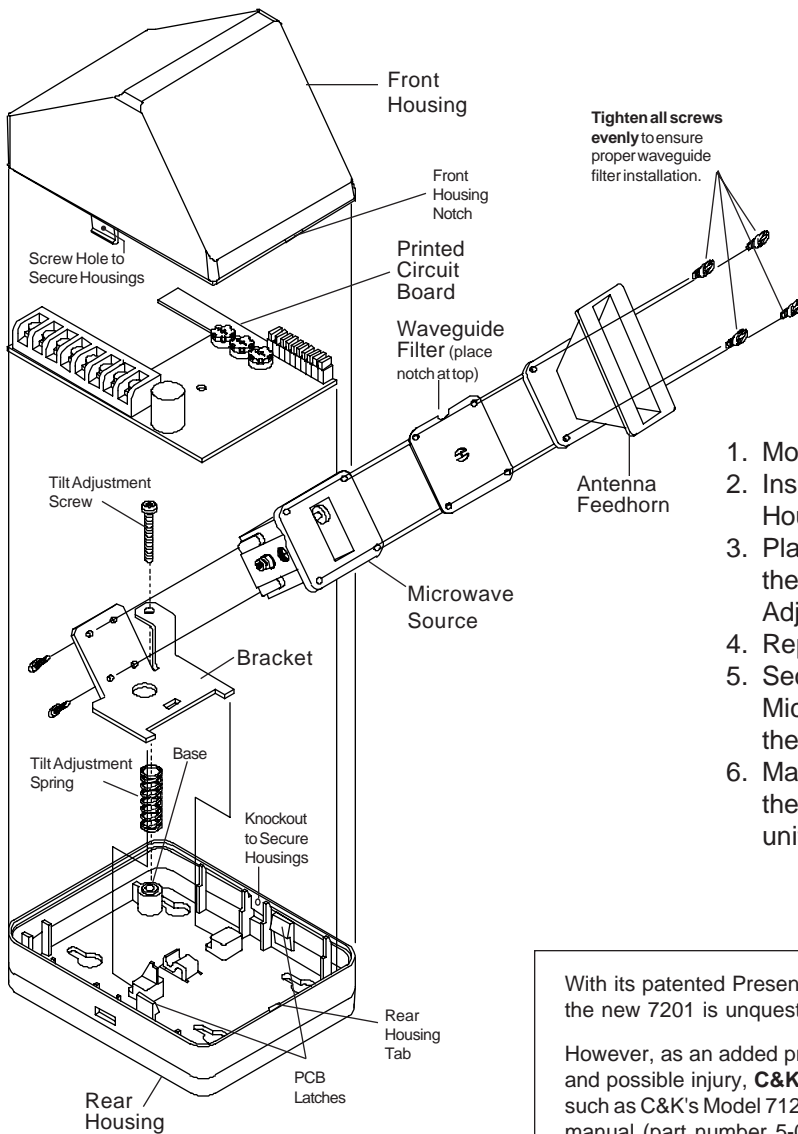


Figure 3 7201 Assembly

**Only disassemble the 7201 unit as far as needed for proper installation.**

In most cases you will only need to remove the front housing to install the unit. (Use the template on page 4 to mark the holes for installation.)

Should you need to remove the PCB from the unit, follow the instructions under *To mount the 7201 to a single gang box* on page 1.

**Avoid removing the Source, Bracket, Tilt Adjustments Screw and Spring.**

If you disassemble the unit completely, reassemble in the following order:

1. Mount the Microwave Source to the Bracket.
2. Insert the Bracket and Microwave Source into the Rear Housing.
3. Place the Tilt Adjustment Spring between the Base and the Bracket as shown, and secure it in place with the Tilt Adjustment Screw.
4. Replace the PCB and secure it in place with the latches.
5. Secure the Waveguide Filter and Antenna Feedhorn to the Microwave Source, and plug the Microwave Source into the printed circuit board.
6. Match the notch on the bottom of the Front Housing with the tab on the bottom of the Rear Housing and snap the unit closed.

### IMPORTANT

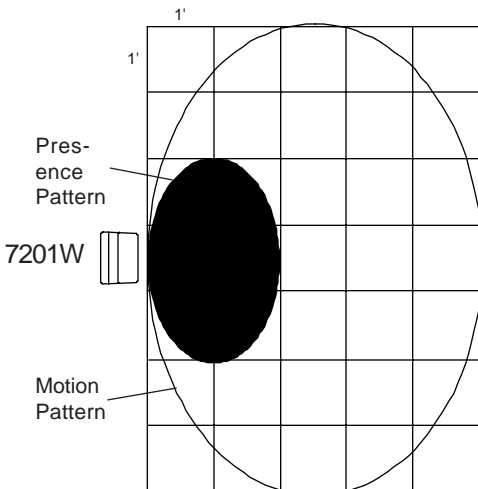
With its patented Presence technology, audible warning tones, and adjustable hold times, the new 7201 is unquestionably the safest, most reliable door actuator available.

However, as an added precaution against unexpected door closures, improper installation, and possible injury, **C&K Systems strongly recommends** that two sets of safety beams, such as C&K's Model 7120, be added to each 7201 installation. Refer to the 7120 installation manual (part number 5-051-014-00) for proper installation instructions.

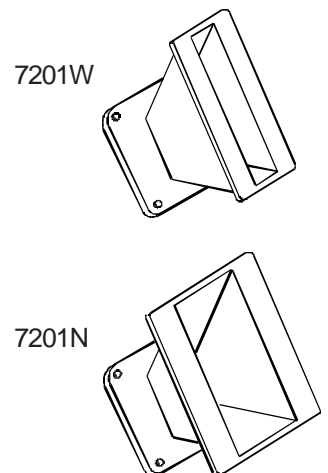
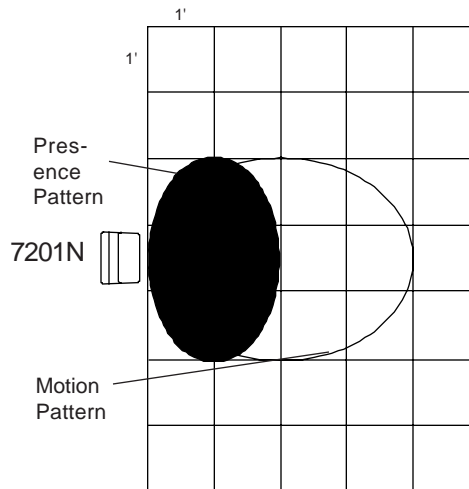
**NOTE:** For the 7201 to operate properly, it must be installed according to the manufacturer's specifications. In addition, the installer must ensure that the sensor's detection pattern and sensitivity is properly adjusted for each application.

## DETECTION PATTERNS

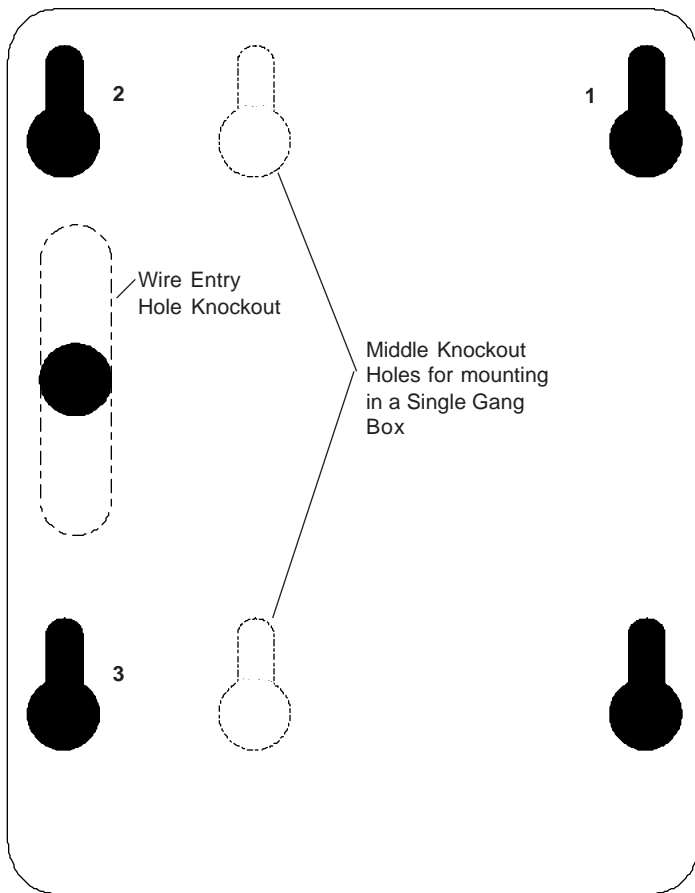
### Wide Antenna Feedhorn



### Narrow Antenna Feedhorn



## MOUNTING TEMPLATE



1, 2, 3: Mounting holes accessible without removing the PCB.

**Important:** The 7201 microwave door actuators are to be connected to a Listed Class 2 power source.

**Note:** This equipment has been tested and found to comply with the limits for a field disturbance sensor, pursuant to Part 15 of the FCC rules. The user is cautioned that changes or modifications not expressly approved by C&K Systems could void the user's authority to operate this equipment.

**Important:** The 7201 sensor should be tested **at least once each year** to ensure proper operation.

## PRODUCT SPECIFICATIONS

### Power Requirements

DC: 12 - 30 VDC, 65 mA max, 22 mA idle  
AC: 12.6 - 24 VAC, 50/60 Hz, 170 mA max

### Alarm Relay

Two Form C, 500 mA max,  
30 VDC max

### Response Time

0.5 seconds maximum

### Relay Hold Time

Adjustable from 1 to 5 seconds

### Warning Beeper

3 KHz tone

### RF Immunity

30V/m, 10 MHz to 1000 MHz

### Operating Frequency

10.525 GHz

### Operating Temperature

-4° to 122° F (-20° to 50° C)  
0% to 95% Relative Humidity

### Detection Patterns

7201W:

Motion: 7' wide x 5' deep  
Presence: 3' wide x 2' deep  
Part No. 4-521-049-00

7201N:

Motion: 3' wide x 4' deep  
Presence: 3' wide x 2' deep  
Part No. 4-521-051-00

### Microwave Tilt

+/- 5° vertical

### Weight

1 lb. (0.45 kg)

### Dimensions

4." high x 3.4" wide x 3.4" deep  
(10.16 cm x 8.64 cm x 8.64 cm)

### Approvals/listings

FCC certified  
UL listed

## LIMITED WARRANTY

Seller warrants its products to be in conformance with its own plans and specifications and to be free from defects in materials and workmanship under normal use and service for 18 months from the date stamp control on the product or for products not having a C&K Systems date stamp, for 12 months from the date of original purchase, unless the installation instructions or catalogue sets forth a shorter period, in which case the shorter period shall apply. Seller's obligation shall be limited to repairing or replacing, at its option, free of charge for materials or labor, any part which is proved not in compliance with Seller's specifications or proves defective in materials or workmanship under normal use and service. This warranty is void if the product is altered or improperly repaired or serviced by anyone other than C&K Systems factory service. For warranty service, return the product transportation prepaid to C&K Factory Service, 107 Woodmere Road, Folsom, CA, 95630.

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Seller does not represent that its product may not be compromised or circumvented; that the product will prevent any personal injury or property loss by burglary, robbery, fire or otherwise; or that the product will in all cases provide adequate warning or protection. Buyer understands that a properly installed and maintained alarm may only reduce the risk of burglary, robbery, or fire without warning, but it is not insurance or a guarantee that such will not occur or that there will be no personal injury or property loss as a result. CONSEQUENTLY, SELLER SHALL HAVE NO LIABILITY FOR ANY PERSONAL INJURY, PROPERTY DAMAGE, OR OTHER LOSS BASED ON A CLAIM THAT THE PRODUCT FAILED TO GIVE WARNING. However, if Seller be held liable, whether directly or indirectly, for any loss or damage arising under this Limited Warranty or otherwise, regardless of cause or origin, Seller's maximum liability shall not in any case exceed the purchase price of the product, which shall be fixed as liquidated damages and not as a penalty, and shall be the complete and exclusive remedy against Seller.

This warranty replaces all previous warranties and is the only warranty made by C&K Systems on this product. No increase or alteration, written or verbal, of the obligation of this warranty is authorized.



Corporate Office  
**107 Woodmere Road**  
**Folsom, CA 95630**  
**TEL: 800-227-8065**  
**FAX: 916-985-0352**

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