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# 78500-900 Presence Sensor

## Installation Instructions

### **DOR - O - MATIC®**

7350 W. Wilson Ave.  
Harwood Heights, IL 60706

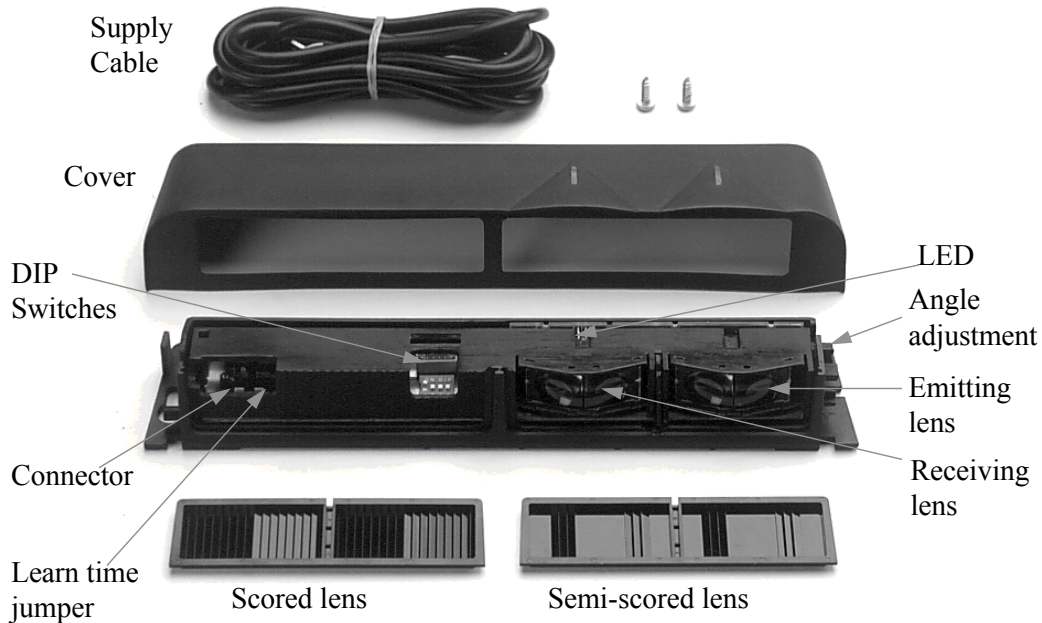
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# 78500-900 Presence Sensor Instruction Manual

The 78500-900 Active Infrared presence detector is ideal for threshold safety and sidelite protection. It is universally compatible with any door control and easily installed on new doors as well as on existing doors for retrofit purposes. The technology in the 78500-900 utilizes the process of multiplexing, which assures that it is constantly scanning the background looking for any changes. Finally if the change in background remains constant for a set time (adjustable 1 minute or 10 minutes) the sensor learns it and allows your door to return to normal operation.

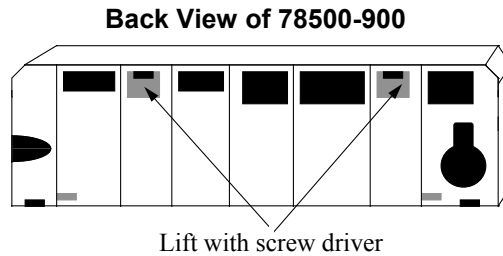
## TECHNICAL SPECIFICATIONS:

Installation Height:	7' to 10'
Detection Zone:	Wide pattern: 6' Narrow pattern: 3' Depth: 4"
Mounting Angle:	from 3° to 21°
Power Supply:	12 to 30 V DC $\pm$ 10% 12 to 24 V AC $\pm$ 10%
Consumption:	< 1 W (VA)
Output - Contact Ratings:	Dry Contacts
Max. voltage	60 V DC / 125 V AC
Max. current	1 A (resistive)
Max. switching power	30 W (DC) / 60 VA (AC)
Frequency:	50 to 60 Hz
Response Time:	< 50ms
Relay hold time:	1.5 seconds (fixed)
Auto Learn Time	1 or 10 minutes
Temperature range:	-30° to +131° F
Dimensions:	10" L x 2" H x 1.5" D
Weight:	7 oz.
Material:	Black ABS and polycarbonate
Length of Cable:	6'



# INSTALLING THE SENSOR

1. Remove the cover from the sensor by holding the sensor firmly and gently prying the cover off as shown below.

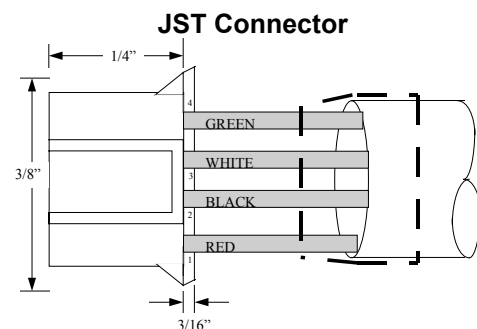
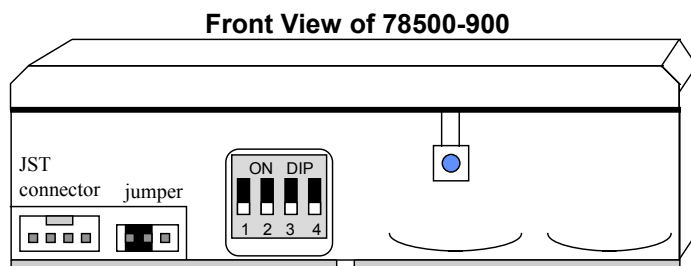


2. Stick the mounting template onto the location where the sensor is to be mounted. When using a single presence sensor, the sensor should be installed on the opposite side of the safety beams. The sensor should be mounted at the bottom of the header in the center of the opening. Follow the directions provided on the template. When drilling is complete, install both screws part way only. **DO NOT MOUNT SENSOR YET.**

**PLEASE NOTE: The 78500-900 has been designed to be water-resistant.**

3. Install the cable (included in box). NOTE: If mounting directly to the header, pull the cable through the hole on the face of the header. Leave about 2 to 3 inches hanging out. Connect the JST connector to the 78500-900. Due to the nature of the plug connector it can only be connected one way.
4. Place the screw on the right side into the slot on the sensor. Once in place, slide the sensor up so that the screw on the left side slides into the narrow part of the hole on the sensor. Once the screws are tightened, ensure that the sensor is tight by trying to move it up and down. The sensor should be snug against the mounting surface. If it is not, ensure that there are no pinched wires between the mounting surface and the back of the sensor.
5. Connect the wires to power and the door control according to the following color code:

COLOR	CONNECTION
Red	Supply voltage
Black	Supply voltage
White	COM
Green	NO/NC (dependent on dip switch 2)



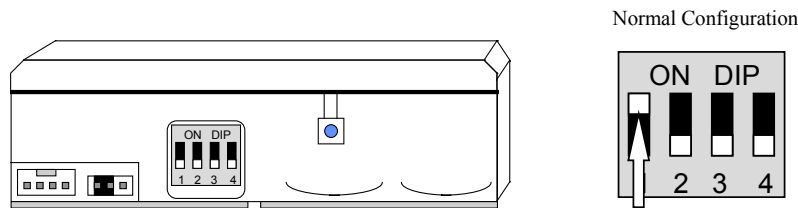
# ADJUSTMENTS

Adjustments are as follows:

1. CONFIGURATION - DIP SWITCH SETTINGS
2. CONFIGURATION - AUTO LEARN TIME
3. PATTERN SELECTION
4. ANGLE ADJUSTMENT
5. WIRING SCHEMATICS
6. TROUBLE SHOOTING

## 1. CONFIGURATION - DIP SWITCH SETTINGS

The dip switches are pictured as seen from the front, when the sensor is installed.



Position	Dip switch # 1	Dip switch # 2	Dip switch # 3	Dip switch # 4
	<b>SET-UP</b>	<b>RELAY OUTPUT</b>	<b>FREQUENCY</b>	<b>SENSITIVITY</b>
<b>OFF</b>	<p>Not used Used for Set-up* (see below)</p>	<p>Normally Open (NO)</p>	<p>Frequency 1 (normal operation)</p>	<p>Normal Sensitivity</p>
<b>ON</b>	<p>Normal operation Used for Set-up* (see below)</p>	<p>Normally Closed (NC)</p>	<p>Frequency 2 (to avoid interference between 2 78500- 900s)</p>	<p>Reduced Sensitivity (to avoid unwanted ghosting)</p>

### \* DIP SWITCH #1

Dip switch #1 should be in the ON position for 78500-900 Presence detection. Dip switch #1 is also used to initiate a set-up of the 78500-900. In order to initiate a set-up, dip switch #1 must be switched from ON to OFF and then to ON again. Once dip switch #1 has been flipped the set-up will begin and last approximately 7 seconds. During this time, avoid any traffic in the detection pattern of the 78500-900.

**NOTE:** The 78500-900 should not be used as a motion detector. The 78500-900's detection pattern does not meet the minimum motion pattern requirements as stated by ANSI A156.10.

### DIP SWITCH #2

Dip switch #2 allows the installer to choose the relay output of the 78500-900.

### DIP SWITCH #3

Dip switch #3 is used when (2) 78500-900s are installed next to each other. By changing dip switch #3, the installer can change the pulse frequency of the infrared pattern to avoid cross talking between units.

#### DIP SWITCH #4

For maximum performance of the 78500-900, dip switch #4 should be in the OFF position. If dip switch #4 is placed in the ON position, the sensitivity of the 78500-900 will be reduced. This should be done if a ghosting problem is experienced. Also, when dip switch #4 is ON, the 78500-900 is less likely to detect a heavy rain.

## 2. CONFIGURATION - AUTO LEARN TIME

The Auto Learn Time is the time in which the 78500-900 will automatically learn any permanent changes in its field of detection. This time delay begins counting down once a change in the detection zone occurs. If the object is removed from the zone before the time delay has expired, the 78500-900 will not save it as part of its memory. During the auto learn time the 78500-900 will stay locked on and once the 78500-900 has learned the object it will resume its normal function.

The Auto Learn Time is adjusted by changing a jumper located near the plug connector. The Auto Learn Time can be set either to 1 minute or 10 minutes depending on the position of the jumper.

1 minute =



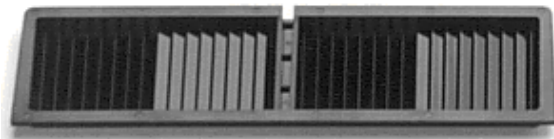
10 minutes =



## 3. PATTERN SELECTION

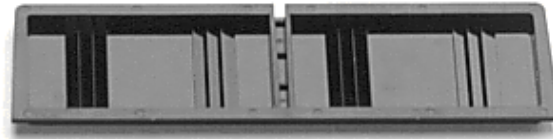
The width of the detection zone is determined by the choice of the front lens. By changing the front lens, the pattern width can be made narrow (3') or wide (6'). In order to get the narrow pattern; the scored lens must be placed below the emitter and receiver in the housing. If the wider pattern is desired, the semi-scored lens must be placed below the emitter and receiver in the housing. See the photos below for more detail. Most applications should use the wide pattern.

### Narrow Pattern (3 foot width)

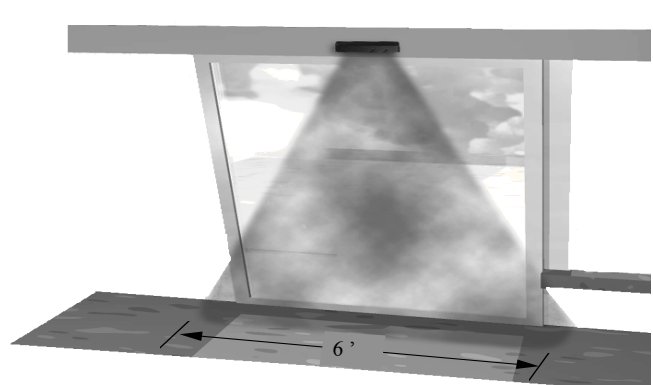
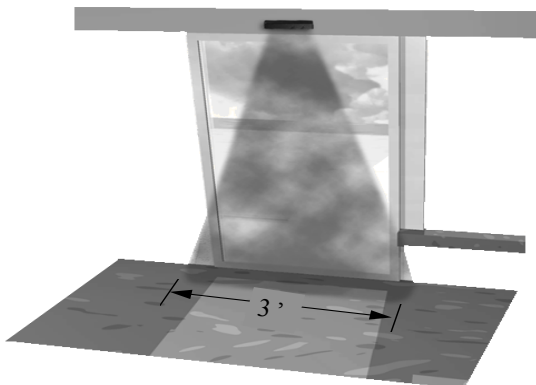


Scored Lens

### Wide Pattern (6 foot width)



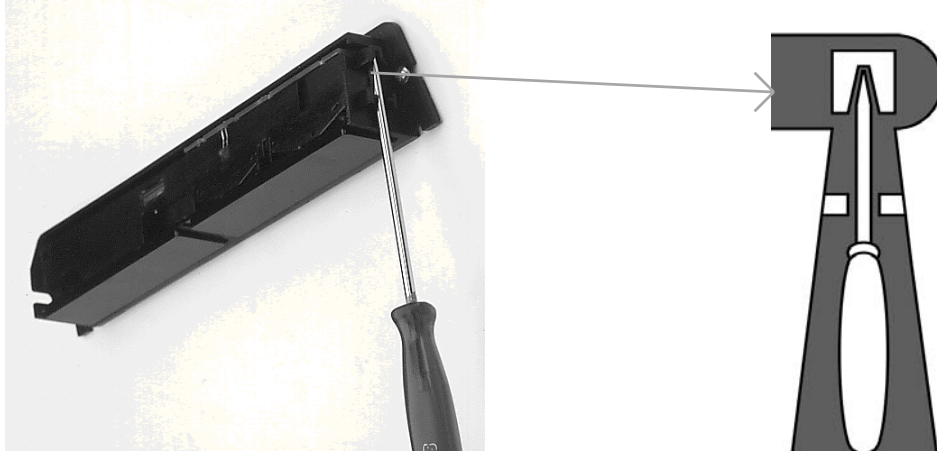
Semi-scored Lens



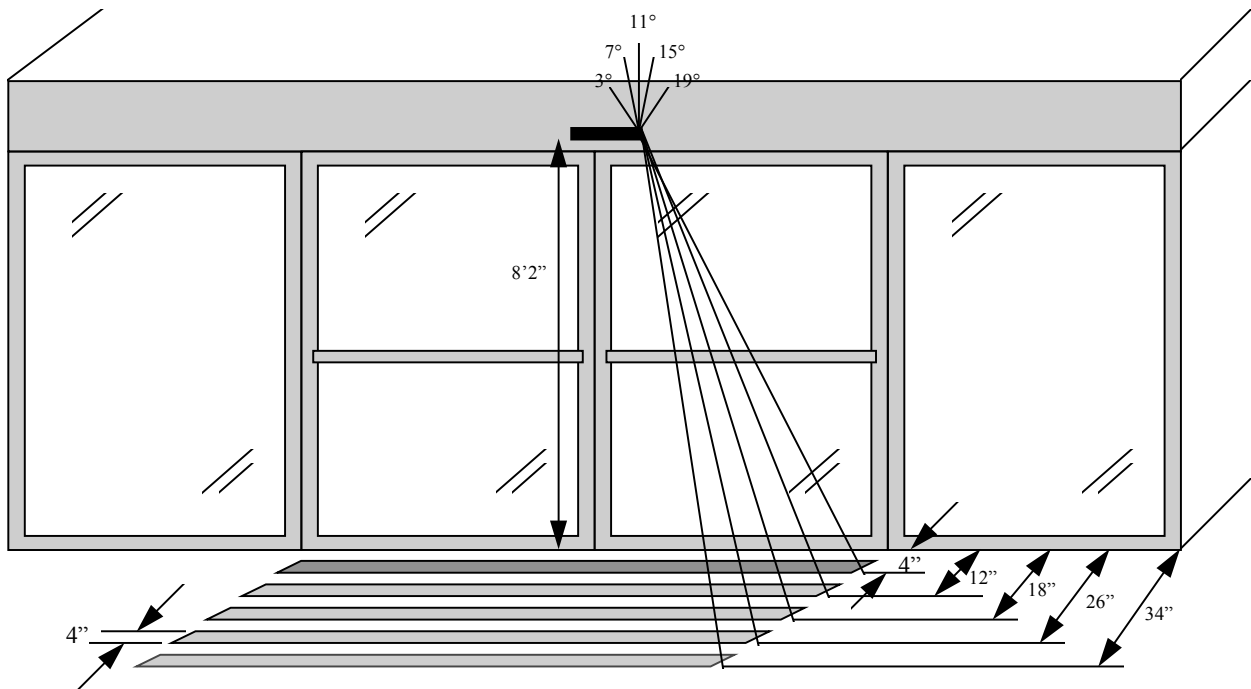
## 4. ANGLE ADJUSTMENT

The position of the pattern in front of the door is determined by the angular position of the optical block. To change the angle of the optic block, insert a screwdriver into the recess on the extreme right-hand side of the sensor. Turn it slightly to select the required tilt angle.

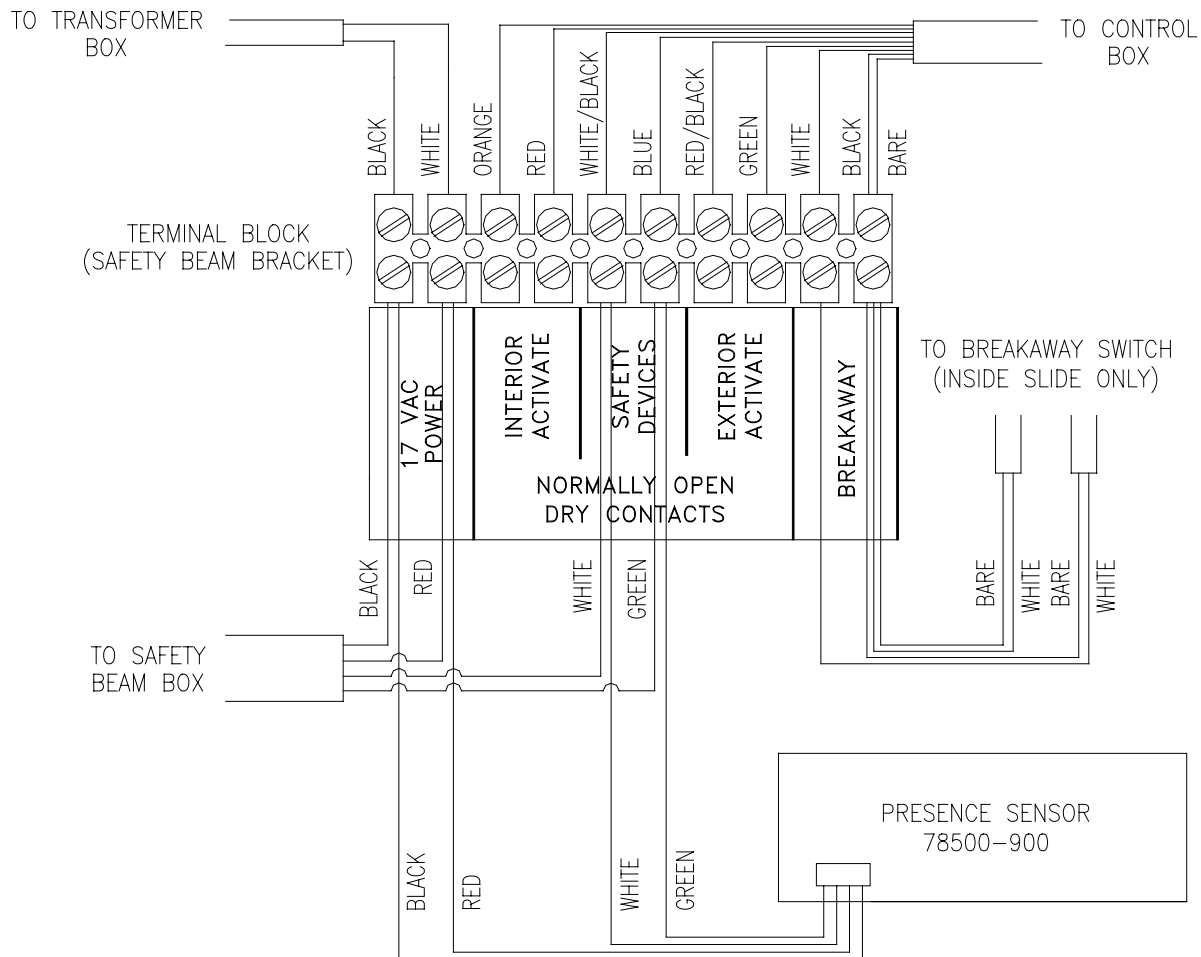
When adjusting the pattern, insure the pattern covers a portion of the area within 5" of the door.



**PLEASE NOTE:** The distance of detection from the door will increase as the mounting height of the 78500-900 is increased. It will also decrease as the mounting height of the 78500-900 is decreased.



## 5. WIRING SCHEMATICS



**WIRING DIAGRAM FOR USE WITH SERIES 96000 SLIDING DOOR**

## 6. TROUBLE SHOOTING

SYMPTOM	CORRECTIVE ACTION
The LED does not light up	<ol style="list-style-type: none"> <li>1. Check power cable</li> <li>2. Check power connector</li> <li>3. Check power supply</li> </ol>
The door opens and closes continuously	<ol style="list-style-type: none"> <li>1. Increase depth of field (door with handle)</li> <li>2. Switch dip switch # 4 to ON position (reduced sensitivity)</li> <li>3. Switch dip switch #1 to OFF position and then back to ON position</li> </ol>

If, after troubleshooting a problem, a satisfactory solution cannot be achieved, please call Dor-O-Matic for further assistance.

**DO NOT** leave any problem unresolved. If you must wait for the following workday to call, leave the door inoperable until satisfactory repairs can be made. **NEVER** sacrifice the safe operation of the automatic door or gate for an incomplete solution.