



## PASSIVE INFRARED and MICROWAVE COMBINATION DETECTOR

With PET IMMUNITY      With PET IMMUNITY & TAMPER

# MX-40QZ, MX-50QZ, MX-50T, MX-40PI, MX-40PT

### FEATURES

- 40 ft. x 40 ft. (12 m x 12 m) Wide Angle [MX-40 Series]
- 50 ft. x 50 ft. (15 m x 15 m) Wide Angle [MX-50 Series]
- QUAD Zone Logic
- Patented Multi-focus Lens
- Improved Sealed Optics
- Temperature Compensation Logic
- Pet Immunity [MX-40PI /-PT only]  
(See Section 5 for Pet Immunity)
- Model MX-40PI /-50T are UL Listed

### EASY INSTALLATION

- Easy Wiring Knockout
- Wiring Guide
- Spare Terminal [MX-40QZ /-50QZ /-50T /-40PT only]
- Tamper Terminal [MX-40QZ /-50QZ /-50T /-40PT only]
- D.L. Terminal [MX-40QZ(BE) /-50QZ(BE) only]
- Wide Wiring Space

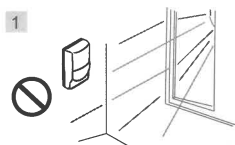
### FUNCTION

- Selectable Pulse Count (2 or 4)
- LED ON / OFF
- Tamper Switch [MX-40QZ /-50QZ /-50T /-40PT only]
- Microwave Range Selectable (LONG or SHORT)

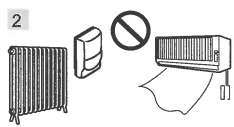
### OPTION

- FA-3 Wall & Ceiling Mount Bracket (Horizontally  $\pm 45^\circ$  & Vertically  $0^\circ$  to  $-15^\circ$ )

## 1 INSTALLATION HINTS



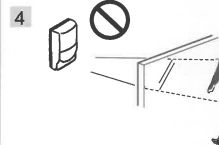
Avoid direct sunlight.



Avoid mounting detector where movement of Fans or Air Conditioning can be detected.



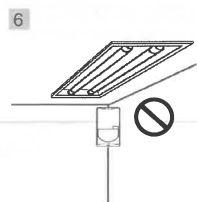
Avoid vapor or high humidity that can cause condensation.



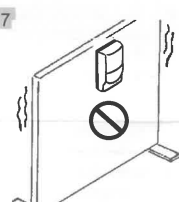
Avoid Curtain, Screen, etc. blocking detection area.



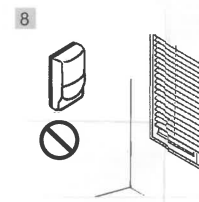
Do not install outdoors.



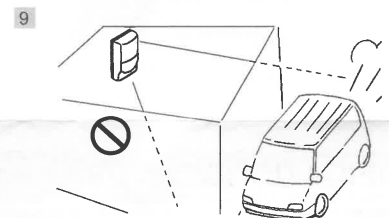
Do not install unit near fluorescent lights.



Do not mount in unstable location where vibration or shock may affect the detector.

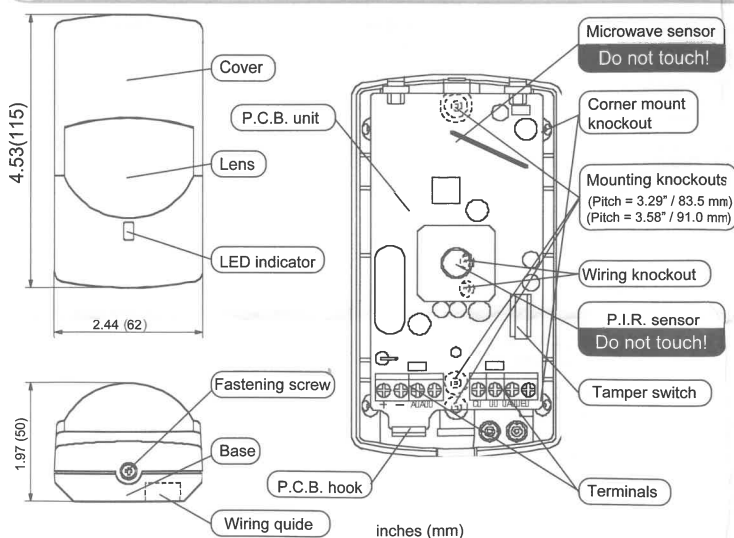


Do not aim detection area toward equipment which continually moves in the detection area (i.e. curtain, blinds).



Do not aim towards outside area where there is frequent movement.

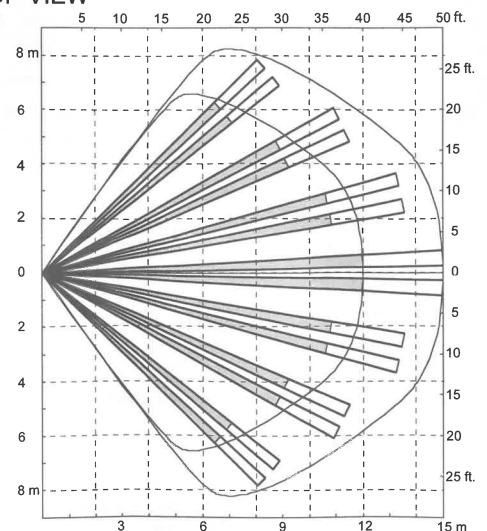
## 2 DESCRIPTION, OPERATION and DIMENSIONS



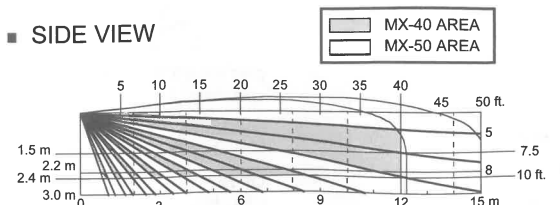
## 3 DETECTION AREA

### WIDE ANGLE

#### TOP VIEW



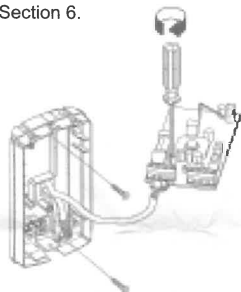
#### SIDE VIEW



<b>LED ON / OFF</b> Use the pin switch for LED ON / OFF. 	<b>PULSE COUNT</b> Use the pin switch for Pulse count Selection (2 or 4). 	<b>EASY WIRING KNOCKOUTS</b> Press firmly with a screwdriver to open. Enlarge the hole according to size of wire. 	<b>MICROWAVE RANGE</b> Select RANGE SELECTOR according to the room size (SHORT or LONG). 				
<b>D.L. TERMINAL (MX-40QZ(BE) / MX-50QZ(BE) only)</b> LED can be enabled or disabled remotely from control panel by D.L. terminal. Place jumper pin switch in OFF position. <table border="1"> <tr> <td>LED Enabled</td> <td>Connect D.L. terminal to common ground (with detector)</td> </tr> <tr> <td>LED Disabled</td> <td>No ground to D.L. terminal (open circuit)</td> </tr> </table>	LED Enabled	Connect D.L. terminal to common ground (with detector)	LED Disabled	No ground to D.L. terminal (open circuit)	<b>MX-40 series</b> Select RANGE SELECTOR "SHORT" when it's used with 24 ft. (7 m) square and Smaller room. <b>MX-50 series</b> Select RANGE SELECTOR "SHORT" when it's used with 34 ft. (10 m) square and Smaller room.		
LED Enabled	Connect D.L. terminal to common ground (with detector)						
LED Disabled	No ground to D.L. terminal (open circuit)						

## 4 INSTALLATION

- Loosen fastening screw and remove cover.
- Release hock at bottom of P.C.B. unit. Remove P.C.B. unit from base.
- Route wires through knockouts along the wiring guide on the rear side of base. Mount base with supplied screws. When small animal immunity is required, refer to Section 5. When using a bracket, check matching knockout position before opening mounting hole.
- Wire according to Section 6.



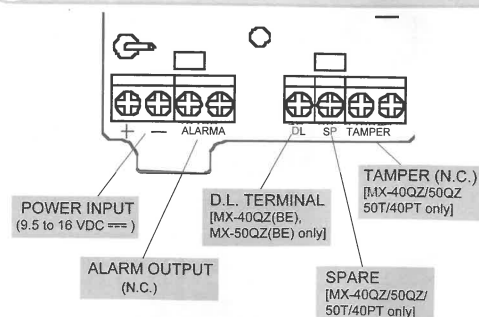
- Fix P.C.B. unit into base. Supply power. Allow 1 min. to warm up.
- Conduct walktest and make adjustments (Section 2). Fit cover using fastening screw.

## 5 PET IMMUNITY [MX-40PI/40PT only]

- Pet immunity is most effective on the following sized animals :  
Rodents = 0 to 4 inches high.  
Cats and small to medium sized dogs = 0 to 16 inches high at normal room temperature.
- Installation Instructions
  - Mount between 7 and 8 ft. (For better immunity, especially for medium sized dogs, mount as close to 8 ft. as possible.)
  - Do not angle detector towards the ground or use the angle bracket. Mount flat on the wall or in the corner.
  - For best pet immunity, limit the detectors field of view to 30 ft. maximum in any direction.
  - For rodents ; If any shelves within 15 ft. of the detector have a height that comes within 2.5 ft. below the mounting height of the detector and rodents can access these areas, pet immunity will be reduced. Please select mounting location of detectors carefully to avoid this situation.
  - For cats and dogs (16 inches in height or less at normal room temperature) ; When a dog jumps up on desks, the detector may detect it. Adjust detection area to avoid such places.
  - For cats ; If there are cats, any shelves in the detection area will reduce pet immunity.
  - Pulse Count 4 is not required for Pet Immunity applications. Use 4 pulse only in harsh environment.

\* The Pet Immunity Function has not been evaluated by UL since there are not established UL requirements for pet immunity.

## 6 WIRING



Power wires should not exceed the following length.

WIRE GAUGE	12 VDC <sup>---</sup>	14 VDC <sup>---</sup>
AWG 22 (0.33 mm <sup>2</sup> )	1 070' (320 m)	2 140' (650 m)
AWG 20 (0.52 mm <sup>2</sup> )	1 700' (510 m)	3 400' (1 020 m)
AWG 18 (0.83 mm <sup>2</sup> )	2 700' (820 m)	5 300' (1 600 m)

When using two or more units on one wire, the maximum length is obtained by dividing the maximum wire length above by the number of units used.

\* UL requires MX-40PI, 50T to be connected to a UL listed power supply capable of providing a normal input of 12 VDC<sup>---</sup>, 20 mA (max. at 12 VDC) and battery stand-by time of 4 hours.

\* The equipment shall be installed in accordance with the National Electrical Code, NFPA 70.

## 7 TROUBLE SHOOTING AND MAINTENANCE

PROBLEM	PROBABLE CAUSE	REMEDY
LED does not light.	Incorrect power supply voltage. (disconnection, low voltage) Incorrect detection area. LED switch is OFF.	Correct the voltage supply to 9.5 - 16 VDC <sup>---</sup> . See Section 3. Turn ON the Switch. (See Section 2)
LED lights even though no person is within area.	Moving object within area. (curtain, wall hanging, etc.) Rapid temperature changes within area. (heater, air-conditioner, etc.)	Remove object from detection area, or change location of detector. Remove the source from area, or changelocation of detector.
LED lights but signal is not sent.	Relay contact is stuck or damaged due to overloading. Faulty wiring.	Check load of output. The unit needs repair or replacement. Wire correctly.

## 8 SPECIFICATIONS

MODEL	MX-40QZ /-40PI /-40PT	MX-50QZ /-50T
Detection method	Passive infrared and Microwave	
Coverage	40 x 40 ft. (12 x 12 m) - 85° wide	50 x 50 ft. (15 x 15 m) - 85° wide
Detection zones	78 zones (PIR)	
Mounting Height	5 - 8 ft. (1.5 - 2.4 m)	7.5 - 10 ft. (2.2 - 3.0 m)
Sensitivity	3.6° F (2° C) at 2 ft./sec. (0.6 m/sec.)	
Detection speed	1 - 5 ft./sec. (0.3 - 1.5 m/sec.)	
LED Alarm indicator	Switch-able ON/OFF	
Alarm period	Approx. 2.5 sec.	
Alarm output	N.C. 28 VDC <sup>---</sup> 0.2A max.	
Tamper switch	N.C. Open when cover is removed. (N.C. 28 VDC <sup>---</sup> 0.1 A max.)	
Pulse Count	Approx. 20 sec. 2 or 4	
Warm up period	Approx. 1 min.	
Power input	9.5 - 16 VDC <sup>---</sup>	
Current draw	18 mA (max) at 12 VDC <sup>---</sup>	20 mA (max) at 12 VDC <sup>---</sup>
Weight	3.9 oz (110 g)	
Operating temperature	-14° F - +13° F (-10° C - +55° C)	
Environmental humidity	95 % max.	
Microwave Frequency	2.45 GHz	
RF interference	No Alarm 20 V/m	
D.L. Terminal	See Section 2	

\* Specifications and design are subject to change without prior notice.

Hereby, OPTEX declares that the radio equipment type MX-40QZ, MX-40PT, and MX-50QZ are in compliance with RED 2014/53/EU.

The full text of the EU DoC is available at the following internet address: [www.optex.net](http://www.optex.net)

### EU contact information

#### Manufacturer:

OPTEX CO., LTD. 5-8-12 Ogoto, Otsu, Shiga, 520-0101 JAPAN

#### Authorised representative in Europe:

OPTEX (EUROPE) LTD. / EMEA HEADQUARTERS  
Marandaz House 1 Cordwallis Park, Clivemont Road, Maidenhead, Berkshire, SL6 7BU, U.K.

Microwave emission Frequency and Power;  
2.450 GHz 0.58 mW e.i.r.p

The following list indicates the areas of intended use of the equipment and any known restrictions. For countries not indicated in this list, please consult the responsible Spectrum Management Agency.

2.450 GHz ; Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherland, Spain, Sweden, United Kingdom,  
Other non EU: Iceland, Norway and Switzerland.

OPTEX MX-40QZ, MX-40PI, MX-40PT, MX-50QZ and MX-50T shall be supplied by a SELV and LPS (or UL1310 class 2) power supply or connected to a dedicated control unit with SELV and LPS output.

### FCC Notice

MX-40PI and MX-50T have 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 OPTEX could void the user's authority to operate this equipment.

### NOTE >>

This unit is designed to detect movement of an intruder and activate an alarm control panel. Being only a part of a complete system, we can not accept responsibility for any damages or other consequences from an intrusion.



**OPTEX INC. (U.S.)**  
URL: <http://www.optexamerica.com>

**OPTEX DO BRASIL LTDA. (Brazil)**  
URL: <http://www.optex.net/br/es/sec>

**OPTEX (EUROPE) LTD. / EMEA HQ (U.K.)**  
URL: <http://www.optex-europe.com>

**OPTEX TECHNOLOGIES B.V. (The Netherlands)**  
URL: <http://www.optex.eu>

### OPTEX CO., LTD.(JAPAN)

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**OPTEX SECURITY SAS (France)**  
URL: <http://www.optex-security.com>

**OPTEX SECURITY Sp.z o.o. (Poland)**  
URL: <http://www.optex.com.pl>

**OPTEX PINNACLE INDIA, PVT., LTD. (India)**  
URL: <http://www.optex.net/in/en/sec>

**OPTEX KOREA CO.,LTD. (Korea)**  
URL: <http://www.optexkorea.com>

**OPTEX (DONGGUAN) CO.,LTD. SHANGHAI OFFICE (China)**  
URL: <http://www.optexchina.com>

**OPTEX (Thailand) CO., LTD. (Thailand)**  
URL: <http://www.optex.net/th/th>