

INDOOR PIR/COMBINATION DETECTOR

# Product introduction of FlipX



## STANDARD MODEL

- 12 m (40 ft.) 85 degree Wide
- 18 m (60 ft.) Narrow

## PROFESSIONAL MODEL

- 15 m (50 ft.) 85 degree Wide
- 24 m (80 ft.) Narrow

## Advanced model

- 15 m (50 ft.) 85 degree Wide
- 24 m (80 ft.) Narrow
- Anti-Masking



OPTeX CO., LTD.

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# Background of development

FlipX is the newly developed indoor motion detector not only **with a lot of highly evaluated features** for existing indoor motion detectors but also **with know-how obtained** from our experiences of outdoor motion detector development.

## Existing indoor motion detectors



### Standard-compliant high-reliability detection

- Highly reliable detection performance with 40-year-experiences
  - Persistence and confidence against detection performance
  - Implementation of a lot of evaluation test
  - Compliance with many standards

### Wall-Blend (Friendly) Design

- Housing design is hard to spot on the wall
  - Modern-looking housing design without poochie lens, red LED and color degradation
  - Lack of visibility with small, wall-blend design
  - Brand awareness with unified design as easily identifiable as OPTEX sensor series

### Flexible & easy installation

- Detection area can be changed for various installation field
  - Flip lens (Wide/Narrow), Removable Terminal Block, EOL Resistor Socket, Pet Tolerance, Down Zone Switch

## Renewed as FlipX series



# Outline and Line-up

3 models are available to fit all indoor applications from residential to high commercial.

## STANDARD MODEL



Choice for everyday intrusion

**FLX-S-ST** : PIR

**FLX-S-DT** : PIR and MW

- Flip Lens (Selectable Coverage)
  - 12 m (40 ft.) 85 degree Wide
  - 18 m (60 ft.) Narrow
- Up to 2.0 to 3.0 m (6'7" to 9'8") Height
- Pet Tolerance

## PROFESSIONAL MODEL



Choice for more secure intrusion sensing / commercial and professional applications

**FLX-P-ST** : PIR

**FLX-P-DT** : PIR and MW

- Flip Lens (Selectable Coverage)
  - 15 m (50 ft.) 85 degree Wide
  - 24 m (80 ft.) Narrow
- Up to 2.0 to 3.0 m (6'7" to 9'8") Height
- Double Conductive Shielding
- PEU Socket

## ADVANCED MODEL



Choice for advanced high-end high-risk intrusion sensing

**FLX-A-AM** : PIR with Anti-masking

**FLX-A-DAM** : PIR and MW with Anti-masking

- Flip Lens (Selectable Coverage)
  - 15 m (50 ft.) 85 degree Wide
  - 24 m (80 ft.) Narrow
- Up to 2.0 to 3.0 m (6'7" to 9'8") Height
- Double Conductive Shielding
- EOL Resistor Socket
- Removable Terminal Block
- Down Zone Switch

# Outline and Line-up Specifications

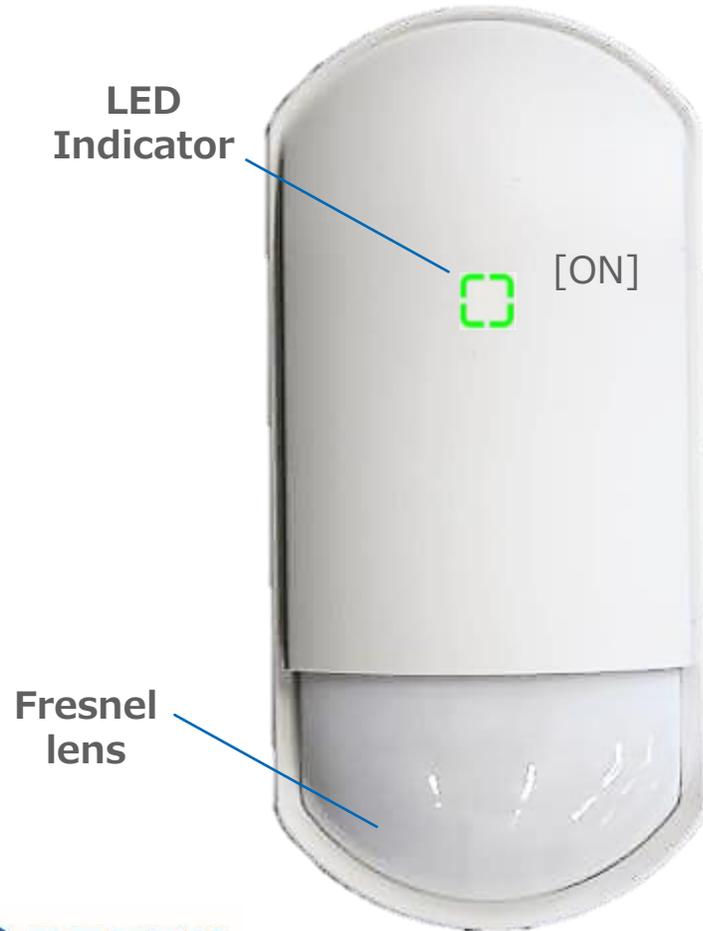
Part name		FLX-S-ST	FLX-S-DT	FLX-P-ST	FLX-P-DT	FLX-A-AM	FLX-A-DAM
Model name		Standard		Professional		Advanced	
Mounting height		2.0 to 3.0 m (6'7" to 9'8")					
Coverage		Wide : 12 m (40') 85° Narrow : 18 m (60') 5° <i>(MW will be stopped in Narrow setting)</i>		Wide : 15 m (50') 85° Narrow : 24 m (80') 5° <i>(MW will be stopped in "Narrow" setting)</i>			
Alarm period		2.0 ± 0.5 s					
Warm-up period		Approx. 60 s (LED blinks)					
LED indicator		Green: Warm-up and Alarm				Green: Alarm Masking Detection Yellow: Self test error Red: Row voltage Multiple: Warm-up	Green: Alarm and Masking Detection Purple: PIR detection Yellow: Microwave detection and self test error Red: Row voltage Multiple: Warm-up
Power input		9.5 to 16 V DC					
Current draw		8 mA (normal) 11 mA (max.) at 12 V DC	11 mA (normal) 14 mA (max.) at 12 V DC	8 mA (normal) 11 mA (max.) at 12 V DC	11 mA (normal) 14 mA (max.) at 12 V DC	12 mA (normal) 16 mA (max.) at 12 V DC	16 mA (normal) 21 mA (max.) at 12 V DC
Relay output	Trouble	-				N.C. 24 V DC 0.1 A max.	
	Alarm	N.C. 24 V DC 0.1 A max.					
	Tamper	N.C. 24 V DC 0.1 A max. (Open when the cover is removed)					
Remote LED		-	✓				
Operation temperature		-20°C to +50°C (-4°F to +122°F)	-20°C to +45°C (-4°F to +113°F)	-20°C to +50°C (-4°F to +122°F)	-20°C to +45°C (-4°F to +113°F)	-20°C to +50°C (-4°F to +122°F)	-20°C to +45°C (-4°F to +113°F)
Temperature compensation		Digital (SMDA)					
Relative humidity		95% RH max.					
Dimension		H: 129.5 x W: 62 x D: 50.9 mm (H: 5.10" x W: 2.44" x D: 2.00")				H: 160 x W: 62 x D: 59 mm (H: 6.30" x W: 2.44" x D: 2.32")	
Weight		90 g (3.17 oz)	105g (3.7 oz)	90 g (3.17 oz)	105g (3.7 oz)	180 g (6.35 oz)	200 g (7.05 oz)

# Standard series



# Mechanical Overview

**Front Cover**



**Microwave module**

- [FLX-A-DAM only]
- 10.525GHz(X5)
  - 10.587GHz(X8)
  - 9.425GHz(X9)

**Microwave Range SW**

- [FLX-S-DT only]
- Short / Long

**PIR Sensitivity SW**

- Low / Medium / High

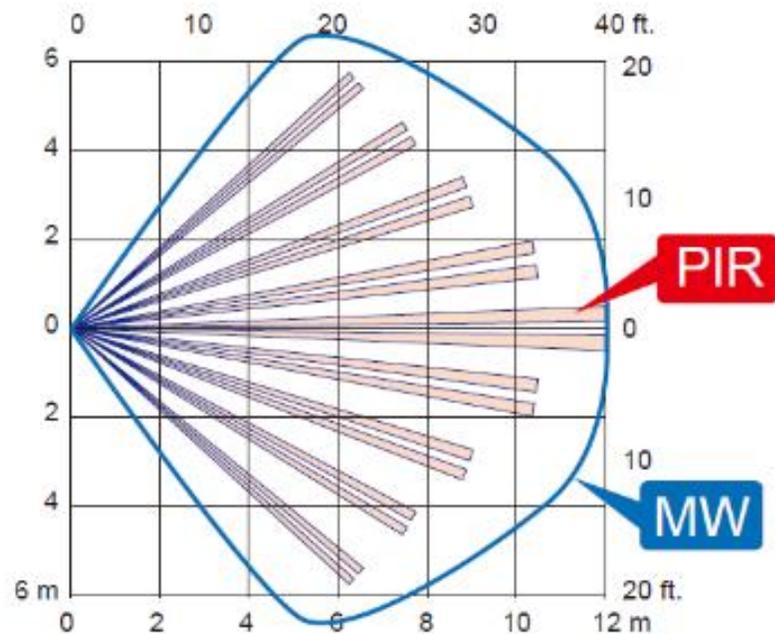
**Human-Catch Element**



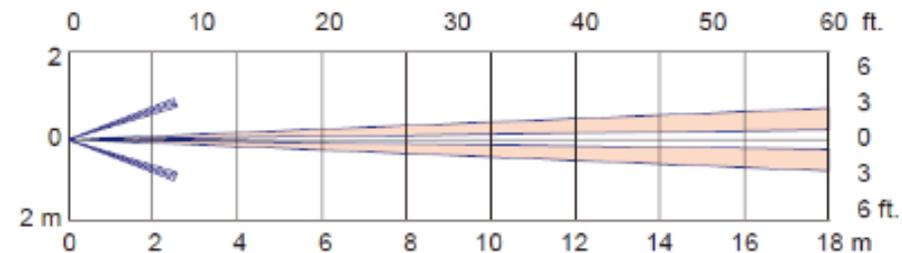
# Detection Range

FLX-S-ST, FLX-S-DT

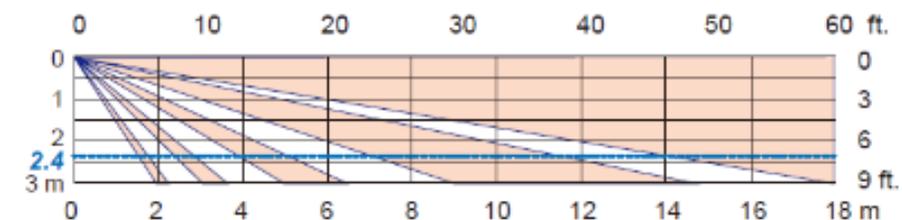
Wide - Top view -



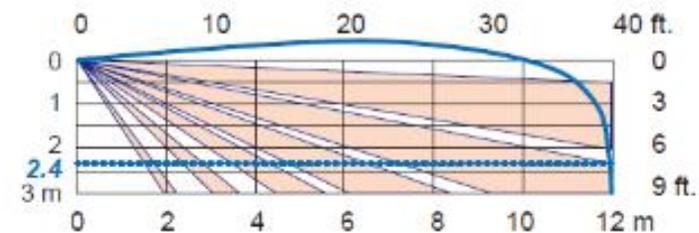
Narrow - Top view -



Narrow - Side view -



Wide - Side view -



**Note**

The dotted line indicates the recommended mounting height. When "Narrow" is selected at the jumper pin, MW detection will be stopped.

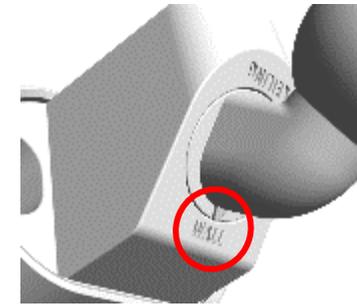
# Optional Brackets

Both brackets are effective to reduce Gekko's crawling on the detector lens which may cause false alarms.



## CW-G2

- Compliant to EN-Grade II
- Wall or Ceiling mount selectable
- Horizontally +/-45
- Vertically -5 to 20° downward



Wall or Ceiling mount selectable  
(both for CW-G2 & G3)



Bracket including packages are available for standard model as FLX-S-ST-BKT and FLX-S-DT-BKT (depends on market)

Horizontally +/-45°, Vertically -5 to 20° downward

## Feature Index

FlipX provides with features for better experiences of indoor protection categorized as Flexibility, Easy Installation and Reliable detection performance as follows.

### Flexibility

Fits every installation site

- Flip Lens (All models)

### Easy Installation

Time-crunch of installations

[New]

- Easy Viewable LED Colour (All models)
- 180-degree Cover Lock (All models)
- Wiring Selections (Applicable to All models)

### Reliable detection performance

Reduction of false / missed alarms

[New]

- Human-Catch Element (All models)
- Pet Tolerance (Standard model)
- SMDA (All models)
- Microwave upgrade (Dual Tech models)

# Feature index

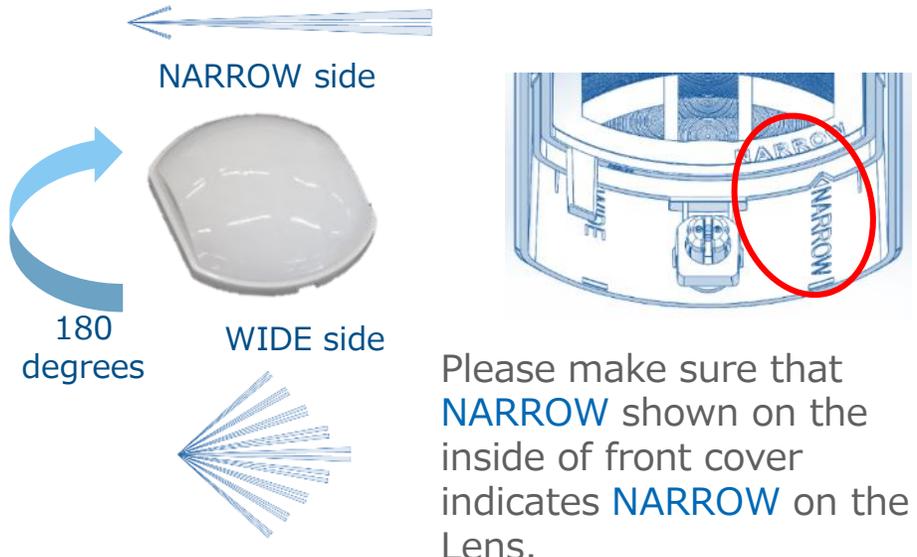
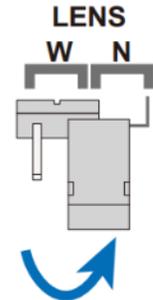
## Flexibility

Fits every installation site

- Flip Lens (All models)

**Flip lens** (Applicable to All models)

Selectable wide & narrow area with one lens. By turning the lens upside down, the shape of detection area can be changed from **WIDE** to **NARROW**.

Step 1	Step 2	Step 3	Step 4
<p>Remove Lens from Front Cover</p> 	<p>Turn Lens upside down</p>  <p>Please make sure that <b>NARROW</b> shown on the inside of front cover indicates <b>NARROW</b> on the Lens.</p>	<p>Change Jumper PIN of LENS from W to N (FLX-S/P only)</p>  <ul style="list-style-type: none"> <li>- When "N" is selected, MW detection will be stopped.</li> <li>- This is automatically changed for Advanced models.</li> </ul>	<p>Put Lens back to Front Cover</p> 

# Feature index

## Easy Installation

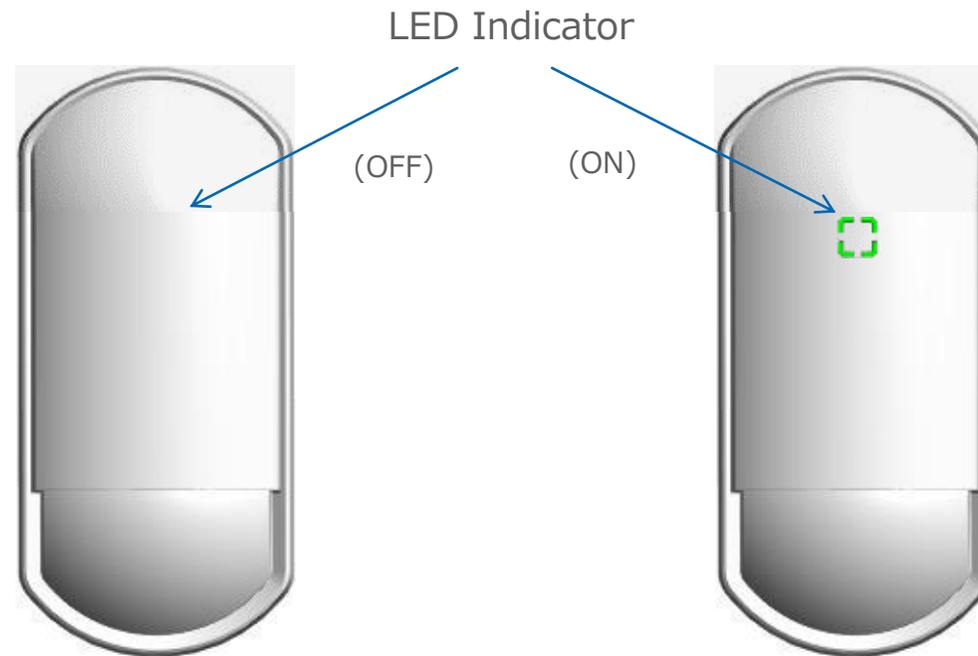
### Time-crunch of installations

[New]

- Easy Viewable LED Colour (All models)
- 180-degree Cover Lock (All models)
- Wiring Selections (Applicable to All models)

## Easy Viewable LED Colour (Applicable to All models)

LED color is green and viewable from distance.



## 180-degree Cover Lock (Applicable to All models)

Front cover can be opened & closed by turning the lock 180 degrees with a flat blade screwdriver.

**Step 1**

Put a screwdriver on the lock

**Step 2**

Turn it 180 degrees to unlock

**Step 3**

Quickly Open!



# Wiring Selections (Applicable to All models)

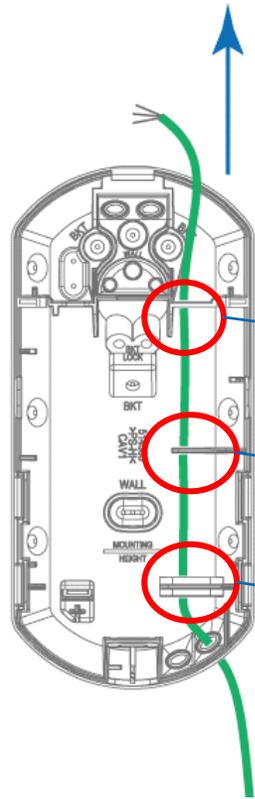
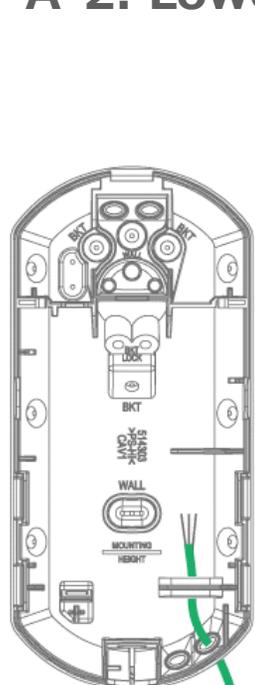
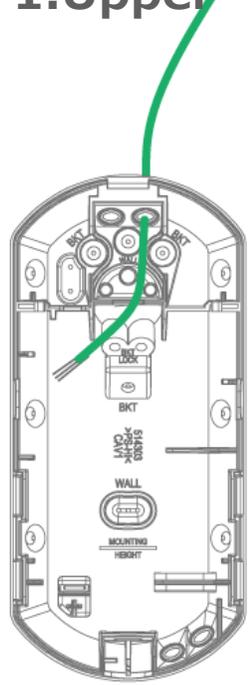
Surface and hidden wirings can be selected

## A. Surface wiring      B. Hidden wiring

Example of Standard and Professional Model

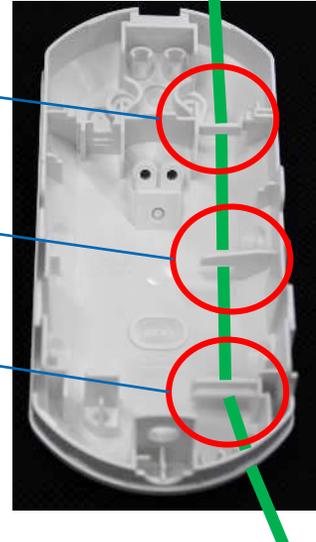
A-1. Upper

A-2. Lower

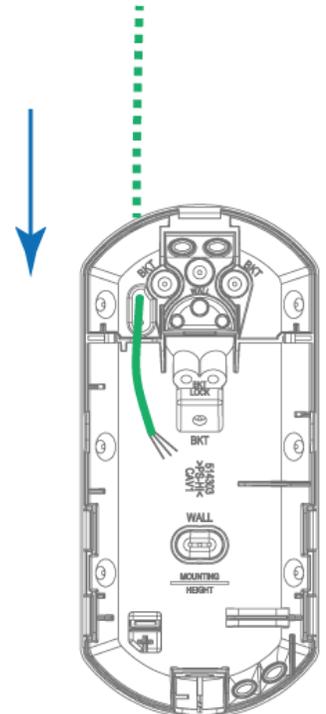


### Wiring Guide

Wiring Guide on inside of Back Plate is useful for easy wiring



## B. Hidden wiring



# Feature index

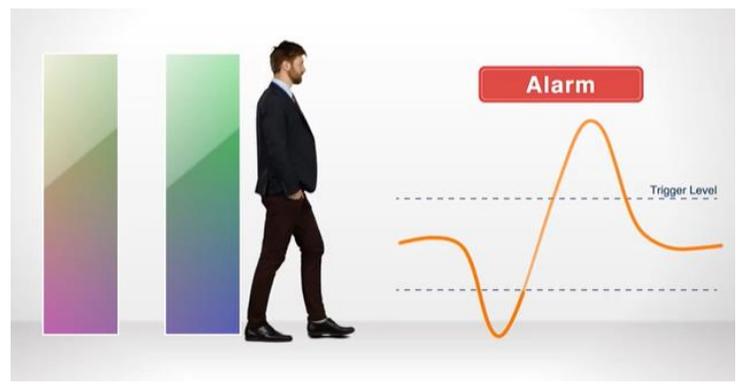
## Reliable detection performance

Reduction of false / missed alarms

- [New] • Human-Catch Element (All models)
- Pet Tolerance (Standard model)
- SMDA (All models)
- Microwave upgrade (Dual Tech models)
- Refined Spherical Lens (All models)

[New] **Human-Catch Element** (Applicable to All models)

New pyro-element development  
~Unique element shape~



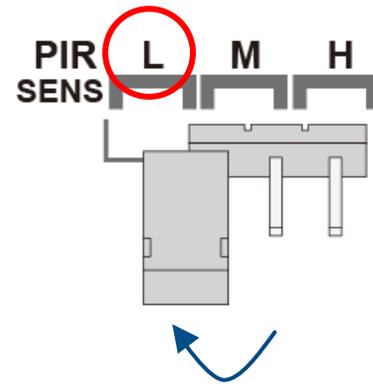
- The new element size has been designed to create proper detection areas and optimize detection sensitivity.
- Quad zone logic is small segmented detection zones by cutting technology of lens contributes to a good false alarm immunity.
- The new element shape is matched for human size. Dog is covered just small area, and the signal is much small than human creates. It is comparable effect as Quad zone logic.
- The smaller dimension of the new element contributes to low-profile design with high-density of detection area.



## Pet Tolerance (Applicable to Standard model)

FlipX gives high false alarm protection with excellent tolerance to spot temperature changes from small animals and pet.

Please set PIR sensitivity to "L" on DIP switch for Pet Tolerance detection.



## SMDA logic (software algorism) (Applicable to All models)

All FlipX series are equipped with a digitally enhanced signal recognition logic “SMDA”

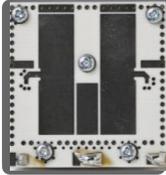
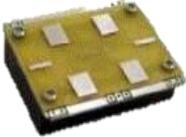
- Shows good tolerance against pets and plants.
- Noise cancellation ability will be upgraded.
- Pulse count will be merged into SMDA logic

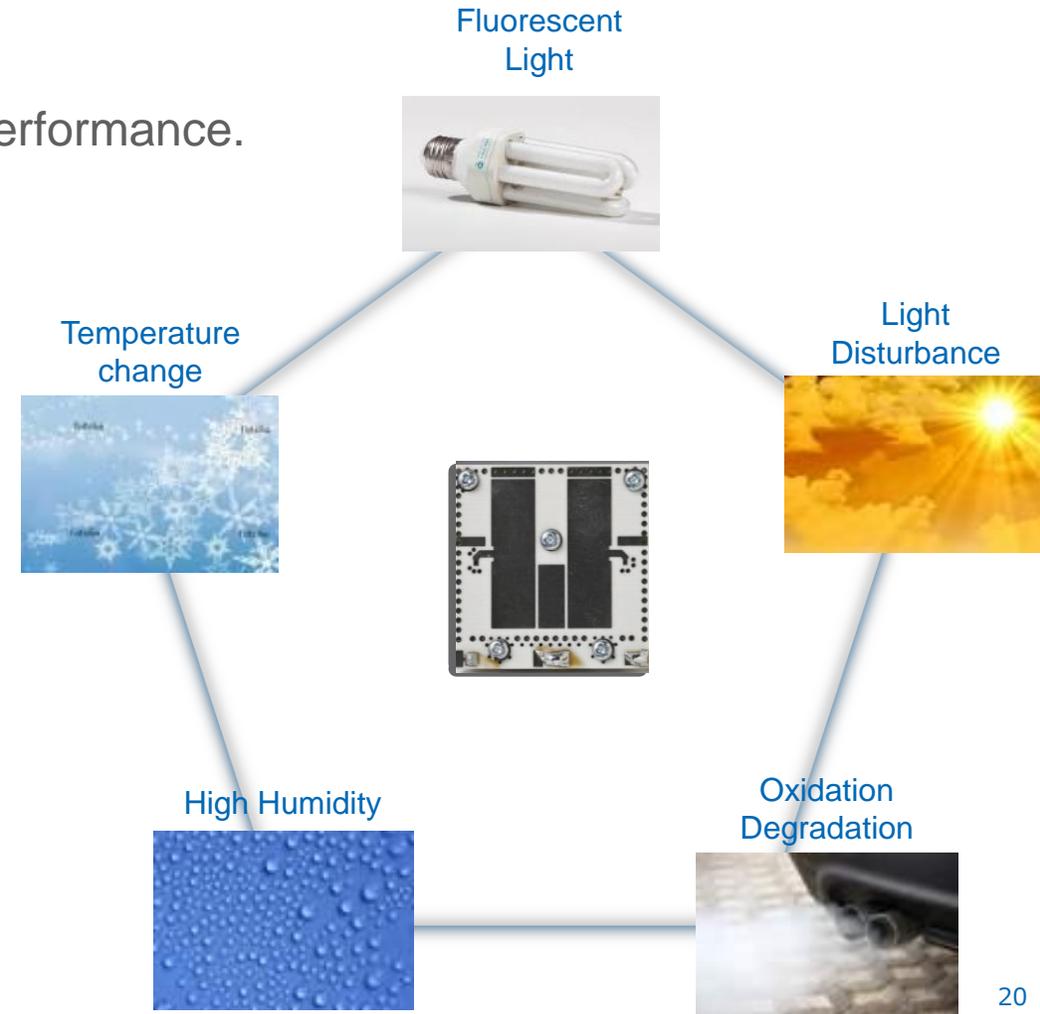
By analyzing detection patterns and environmental information, SMDA improves immunity against various noise factors such as climate changes and vegetation sways, and can distinguish between the cause of nuisance false alarms and **genuine intrusions**.



# Microwave upgrades (Applicable to Dual Tech models)

- 10.525GHz(X5), 10.587GHz(X8) and 9.425GHz(X9) are available.
- Tough MOD  
Unrivaled quality and ability to achieve high reliable detection performance.

	OPTEX	Competitors
Images		
PCB board Material	Ceramic board	Glass epoxy board (FR4)
Antenna Material	Gold-plated antenna	Tin-plated antenna

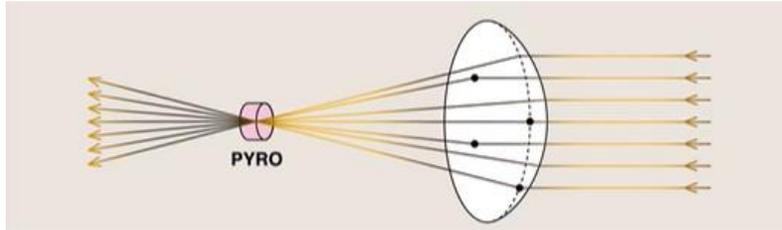


# Refined Spherical Lens (Applicable to All models)

Spherical lens provides a precise focal length to each of the multiple lens segments (uniform distance between each lens segment and the pyroelectric elements). This enables each lens segment to face precisely towards its detection area and creates detection zones without distortion, no inferior to mirror optic PIR detectors.



## FlipX : Spherical Lens



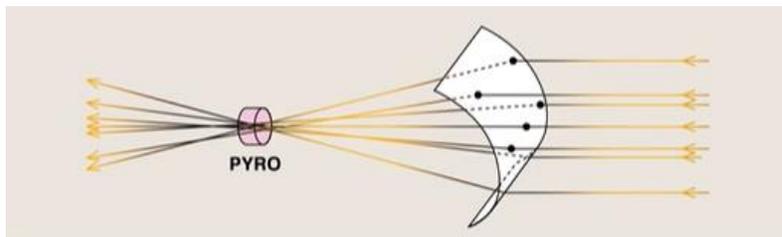
The spherical fresnel lens differs from the conventional flat fresnel lens in that the distance between the lens and the pyro-electric elements is the same across the entire lens (the focal length is always the same). It therefore collects infrared rays more efficiently.



No distortion



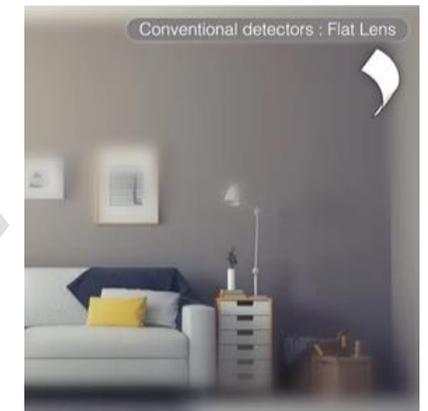
## Conventional detectors : Flat Lens



Conventional flat lenses inevitably create sensitivity **distortion problems** when they are bent to fit a curved housing. Optex's spherically designed lens will obtain sharp detection because no bending is required.



Distorted



# Application Examples

# Application Examples

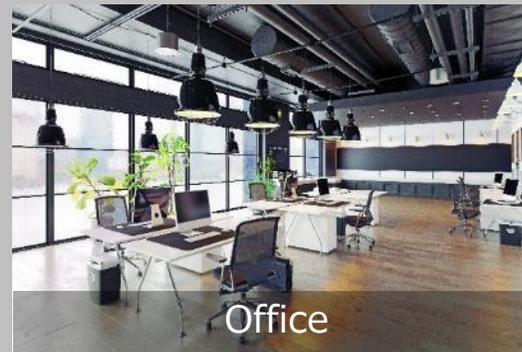
## Standard Model

Residence  
Light Commercial



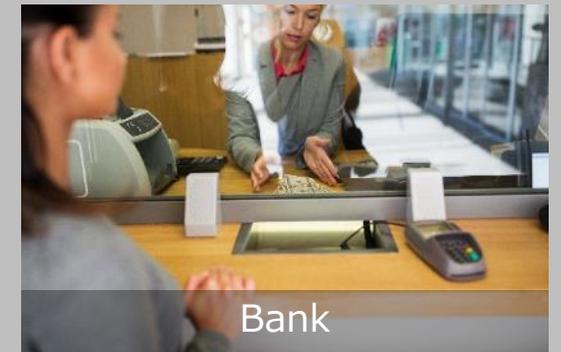
## Professional Model

Commercial  
and professional



## Advanced model

high-end high-risk  
intrusion sensing



# Appendix

- Feature Chart
- Replacement Models
- Naming Convention
- Performance Comparison Chart
- Application Examples

# Feature Chart

Each feature is deployed as the following chart.

Part name	FLX-S-ST	FLX-S-DT	FLX-P-ST	FLX-P-DT	FLX-A-AM	FLX-A-DAM
Model name	Standard		Professional		Advanced	
PIR	✓		✓		✓	
Microwave	-	✓	-	✓	-	✓
Anti-Masking	-		-		✓	
Detection Area with Flip Lens (Selectable Coverage)	-12 m (40 ft.) 85 degree Wide -18 m (60 ft.) Narrow		- 15 m (50 ft.) 85 degree Wide - 24 m (80 ft.) Narrow		- 15 m (40/50 ft.) 85 degree Wide - 24 m (80 ft.) Narrow	
Mounting Height	Up to 2.0 to 3.0 m (6'7" to 9'8") Height					
SMDA	✓		✓		✓	
Pet Tolerance	✓		-		-	
Double Conductive Shielding	-		✓		✓	
PEU Socket	-		✓		-	
EOL Resistor Socket	-		-		✓	
Removable Terminal Block	-		-		✓	
Down Zone Switch	-		-		✓	

# Replacement Models

Distance	Existing models		FlipX series	
12 m 40 ft.	 EX-35	 RX-40QZ(E) RX-40QZ(SA) RX-40QZ(PI)  FX-40(BE) FX-40D(BE)C  RXC-ST	Standard 	FLX-S-ST
	 MX-40QZC MX-40QZ(BE) MX-40PTC	 RXC-DT-X5 RXC-DT-X8		FLX-S-DT
15 m 50 ft.	 FX-50QZC FX-50SQC FX-50VdSC	 FMX-ST FMX-DST	Professional 	FLX-P-ST
	 MX-50QZC MX-50QZ(BE)	 FMX-DT-X5 FMX-DT-X8		FLX-P-DT
12 m (40 ft.) - - or - - - 15 m (50 ft.)	 CDX-AM CDX-NAM		Advanced 	FLX-A-AM
	 CDX-DAM			FLX-A-DAM

# Naming Convention of OPTEX PIR series

What do ST, DST, DT, AM, NAM & DAM mean?

	ST	DST	DT	AM	DAM
Code	Standard	As ST with double conductive shielding	Dual Tech	Anti-Masking	Dual Tech with Anti-Masking
Detection Technology	Passive Infrared	Passive Infrared	Passive Infrared & Microwave	Passive Infrared	Passive Infrared & Microwave
Anti-Masking	-	-	-	✓	✓
Anti-Masking Technology	-	-	-	Active Infrared	Active Infrared
Double conductive shielding	-	✓	-	✓	-

# Appendix

# Performance Comparison Chart : FLX-S-ST

Model	FLX-S-ST	RX-40QZ	RX-40PI	SAVER	RXC-ST	EX-35T
Detection method	PIR					
Detection area	12 x 12 m (40 x 40 ft)					11 x 11 m (35 x 35 ft)
Detection zones	Wide 76 zones Narrow 12 zones	78 zones				Wide 64 zones Narrow 28 zones
Mounting height	2.0 to 3.0 m (6'7" to 9'8")	1.5 to 2.4 m (5 to 8 ft)				1.2-2.4 m (4-8 ft) PET: 0.6-1.2 m (2-4 ft)
Flip lens	12m Wide 18m Narrow	-	-	-	-	11m Wide 17m Narrow
Remote LED	✓	-	-	-	-	-
PIR sensitivity	LOW/MID/HI	-	-	LOW/MID/HI	LOW/MID/HI	-
S.M.D.A	✓	-	-	-	-	-
Pet Alley	-	-	-	-	-	✓
Human catch performance	4	3	2	3	3	2
Pet Tolerance	4	2	3	2	2	5
Ambient light	4	3	3	3	3	3
Workability	4	3	3	3	3	4
Durability	4	3	3	3	3	3
Functionality	4	3	3	4	4	3
Human catch performance Functionality PET immunity Ambient light Durability Workability						

## Performance Comparison Chart : FLX-S-DT

Model	FLX-S-DT	MX-40QZ	MX-40PI	RXC-DT
Detection method	PIR & MW	PIR & MW (2.45GHz)		PIR & MW
Detection area	12 x 12 m (40 x 40 ft)			
Detection zones	Wide 76 zones Narrow 12 zones	78 zones		
Mounting height	2.0-3.0 m (6.6-9.8 ft.)	1.5 to 2.4 m (5 to 8 ft)		
Flip lens	12m Wide 18m Narrow	-	-	-
Remote LED	✓	✓	✓	✓
PIR sensitivity	LOW/MID/HI	-	-	LOW/MID/HI
S.M.D.A	✓	-	-	-
Pet Alley	-	-	-	-
180-degree Cover Lock	✓	-	-	-
Human catch performance	4	3	2	2
Pet Tolerance	4	2	3	2
Ambient light	4	4	4	4
Workability	4	3	3	3
Durability	4	3	3	3
Functionality	4	3	3	4
Human catch performance Functionality Durability Workability PET immunity Ambient light				

**Thank You.**