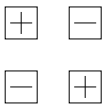
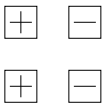
XX 0.25 GI VX

The lens arrays of Fresnel Technologies' XX 0.25 GI VX series shown in the accompanying data sheets are intended to be used in passive infrared motion detector devices. They are optimized for dual-element pyroelectric detectors; the CM types are also optimized for quad-element pyroelectric detectors with this arrangement:



The other members of the series are also optimal for quad-element pyroelectric detectors of the type:



The flanged and -NF packages are suitable for both TO-5 (tall) and TO-39 (short) pyroelectric detector cans; they must be pushed onto the pyroelectric detector far enough for the face of the detector to seat on the surface indicated in Figures 2 and 4, and the spacers shown in Figures 2 and 4 are recommended to be placed between the pyroelectric detector and the circuit board. The -SMD package variant is intended for use with surface mounted pyroelectric detectors, which need no spacer; its mounting geometry is shown in Figures 5 and 6. Please be sure to note the position within the package of the surface mounted detector you are using, as different manufacturers place the elements differently relative to the package.

Figures 9 to 23 illustrate the beam patterns for the arrays. Each lens array's beam pattern is dependent on the alignment of the 3 Roman numerals on the lens array to the pyroelectric detector's tab or the corresponding orientation of the surface mounted pyroelectric detector, as shown in Figures 1, 3, 7, and 8. Each data sheet indicates our suggested mounting alignment for each different beam pattern.

The figures postulate a dual-element or quad-element detector with a 110° acceptance angle and a mounting height of 1 meter (3 feet) for the types designed AA (Animal Alley), 1.3 meters (4 feet) for the WS (Wall Switch) types, 1 or 1.3 meters for the VB (Vertical Barrier) types, and 2.5 meters (8 feet) for the CM (Ceiling Mount) types.

It is reasonable to expect CM detection of full body motion over a diameter of 8 meters (26 feet), small hand motion over a diameter of 6.5 meters (22 feet) from a mounting height of 3 meters (10 feet); a diameter of 11 meters (36 feet) for full body motion, and 5 meters (16 feet) for small hand motion from a mounting height of 5.2 meters (17 feet), using a quad-element pyroelectric detector.

Similarly, AWV3 can be expected to cover an aisle 15 meters (45 feet) long x 1.7 meters (5.5 feet) wide from a mounting height of 5.2 meters (17 feet), 15 meters (44 feet) long from a mounting height of 6.7 meters (22 feet), 11 meters (36 feet) long from a mounting height of 8 meters (26 feet), and 10 meters (32 feet) long from a mounting height of 10 meters (32 feet), with a good-quality dual-element pyroelectric detector.

VB V4 can be expected to cover up to a distance of 4.6 meters (15 feet) from the unit for full-body motion, 2.7 meters (9 feet) for small hand motion with a dual-element pyro electric detector. WS V4 will cover an area 7 meters (23 feet) deep by 8 meters (26 feet) wide for full-body motion, 3.7 meters (12 feet) deep by 5 meters (16 feet) wide for small hand motion with a dual-element pyroelectric detector.

CM 0.25 GI V1

CM 0.25 GI V2

CM 0.25 GI V3

CM 0.25 GI V4

CM 0.25 GI V5

WS AA 0.25 GI V1

WS AA 0.25 GI V2

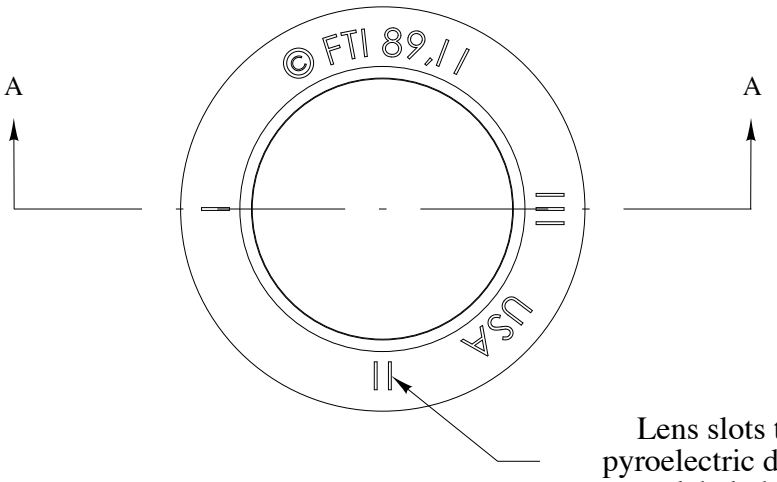
WS VB AW 0.25 GI V3

WS VB AW 0.25 GI V4

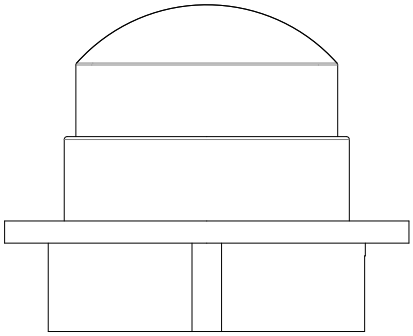
fresnel technologies inc.
101 WEST MORNINGSIDE DRIVE
FORT WORTH, TEXAS 76110
(817) 926-7474
FAX: (817) 926-7146
www.fresneltech.com

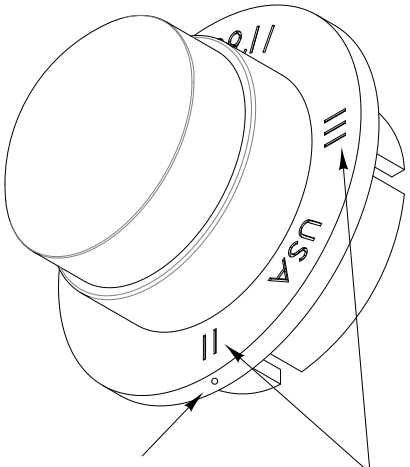
XX 0.25 GI VX
Mounting Geometry

(Spacers are required - see Figure 2)



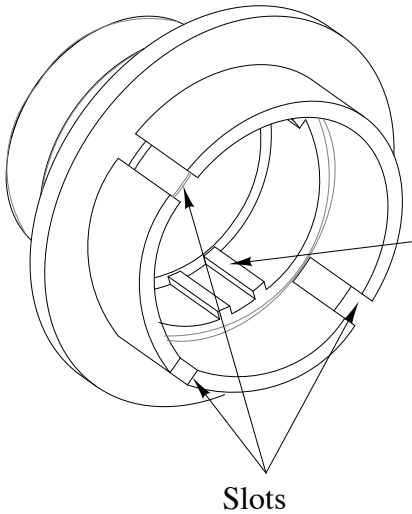
Lens slots that fit onto a pyroelectric detector's tab are labeled l, ll and lll





Runner - next to symbol II

Slots labeled l, ll and lll



Slots

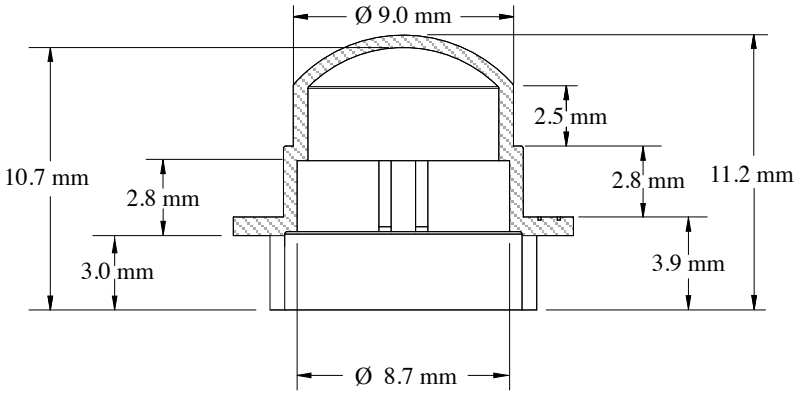
Ribs hold lens in place on pyroelectric detector can

fresnel technologies inc.
drawing and design © 2012
101W. MORNINGSIDE DR. FORT WORTH, TX 76110, U. S. A. (817) 926-7474, FAX:(817)926-7146

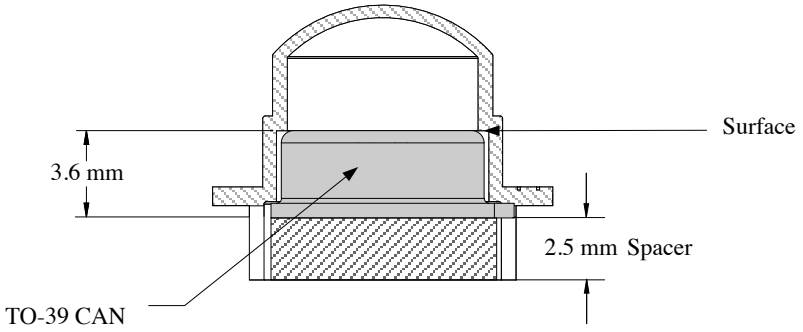
Figure 1

XX 0.25 GI VX
TO-39 (short) and TO-05 (tall) Pyroelectric Mounting Geometry

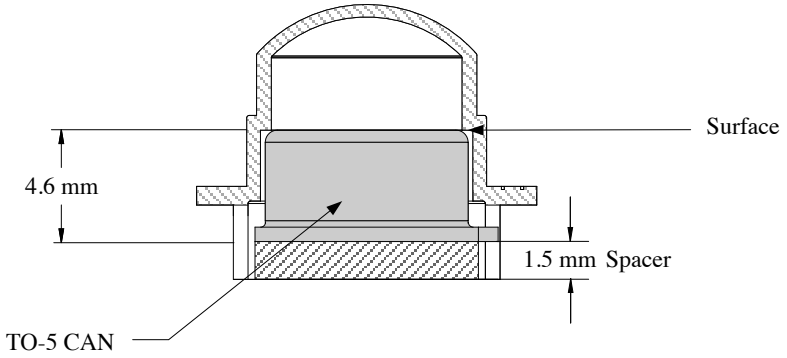
SECTION A-A



SECTION A-A



SECTION A-A

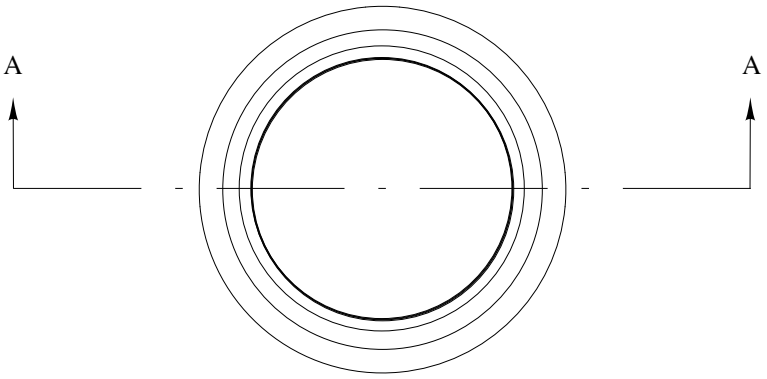


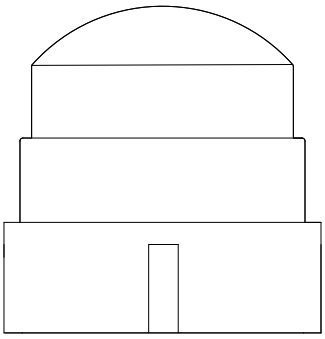
fresnel technologies inc.
101W. MORNINGSIDE DR. FORT WORTH, TX 76110, U. S. A. (817) 926-7474, FAX:(817)926-7146

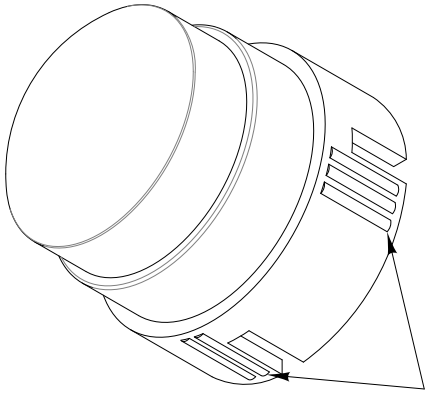
Figure 2

XX 0.25 GI VX-NF
Mounting Geometry

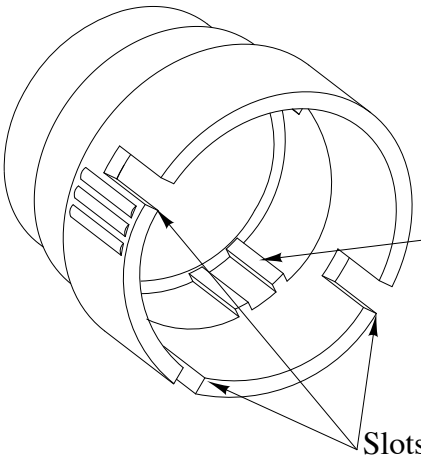
(Spacers are required - see Figure 4)







Identifying Marks
Labled
1, ll and lll



Ribs hold
lens in place
on
pyroelectric
detector can

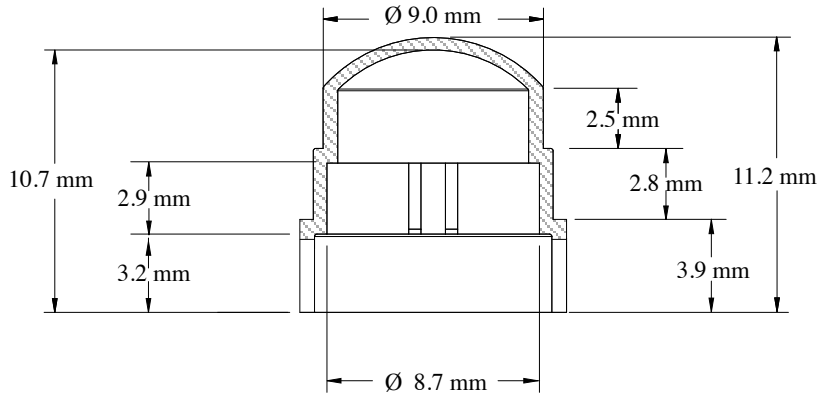
Slots

fresnel technologies inc.

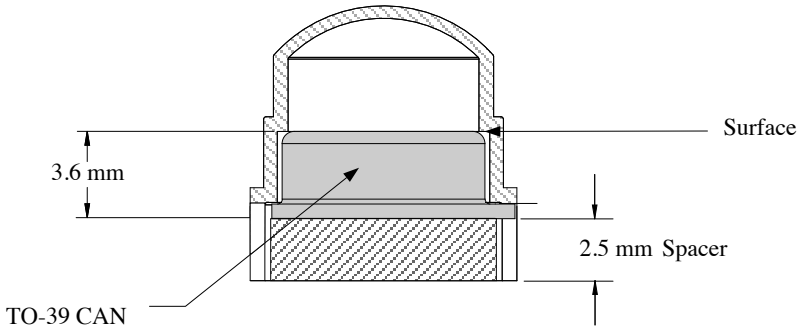
101W. MORNINGSIDE DR. FORT WORTH, TX 76110, U. S. A. (817) 926-7474, FAX:(817)926-7146

XX 0.25 GI VX-NF
TO-39 (short) and TO-05 (tall) Pyroelectric Mounting Geometry

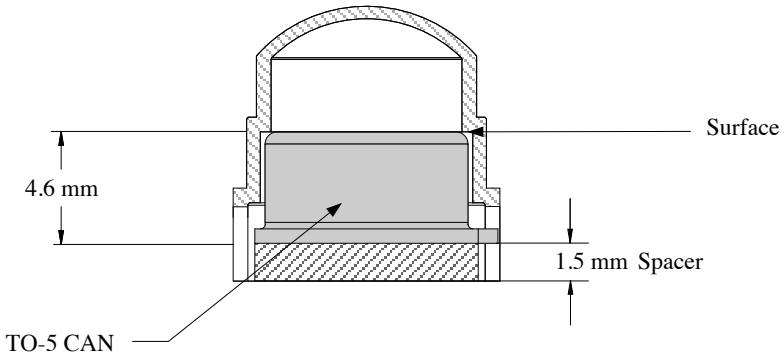
SECTION A-A



SECTION A-A



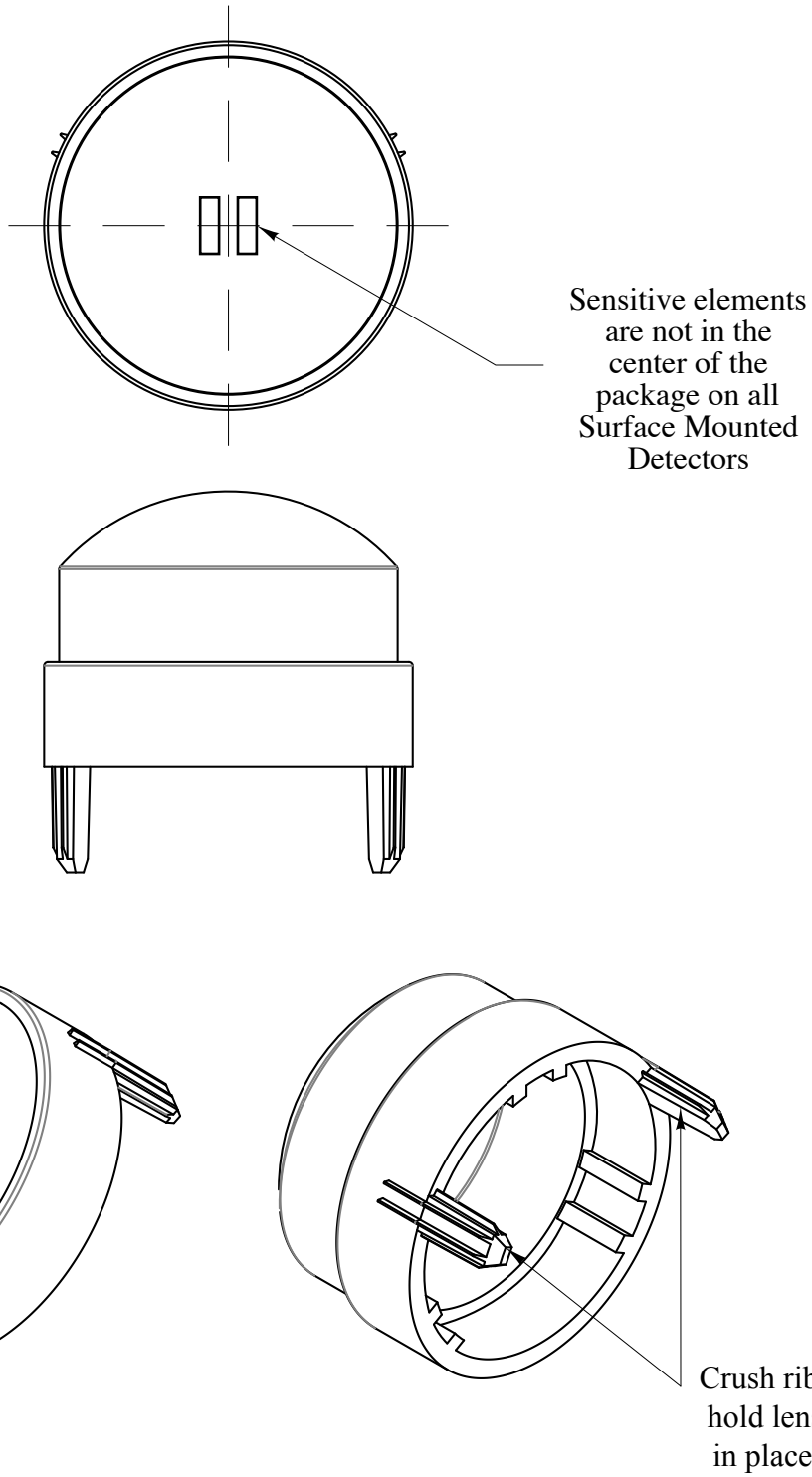
SECTION A-A



fresnel technologies inc.
101W. MORNINGSIDE DR. FORT WORTH, TX 76110, U. S. A. (817) 926-7474, FAX:(817)926-7146

Figure 4

XX 0.25 GI VX-SMD
Mounting Geometry



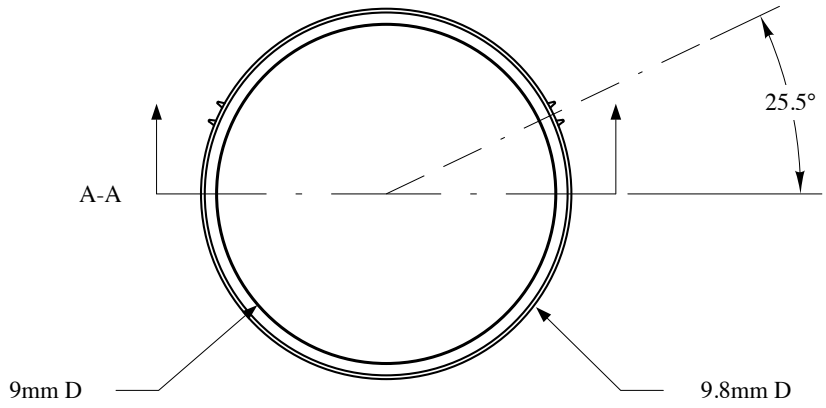
fresnel technologies inc.

101W. MORNINGSIDE DR. FORT WORTH, TX 76110, U. S. A. (817) 926-7474, FAX:(817)926-7146

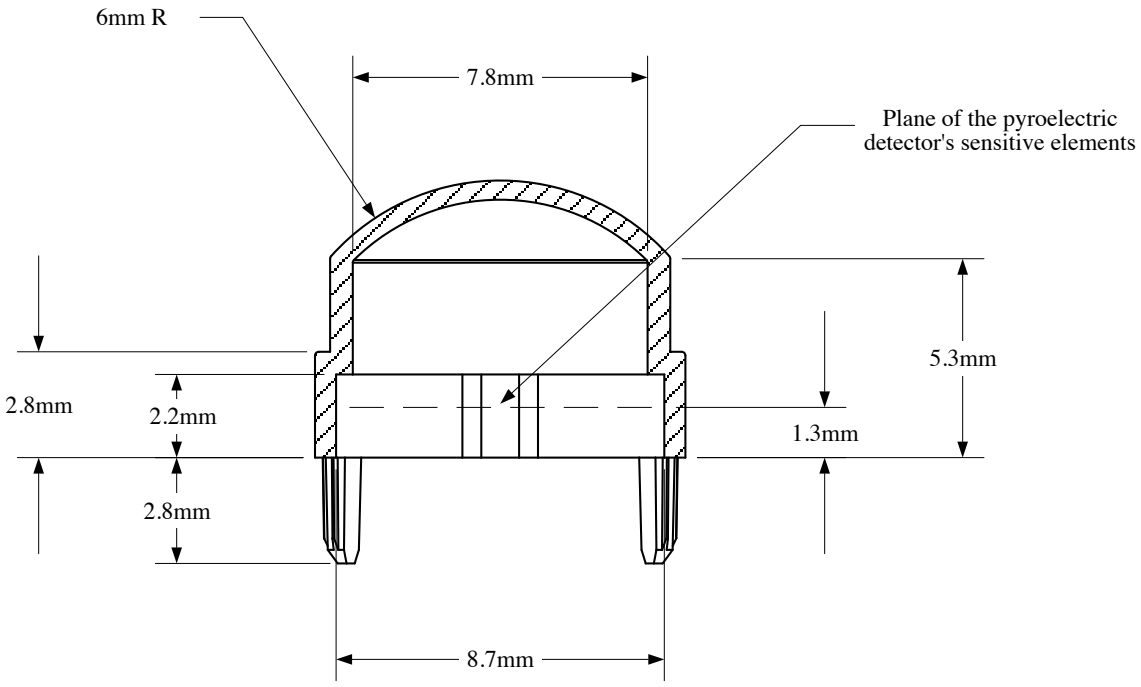
Figure 5

XX 0.25 GI VX-SMD
Mounting Geometry

TOP VIEW



SECTION A-A

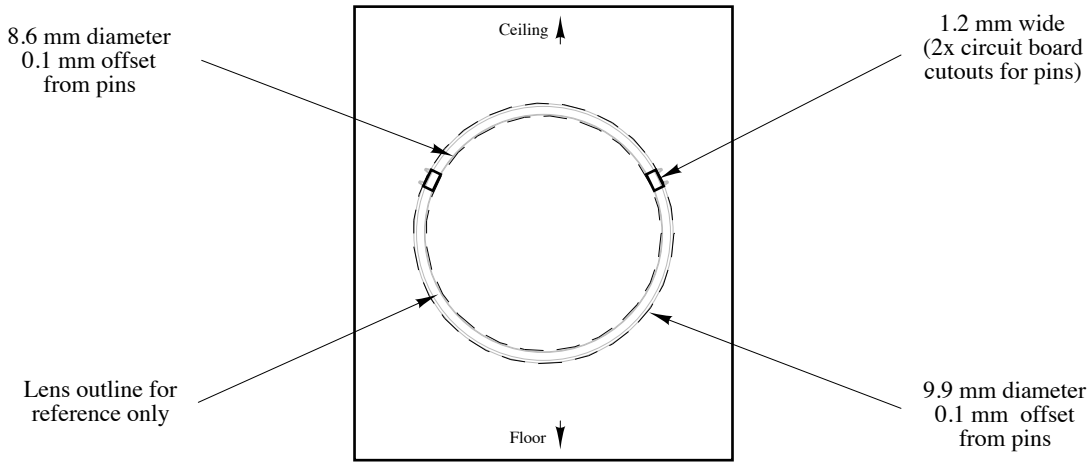


fresnel technologies inc.
101W. MORNINGSIDE DR. FORT WORTH, TX 76110, U. S. A. (817) 926-7474, FAX:(817)926-7146

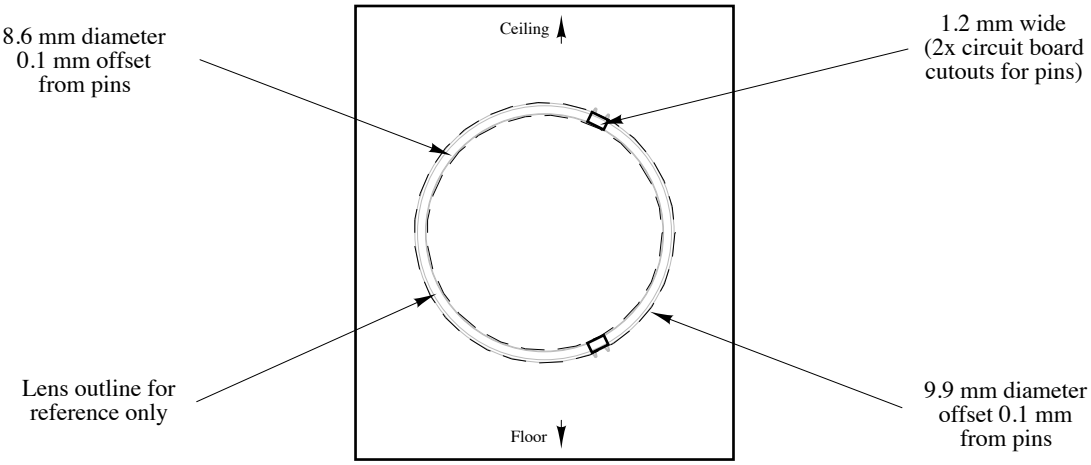
Figure 6

XX 0.25 GI VX-SMD
Mounting Geometry - Circuit Board

Orientation-1



Orientation-2

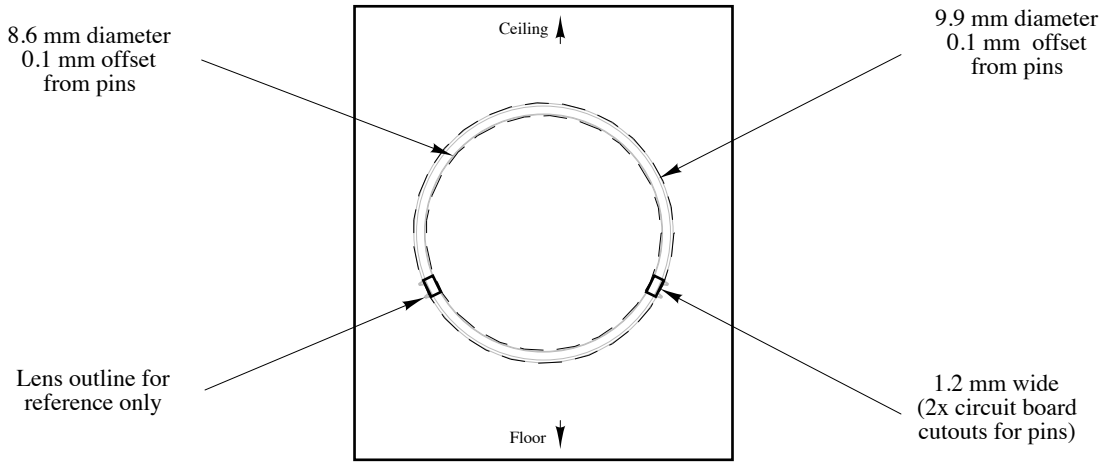


fresnel technologies inc.

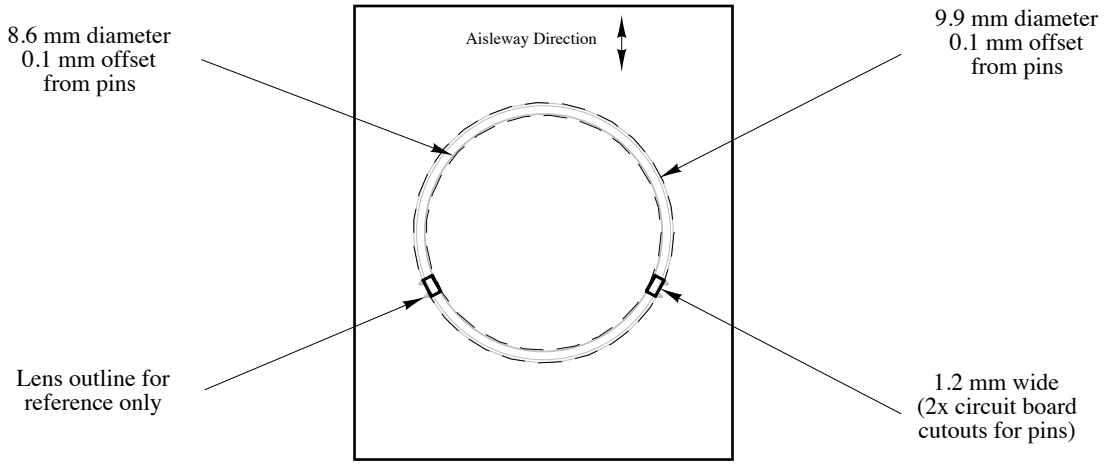
101W. MORNINGSIDE DR. FORT WORTH, TX 76110, U. S. A. (817) 926-7474, FAX:(817)926-7146

XX 0.25 GI VX-SMD
Mounting Geometry - Circuit Board

Orientation-3



Orientation-4

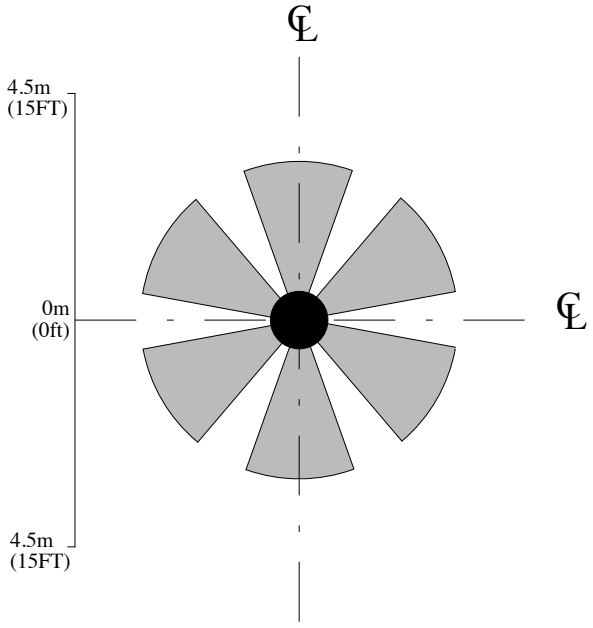


fresnel technologies inc.

101W. MORNINGSIDE DR. FORT WORTH, TX 76110, U. S. A. (817) 926-7474, FAX:(817)926-7146

CM 0.25 GI V1

TOP VIEW:



CM 0.25 GI V1

With Flange

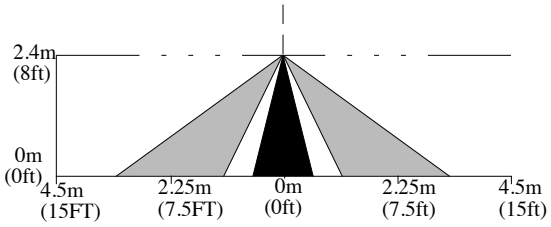
Lens Array detail

CM 0.25 GI V1-NF:

No Flange

Lens Array detail

SIDE VIEW:



CM 0.25 GI V1-SMD:

Surface Mounted Detector

Lens Array detail: See Figure 7, Orientation 1

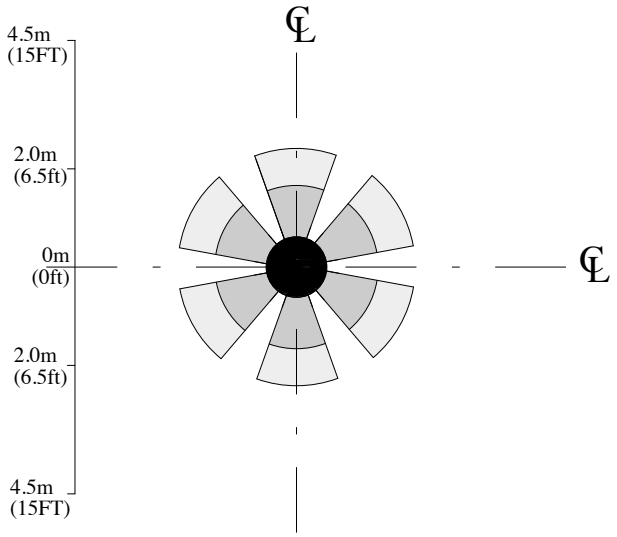
fresnel technologies inc.
drawing and design © 2016
101W. MORNINGSIDE DR. FORT WORTH, TX 76110, U. S. A. (817) 926-7474, FAX:(817)926-7146

CM 0.25 GI V2

CM 0.25 GI V2:

With Flange

TOP VIEW:



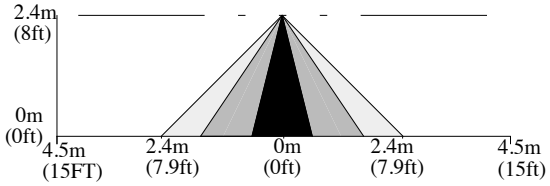
Lens Array detail

CM 0.25 GI V2-NF:

No Flange

Lens Array detail

SIDE VIEW:



CM 0.25 GI V2-SMD:

Surface Mounted Detector

Lens Array detail: See Figure 7, Orientation 1

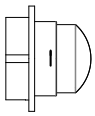
fresnel technologies inc.
drawing and design © 2016
101W. MORNINGSIDE DR. FORT WORTH, TX 76110, U. S. A. (817) 926-7474, FAX:(817)926-7146

CM 0.25 GI V3

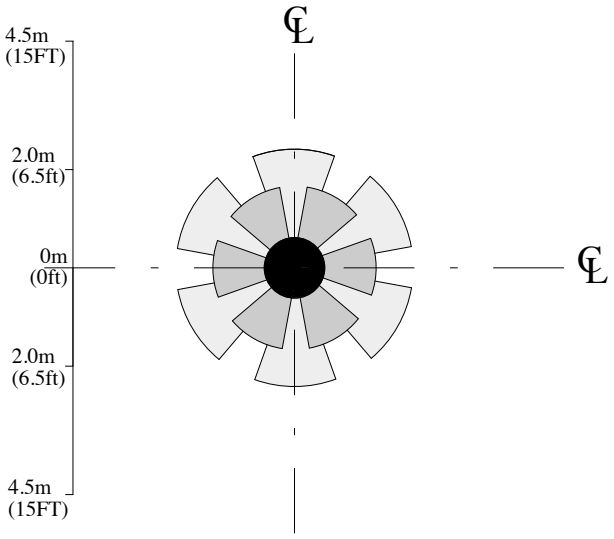
CM 0.25 GI V3:

With Flange

Lens Array detail



TOP VIEW:

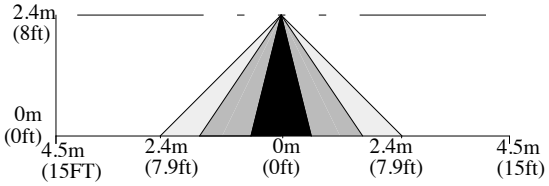


CM 0.25 GI V3-NF:

No Flange

Lens Array detail

SIDE VIEW:



CM 0.25 GI V3-SMD:

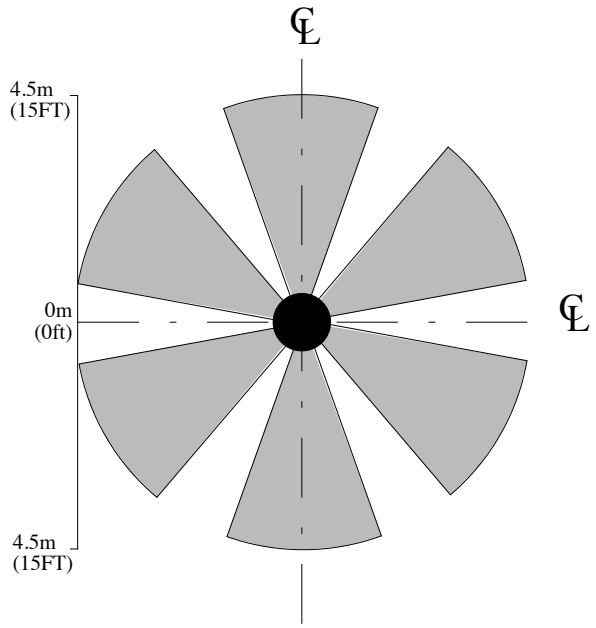
Surface Mounted Detector

Lens Array detail: See Figure 7, Orientation 1

fresnel technologies inc.
drawing and design © 2016
101W. MORNINGSIDE DR. FORT WORTH, TX 76110, U. S. A. (817) 926-7474, FAX:(817)926-7146

CM 0.25 GI V4

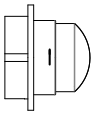
TOP VIEW:



CM 0.25 GI V4:

With Flange

Lens Array detail

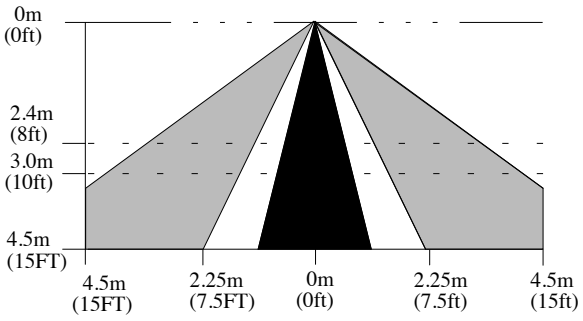


CM 0.25 GI V4-NF:

No Flange

Lens Array detail

SIDE VIEW:



CM 0.25 GI V4-SMD:

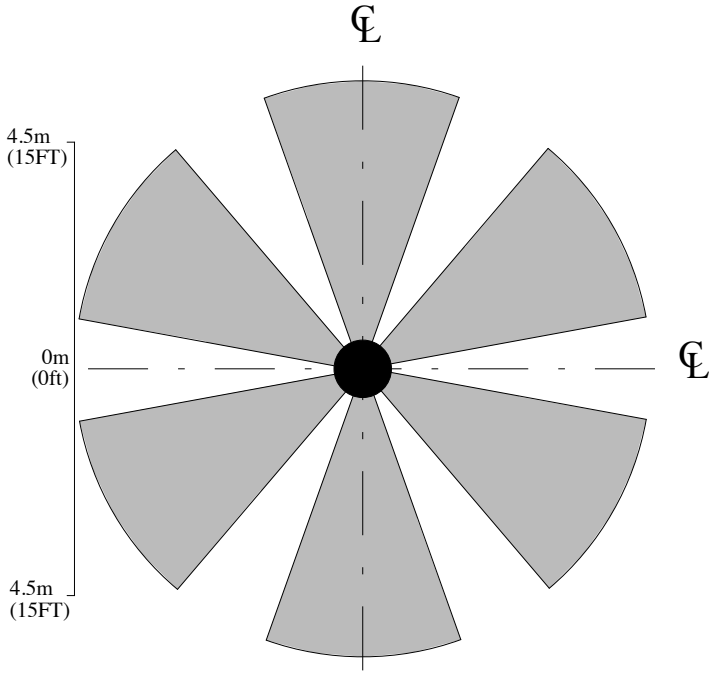
Surface Mounted Detector

Lens Array detail: See Figure 7, Orientation 1

fresnel technologies inc.
drawing and design © 2017
101W. MORNINGSIDE DR. FORT WORTH, TX 76110, U. S. A. (817) 926-7474, FAX:(817)926-7146

CM 0.25 GI V5

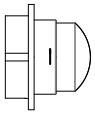
TOP VIEW:



CM 0.25 GI V5

With Flange

Lens Array detail

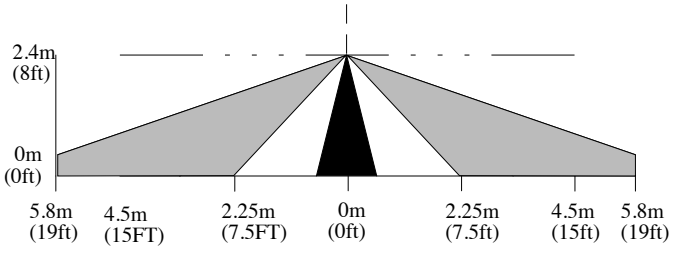


CM 0.25 GI V5-NF:

No Flange

Lens Array detail

SIDE VIEW:



CM 0.25 GI V5-SMD:

Surface Mounted Detector

Lens Array detail: See Figure 7, Orientation 1

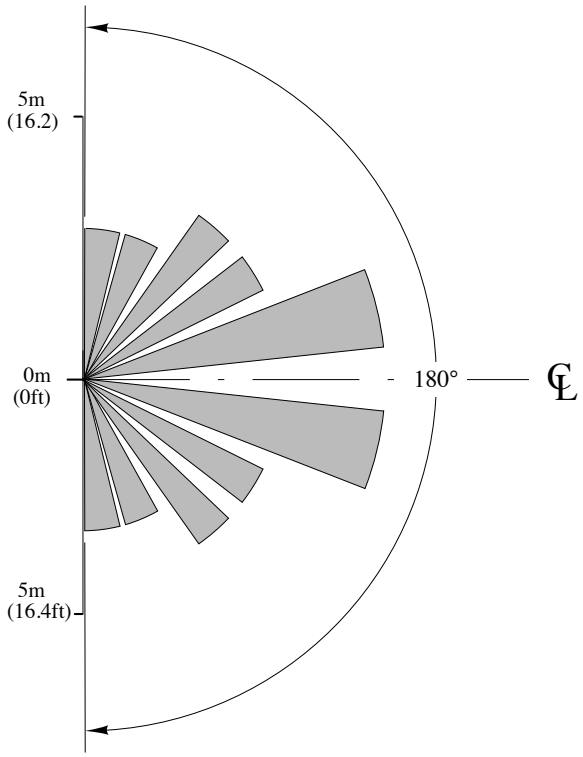
fresnel technologies inc.

101W. MORNINGSIDE DR. FORT WORTH, TX 76110, U. S. A. (817) 926-7474, FAX:(817)926-7146

WS AA 0.25 GI V1

For WS (wall switch) pattern, put pyroelectric detector's tab in slot I.

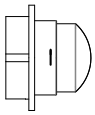
TOP VIEW:



WS AA 0.25 GI V1:

With Flange

Lens Array detail

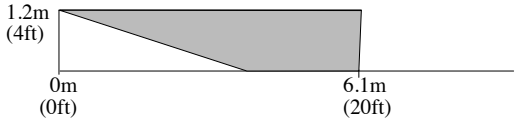


WS AA 0.25 GI V1-NF:

No Flange

Lens Array detail

SIDE VIEW:



WS AA 0.25 GI V1-SMD:

Surface Mounted Detector

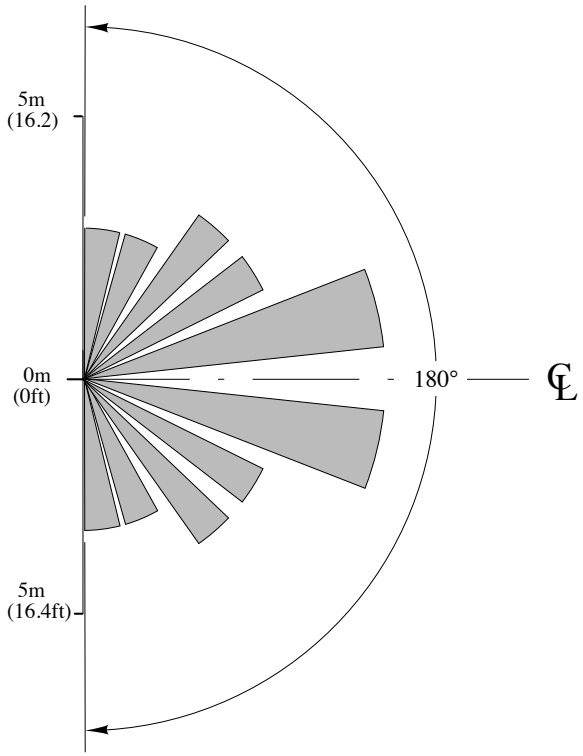
Lens Array detail: See Figure 7, Orientation 1

fresnel technologies inc.
101W. MORNINGSIDE DR. FORT WORTH, TX 76110, U. S. A. (817) 926-7474, FAX:(817)926-7146

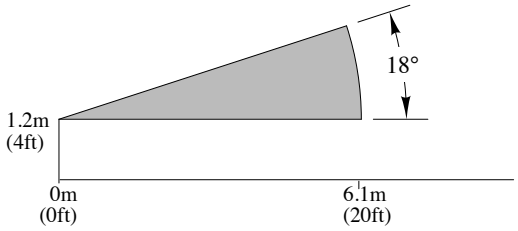
WS **AA** 0.25 GI V1

For AA (animal alley) pattern, put pyroelectric detector's tab in slot III.

TOP VIEW:



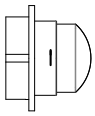
SIDE VIEW:



WS AA 0.25 GI V1:

With Flange

Lens Array detail



WS AA 0.25 GI V1-NF:

No Flange

Lens Array detail

WS AA 0.25 GI V1-SMD:

Surface Mounted Detector

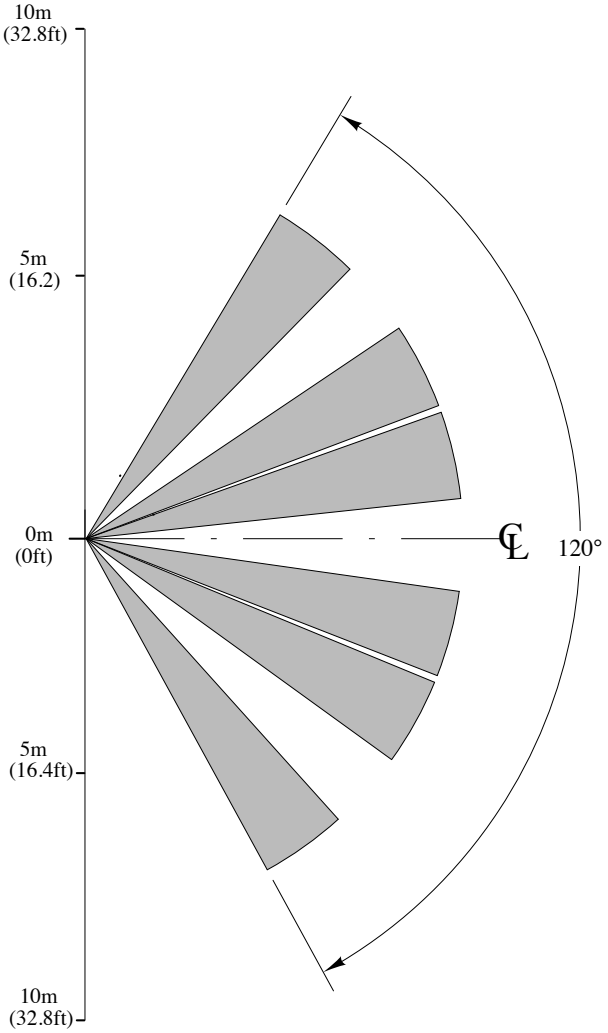
Lens Array detail: See Figure 8, Orientation 3

fresnel technologies inc.
drawing and design © 2016
101W. MORNINGSIDE DR. FORT WORTH, TX 76110, U. S. A. (817) 926-7474, FAX:(817)926-7146

WS AA 0.25 GI V2

For WS (wall switch) pattern, put pyroelectric detector's tab in slot III.

TOP VIEW:



WS AA 0.25 GI V2:

With Flange

Lens Array detail

WS AA 0.25 GI V2-NF:

No Flange

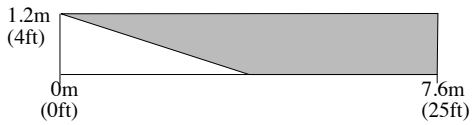
Lens Array detail

WS AA 0.25 GI V2-SMD:

Surface Mounted Detector

Lens Array detail: See Figure 7, Orientation 1

SIDE VIEW:

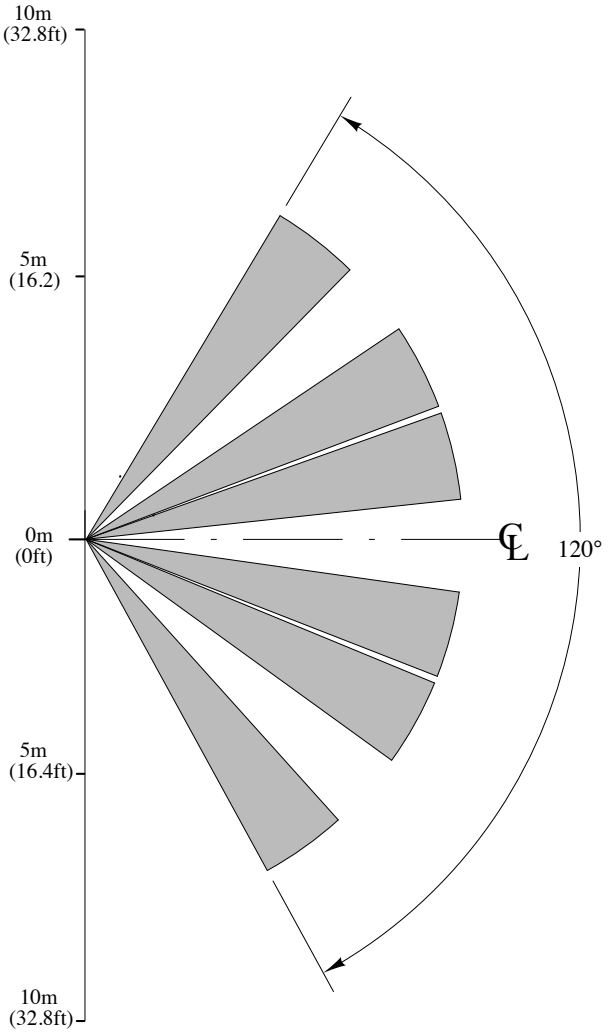


fresnel technologies inc.
101W. MORNINGSIDE DR. FORT WORTH, TX 76110, U. S. A. (817) 926-7474, FAX:(817)926-7146

WS **AA** 0.25 GI V2

For AA (animal alley) pattern, put pyroelectric detector's tab in slot III.

TOP VIEW:



WS AA 0.25 GI V2:

With Flange

Lens Array detail

WS AA 0.25 GI V2-NF:

No Flange

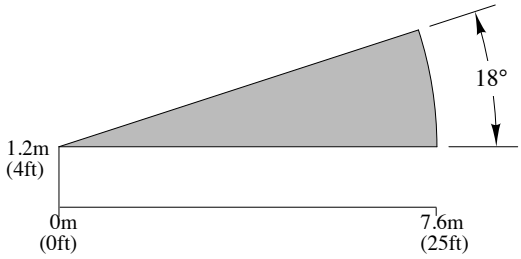
Lens Array detail

WS AA 0.25 GI V2-SMD:

Surface Mounted Detector

Lens Array detail: See Figure 8, Orientation 3

SIDE VIEW:

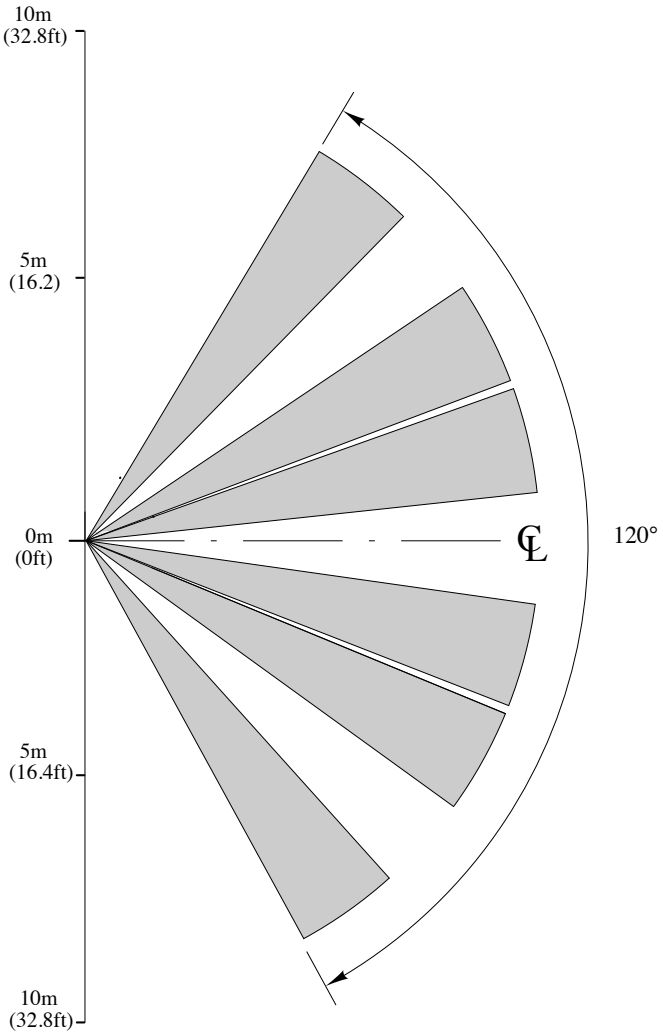


fresnel technologies inc.
drawing and design © 2016
101W. MORNINGSIDE DR. FORT WORTH, TX 76110, U. S. A. (817) 926-7474, FAX:(817)926-7146

WS VB AW 0.25 GI V3

For WS (wall switch) pattern, put pyroelectric detector's tab in slot I or III.

TOP VIEW:



WS VB AW 0.25 GI V3:

With Flange

Lens Array detail

WS VB AW 0.25 GI V3-NF:

No Flange

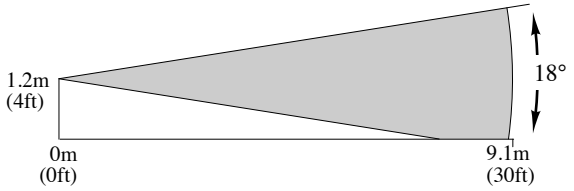
Lens Array detail

WS VB AW 0.25 GI V3-SMD:

Surface Mounted Detector

Lens Array detail: See Figure 7, Orientation 1

SIDE VIEW:

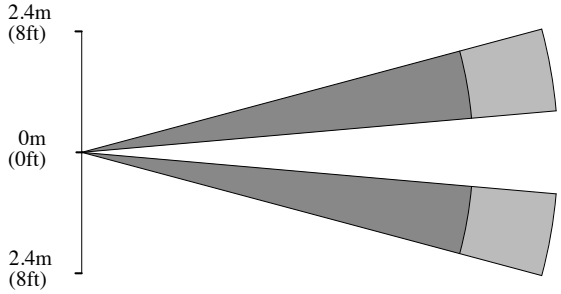


fresnel technologies inc.
drawing and design © 2016
101W. MORNINGSIDE DR. FORT WORTH, TX 76110, U. S. A. (817) 926-7474, FAX:(817)926-7146

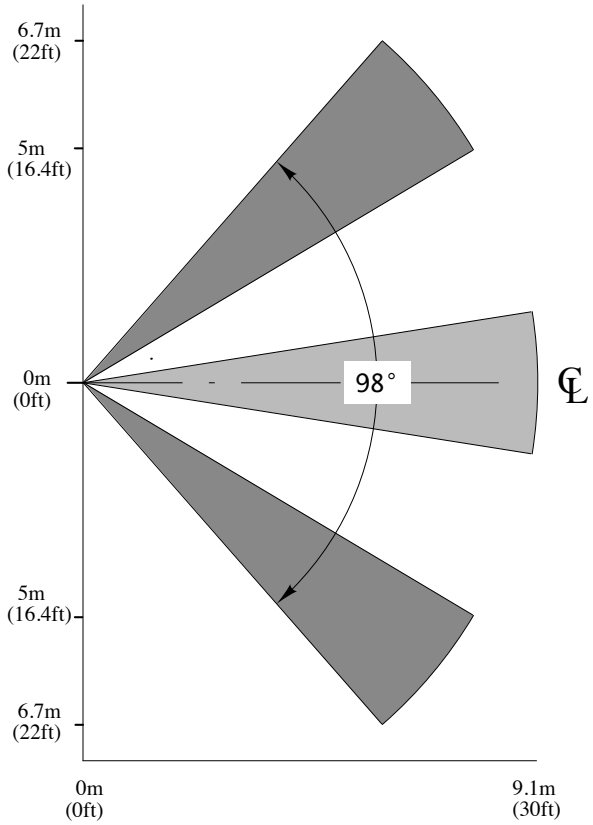
WS **VB** AW 0.25 GI V3

For VB (vertical barrier) pattern, put pyroelectric detector's tab in slot II.

TOP VIEW:



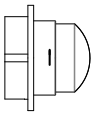
SIDE VIEW:



WS VB AW 0.25 GI V3:

With Flange

Lens Array detail



WS VB AW 0.25 GI V3-NF:

No Flange

Lens Array detail

WS VB AW 0.25 GI V3-SMD:

Surface Mounted Detector

Lens Array detail: See Figure 7, Orientation 2

fresnel technologies inc.
drawing and design © 2016
101W. MORNINGSIDE DR. FORT WORTH, TX 76110, U. S. A. (817) 926-7474, FAX:(817)926-7146

WS VB **AW** 0.25 GI V3

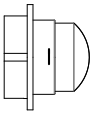
For AW (aisleway) pattern, put pyroelectric detector's tab in slot I or III.

WS VB AW 0.25 GI V3:

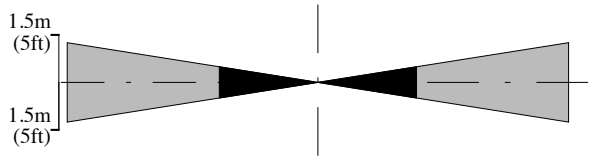
With Flange

TOP VIEW:

Lens Array detail



Aisleway direction

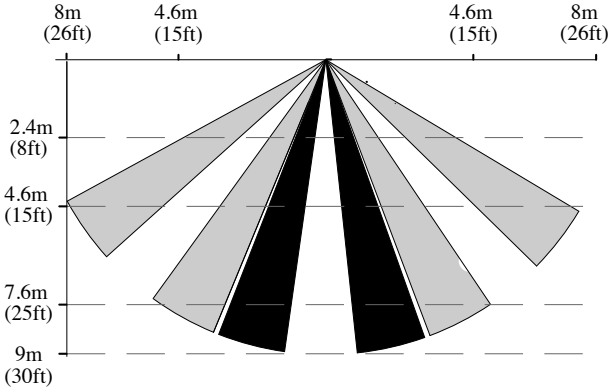


WS VB AW 0.25 GI V3-NF:

No Flange

Lens Array detail

SIDE VIEW:



WS VB AW 0.25 GI V3-SMD:

Surface Mounted Detector

Lens Array detail: See Figure 8, Orientation 4

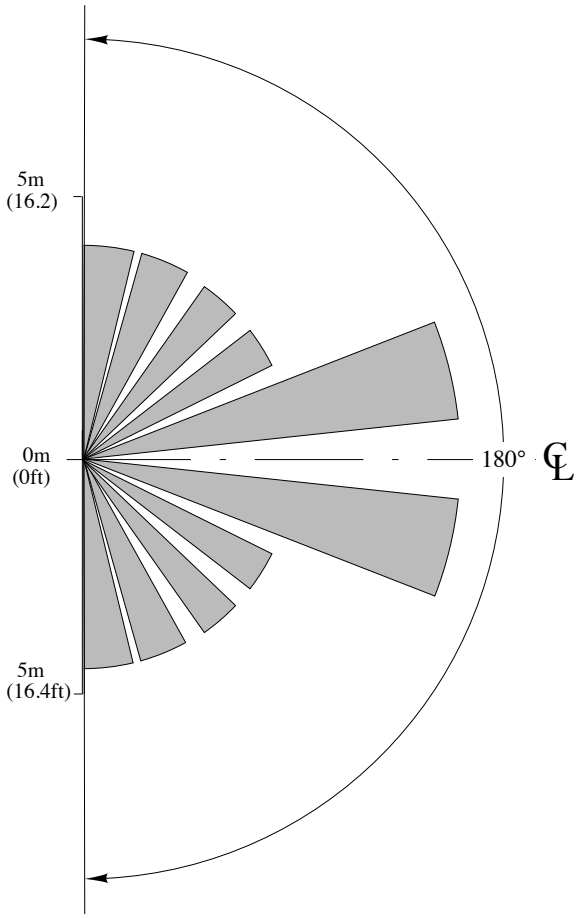
fresnel technologies inc.

101W. MORNINGSIDE DR. FORT WORTH, TX 76110, U. S. A. (817) 926-7474, FAX:(817)926-7146

WS VB AW 0.25 GI V4

For WS (wall switch) pattern, put pyroelectric detector's tab in slot I or III.

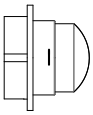
TOP VIEW:



WS VB AW 0.25 GI V4:

With Flange

Lens Array detail



WS VB AW 0.25 GI V4-NF:

No Flange

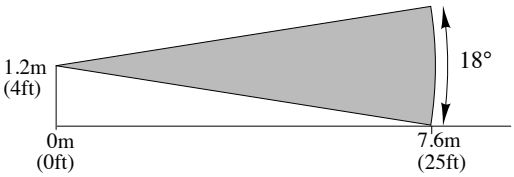
Lens Array detail

WS VB AW 0.25 GI V4-SMD:

Surface Mounted Detector

Lens Array detail: See Figure 7, Orientation 1

SIDE VIEW:



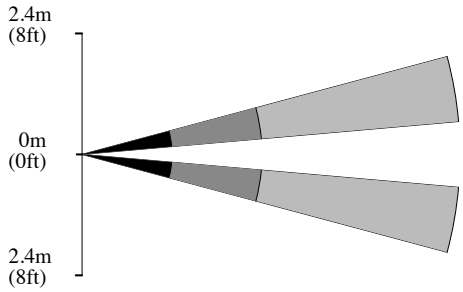
fresnel technologies inc.

101W. MORNINGSIDE DR. FORT WORTH, TX 76110, U. S. A. (817) 926-7474, FAX:(817)926-7146

WS **VB** AW 0.25 GI V4

For VB (vertical barrier) pattern, put pyroelectric detector's tab in slot II.

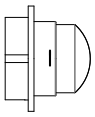
TOP VIEW:



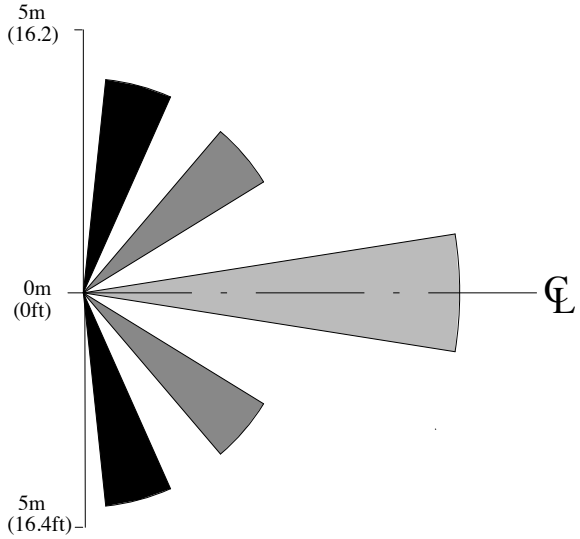
WS VB AW 0.25 GI V4:

With Flange

Lens Array detail



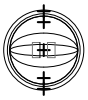
SIDE VIEW:



WS VB AW 0.25 GI V4-NF:

No Flange

Lens Array detail



WS VB AW 0.25 GI V4-SMD:

Surface Mounted Detector

Lens Array detail: See Figure 7, Orientation 2

fresnel technologies inc.

101W. MORNINGSIDE DR. FORT WORTH, TX 76110, U. S. A. (817) 926-7474, FAX:(817)926-7146

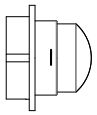
WS VB **AW** 0.25 GI V4

For AW (aisleway) pattern, put pyroelectric detector's tab in slot I or III.

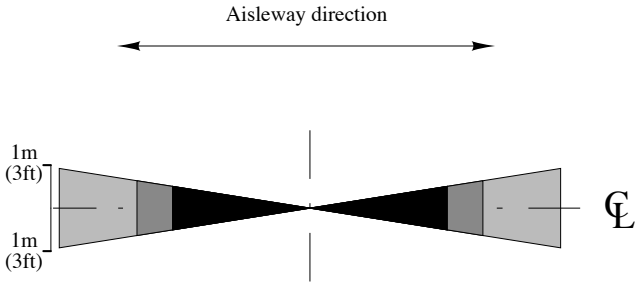
WS VB AW 0.25 GI V4:

With Flange

Lens Array detail



TOP VIEW:

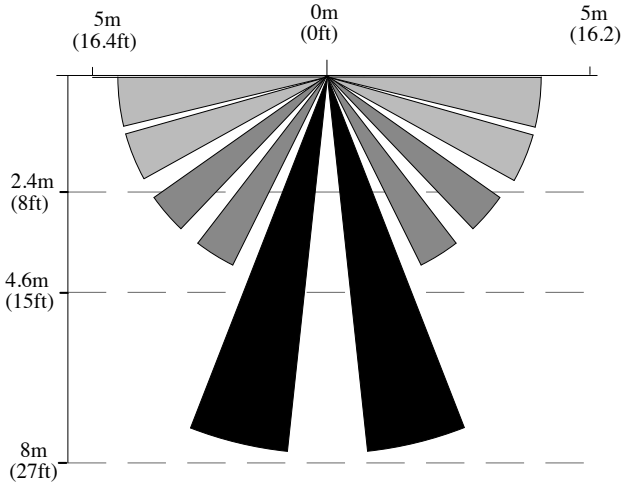


WS VB AW 0.25 GI V4-NF:

No Flange

Lens Array detail

SIDE VIEW:



WS VB AW 0.25 GI V4-SMD:

Surface Mounted Detector

Lens Array detail: See Figure 8, Orientation 4

fresnel technologies inc.
101W. MORNINGSIDE DR. FORT WORTH, TX 76110, U. S. A. (817) 926-7474, FAX:(817)926-7146