



A **Littelfuse** Company

# **ZNCL10 PIR Lens Series**

## **Product Specification**

PS041201-0222



**Warning: DO NOT USE IN LIFE SUPPORT**

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## Revision History

Each instance in this document's revision history reflects a change from its previous edition. For more details, refer to the corresponding page(s) or appropriate links furnished in the table below.

| Date      | Revision Level | Description     | Pages |
|-----------|----------------|-----------------|-------|
| Feb. 2022 | 01             | Original issue. | All   |

## Overview

Zilog's Passive Infrared (PIR) lenses are designed to deliver high performance for the most demanding motion detection applications. Each lens is manufactured from high density polyethylene ensuring maximum IR transmissivity with well-defined beam patterns.

The ZNCL10 series are standard 9mm lenses that clip directly on to a TO-5 package PIR sensor, greatly simplifying the mechanical design.

Each lens has 2 orientations (Tab-A or Tab-B) and works with either dual element or quad element PIR sensors providing multiple beam patterns and detection areas.

## Features

- High density polyethylene construction
- Simple mounting – clips directly on to TO-5 package PIR sensor
- Works with dual, circular dual or quad element PIR sensors
- Multiple beam patterns to choose from, with same mechanical dimensions

## Applications

- General purpose motion detectors
- Lighting and HVAC control
- Entrance detection
- Product displays, vending machines, and kiosks
- Directional detection



Figure 1 - ZNCL10IL



Figure 3 - ZNCL10R



Figure 2 - ZNCL10S

## Ordering Information

| Part Number                       | Features  | Typical Applications   |
|-----------------------------------|---|--|
| <b>ZNCL10IL</b>                   | 9mm Wall Mount Array<br>80°x30° Detection area<br>6 beams (X); 2 beams (Y)<br>7m range<br>Recommended PIR Sensor:<br>Dual, Quad Element   | <b>Wall mount for power management</b><br>Proximity or entrance detection<br>Kiosks<br>Vending<br>Product display's  |
| <b>ZNCL10R</b><br><b>ZNCL10RB</b> | 9mm Wall/Ceiling Mount Array<br>360° circular pattern with 90° cone<br>14 detection zones<br>5m range/height<br>ZNCL10RB is black color<br>Recommended PIR Sensor:<br>Dual, Circular Dual or Quad Element | <b>Room Occupancy and Proximity Sensing</b><br>Lighting and HVAC control<br>Kiosk/Display control<br>Vending/Appliance power management<br>Product display's |
| <b>ZNCL10S</b>                    | 9mm Wall Mount Array<br>Narrow 7° x 7° Detection area<br>2 beams (X); 1 beam (Y)<br>12m range<br>Recommended PIR Sensor:<br>Dual, Quad Element  | <b>Barrier or entrance detection</b><br>Kiosk/Display Counters<br>Vending<br>HVAC<br>Directional detection   |

## Len Material

High Density Polyethylene (HDPE)

## Lens Color

ZNCL10IL – Natural  
ZNCL10R – Natural  
ZNCL10RB – Black  
ZNCL10S – Natural

## Environmental Characteristics

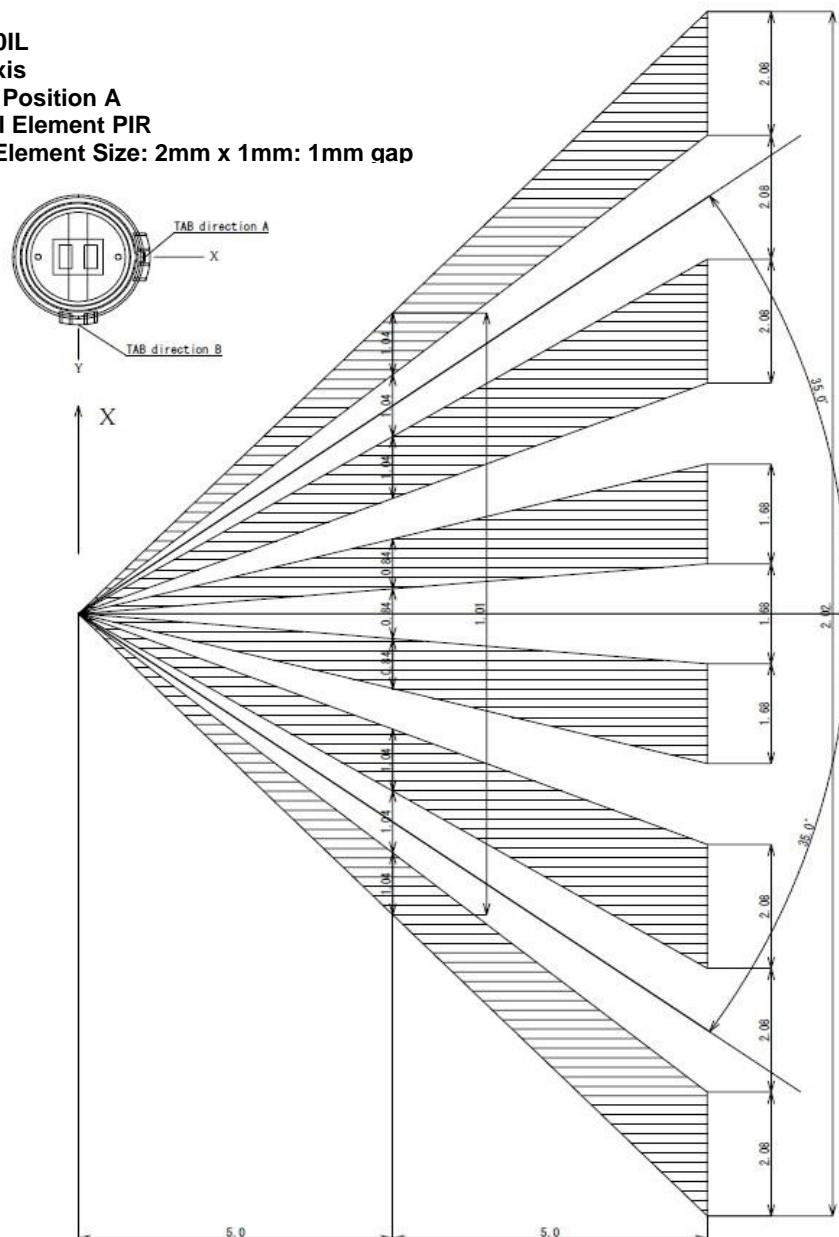
- 1) Operating temperature: -20°C to +70°C
- 2) Storage temperature: -25°C to +75°C

The figure below shows the mechanical dimensions for all ZNCL10 lens series devices.  
All dimensions are in mm.



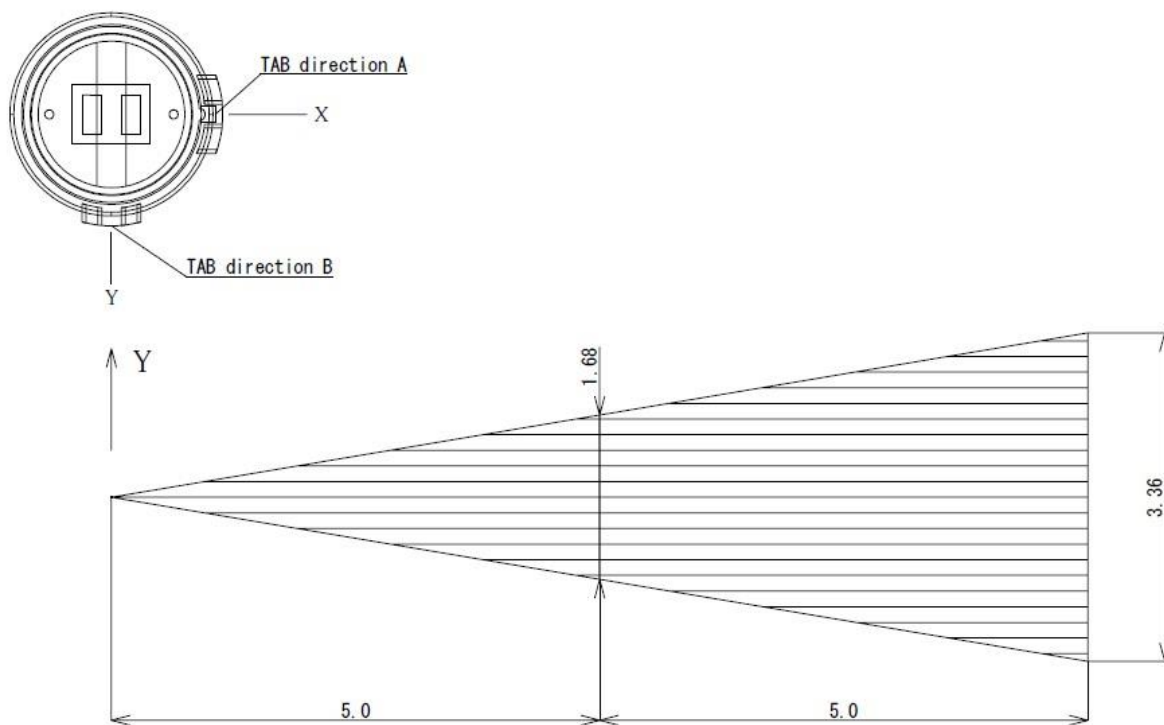
## ZNCL10IL

**ZNCL10IL**  
**X Axis**  
**Tab Position A**  
**Dual Element PIR**  
**Element Size: 2mm x 1mm: 1mm gap**



**Figure 5 - ZNCL10IL; X Axis; Dual Element; Tab-A**

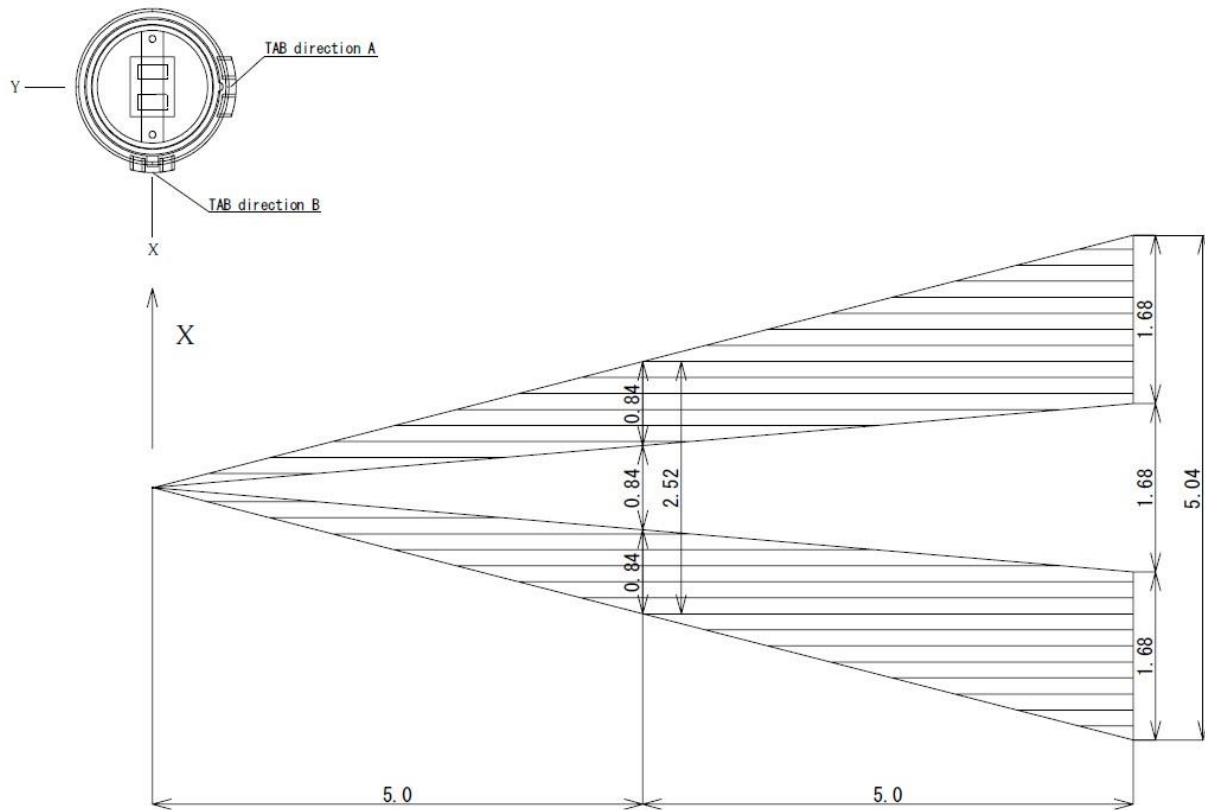
**ZNCL10IL**  
**Y Axis**  
**Tab Position A**  
**Dual Element PIR**  
**Element Size: 2mm x 1mm: 1mm gap**



**Figure 6 - ZNCL10IL; Y Axis; Dual Element; Tab-A**

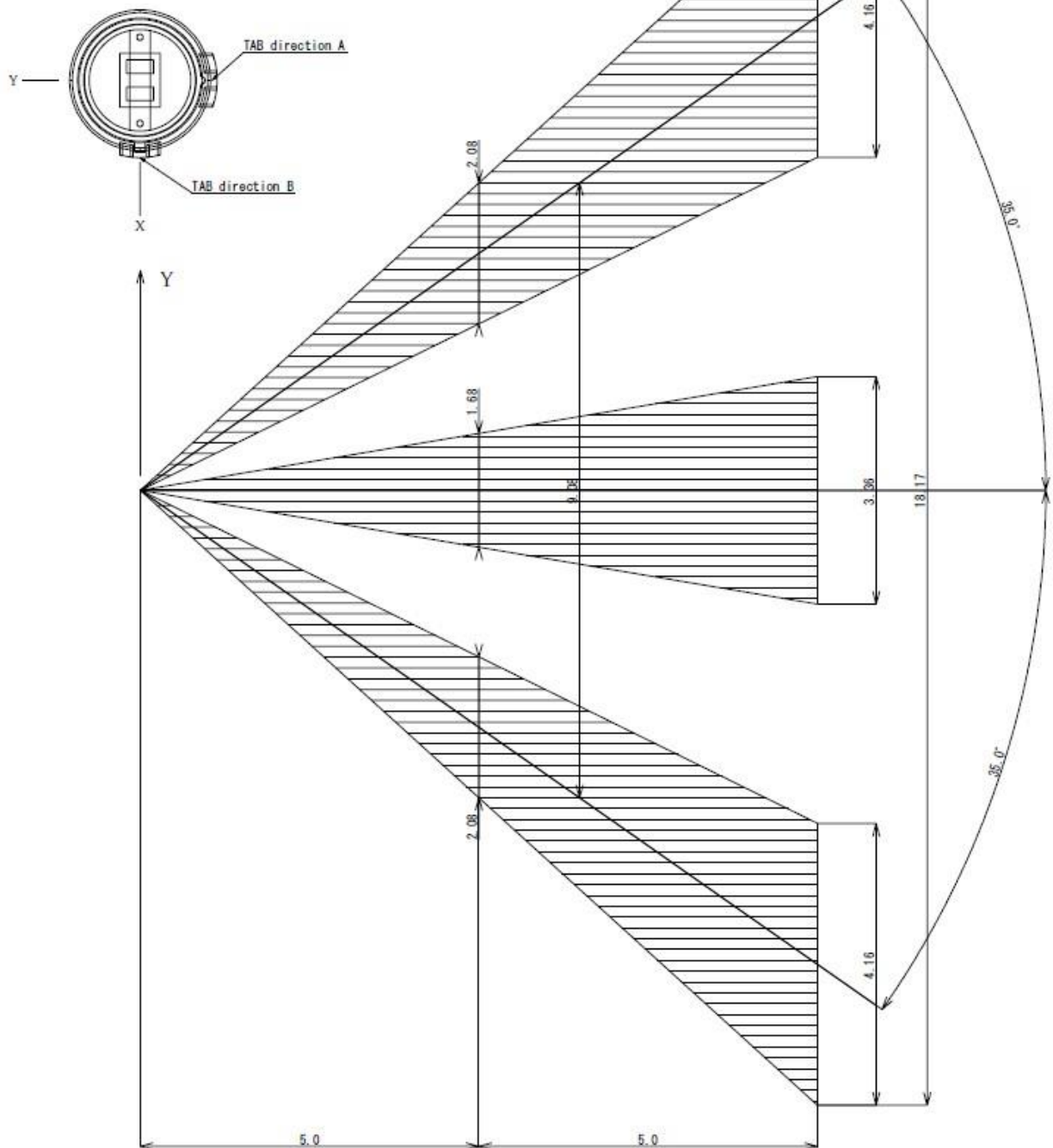


**ZNCL10IL**  
**X Axis**  
**Tab Position B**  
**Dual Element PIR**  
**Element Size: 2mm x 1mm: 1mm gap**



**Figure 7 - ZNCL10IL; X Axis; Dual Element; Tab-B**

**ZNCL10IL**  
**Y Axis**  
**Tab Position B**  
**Dual Element PIR**  
**Element Size: 2mm x 1mm: 1mm gap**



**Figure 8 - ZNCL10IL; Y Axis; Dual Element; Tab-B**

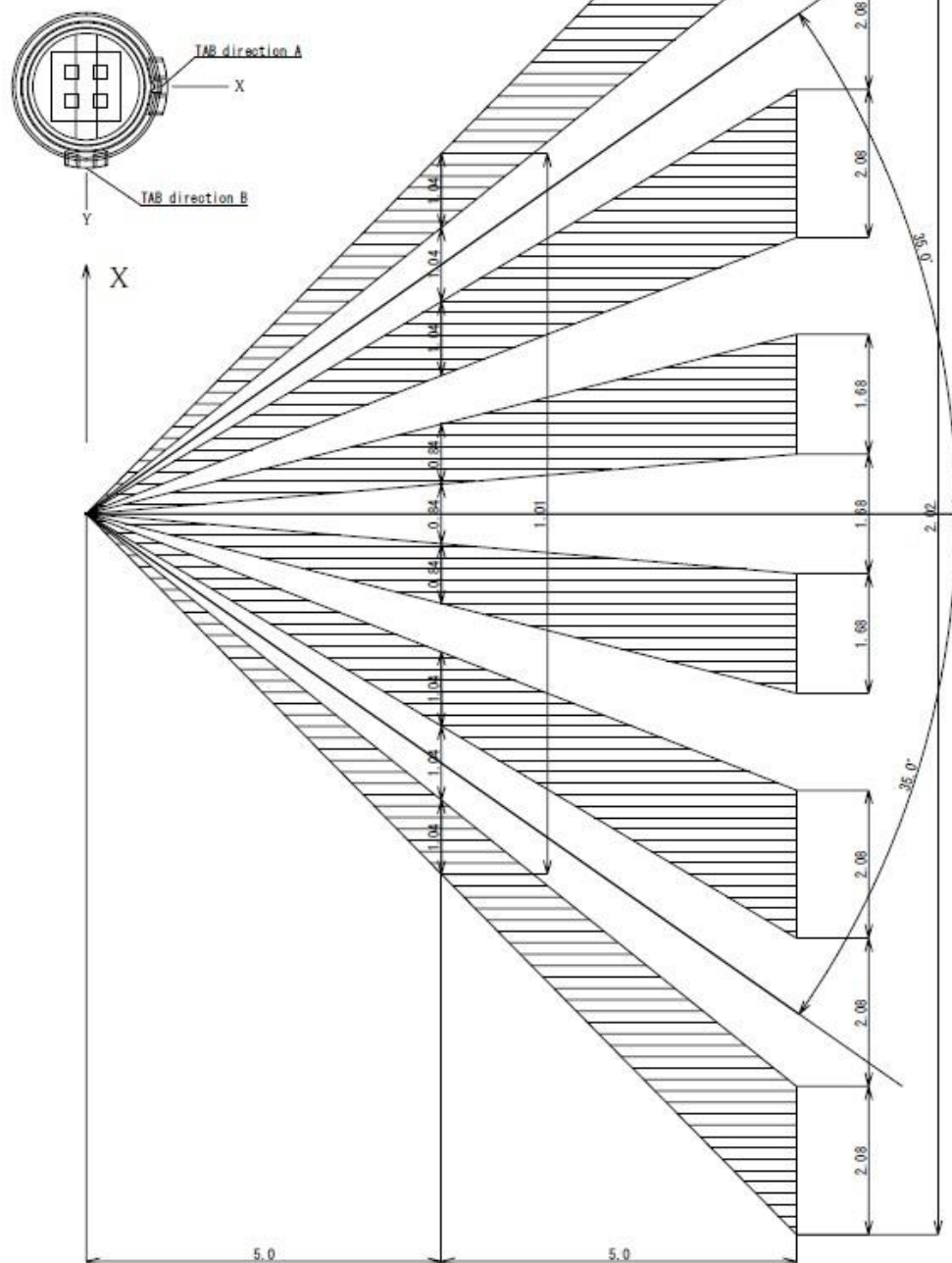
**ZNCL10IL**

**X Axis**

**Tab Position A**

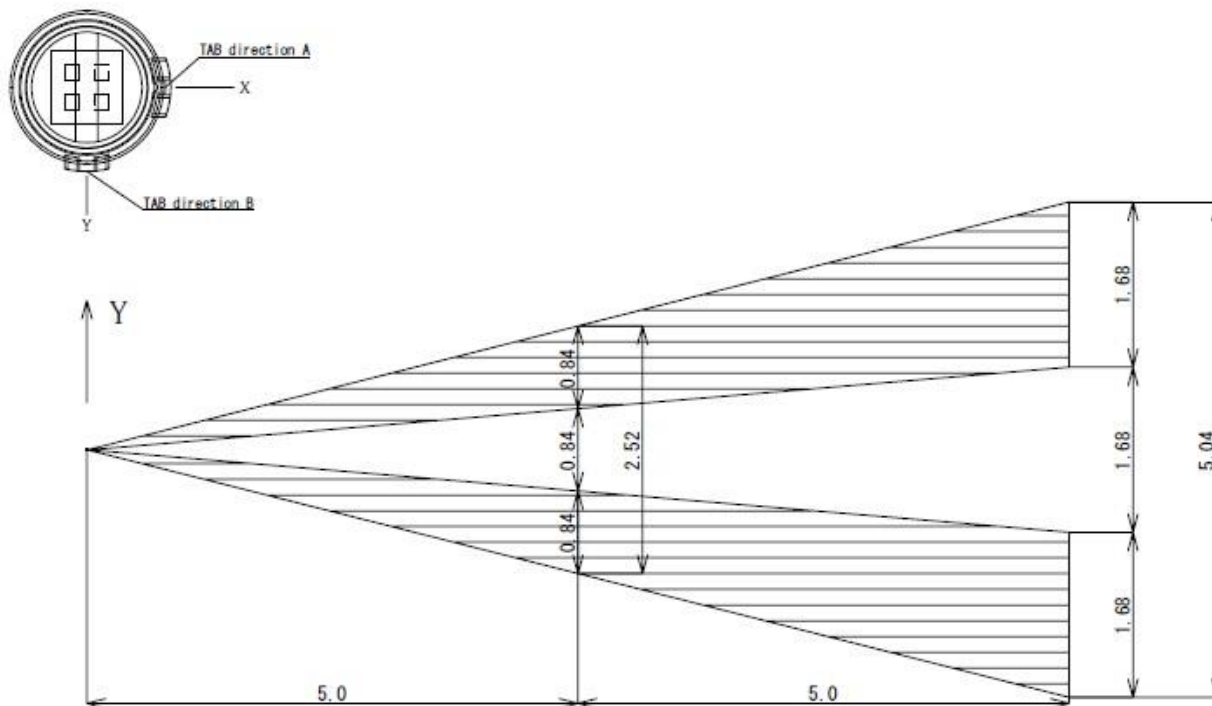
**Quad Element PIR**

**Element Size: 1mm x 1mm: 1mm gap**



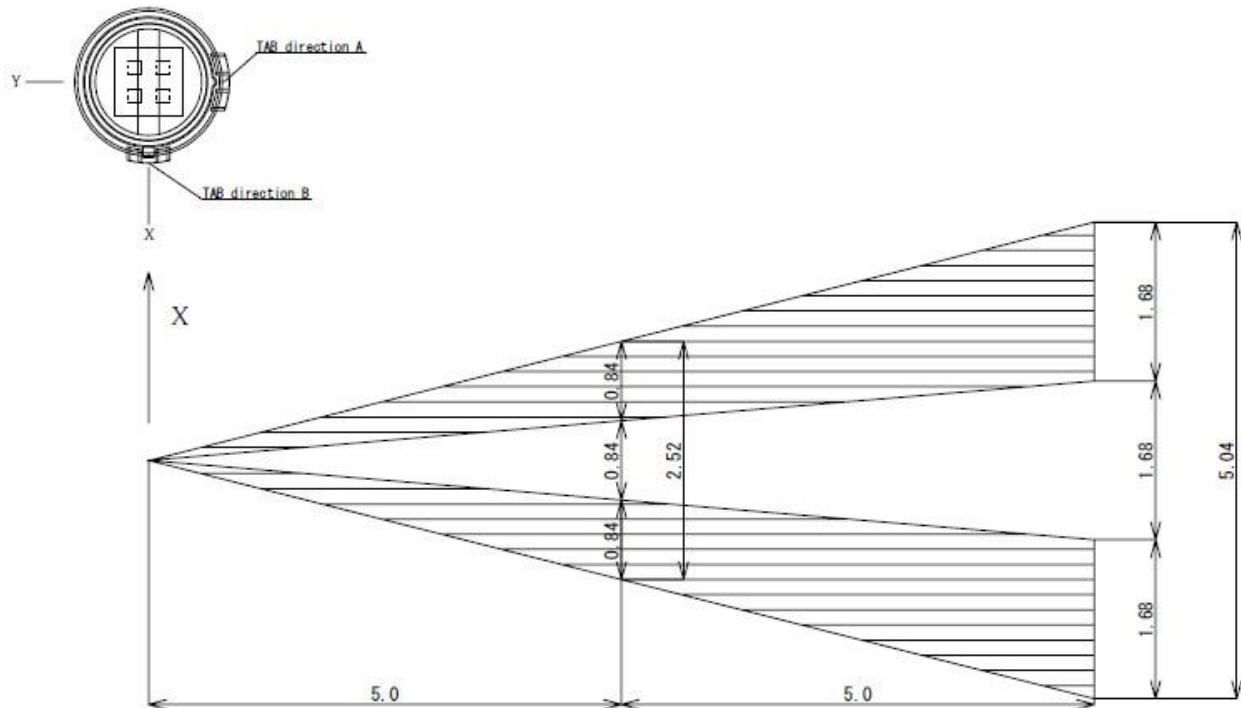
**Figure 9 - ZNCL10IL; X Axis; Quad Element; Tab-A**

**ZNCL10IL**  
**Y Axis**  
**Tab Position A**  
**Quad Element PIR**  
**Element Size: 1mm x 1mm: 1mm gap**

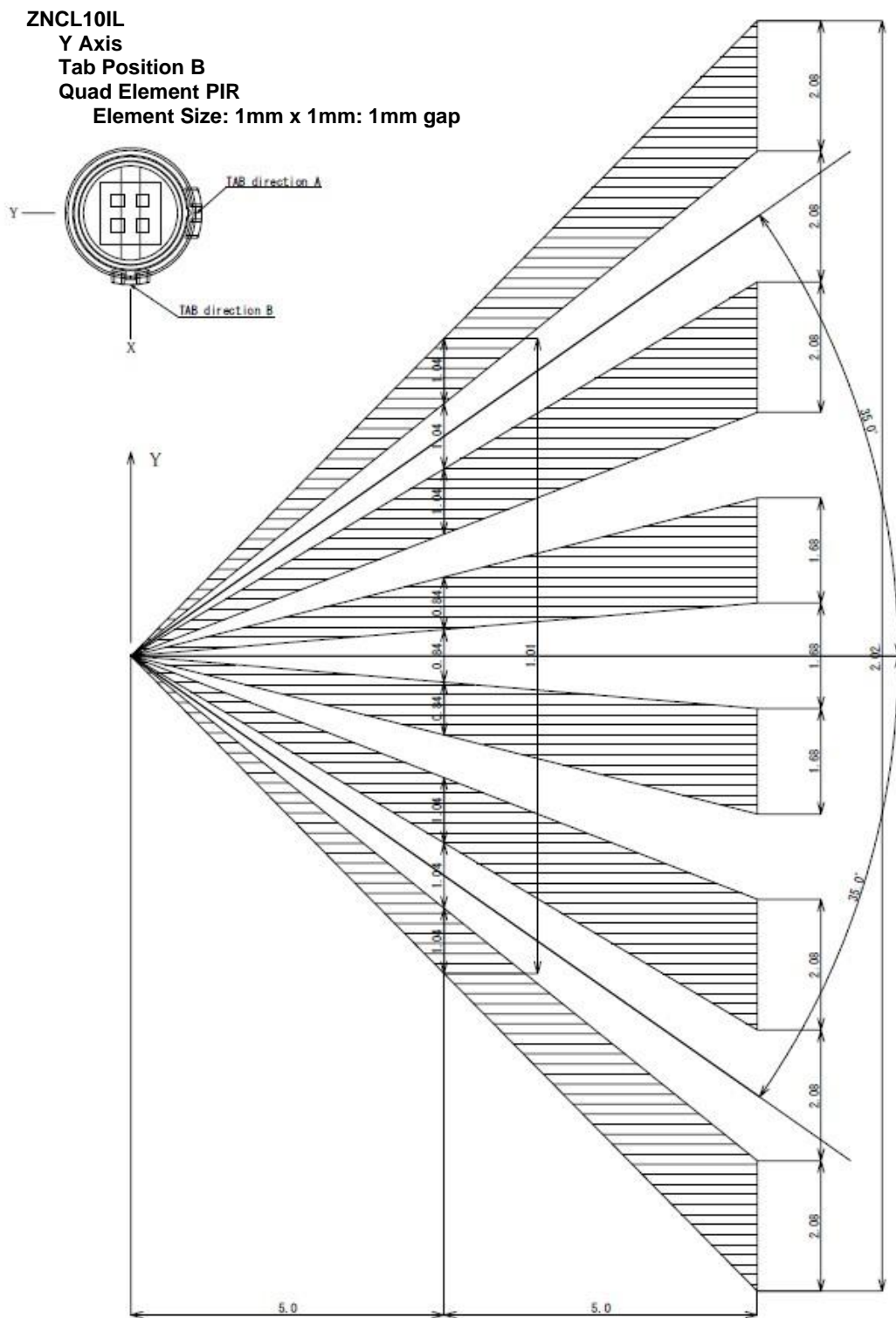


**Figure 10 - ZNCL10IL; Y Axis; Quad Element; Tab-A**

**ZNCL10IL**  
**X Axis**  
**Tab Position B**  
**Quad Element PIR**  
**Element Size: 1mm x 1mm: 1mm gap**



**Figure 11 - ZNCL10IL; X Axis; Quad Element; Tab-B**



## ZNCL10R/RB

ZNCL10R and ZNCL10RB beam patterns are shown in the following figures using dual and quad element PIR sensors in tab position A (Tab-A) and tab position B (Tab-B) lens orientations. All dimensions are in meters.

### ZNCL10R/RB

XY Axis

Tab Position A

Dual Element PIR

Element Size: 2mm x 1mm: 1mm gap

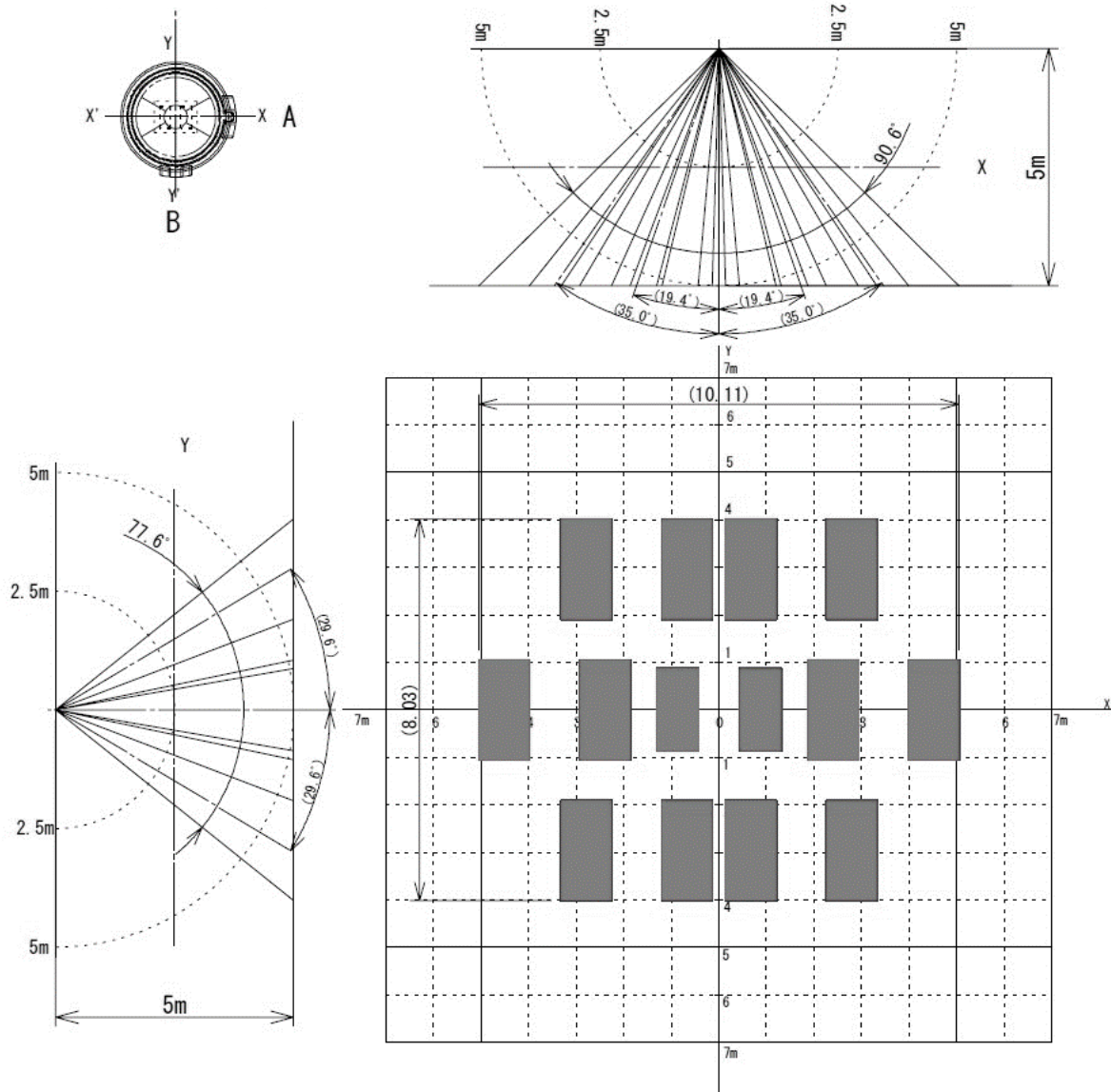
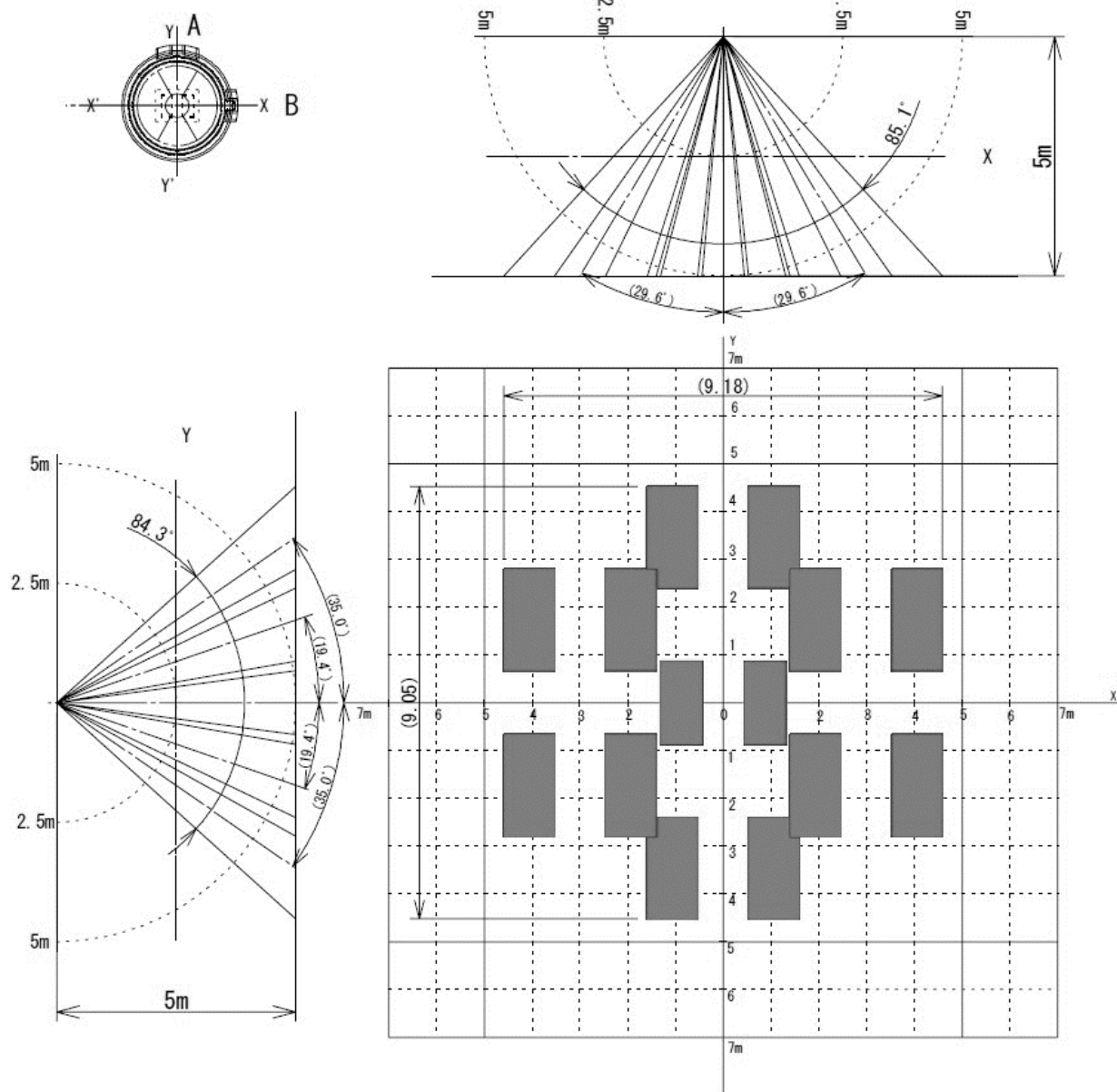


Figure 13 - ZNCL10R/RB; XY Axis; Dual Element; Tab-A



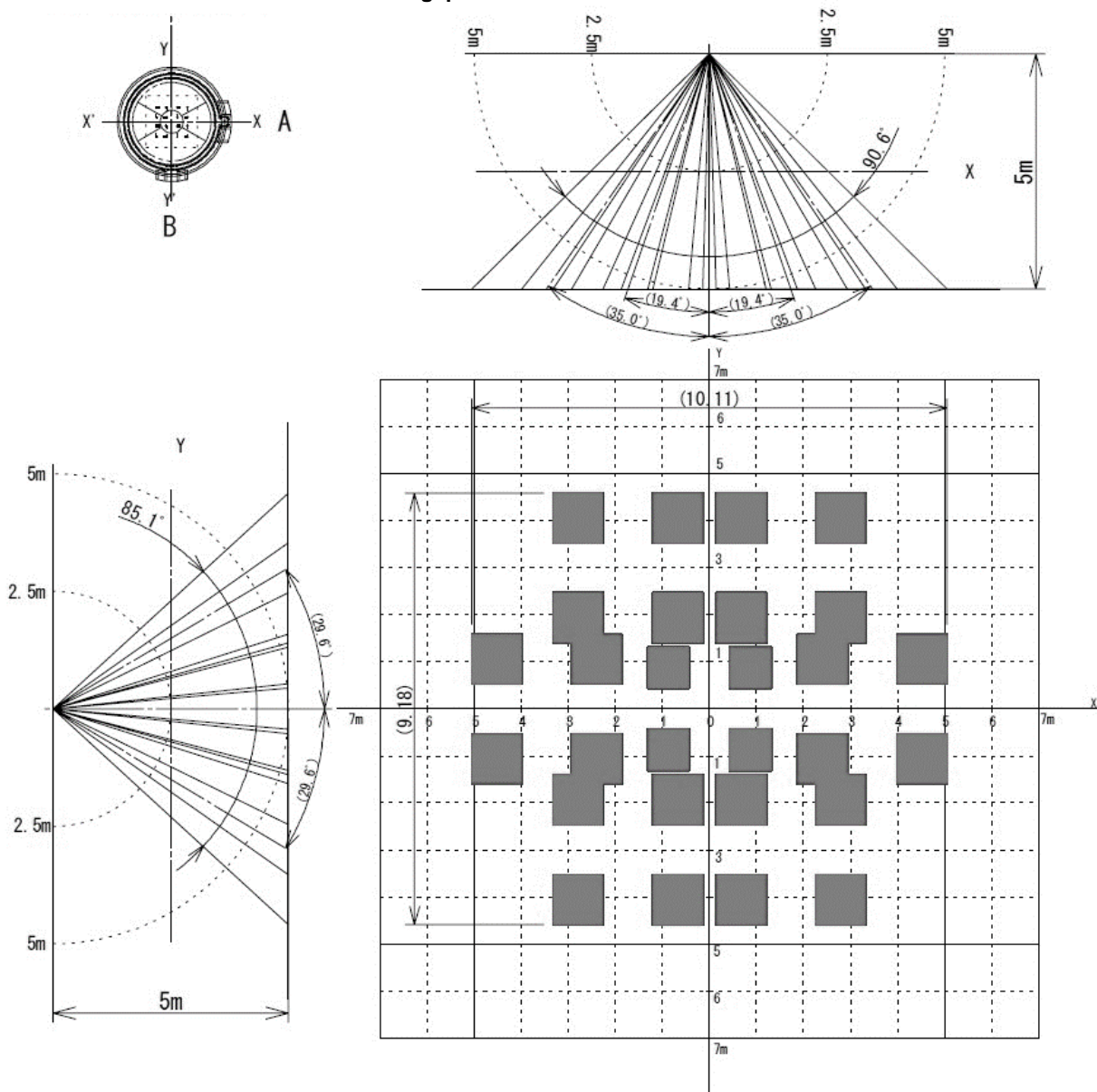
**ZNCL10R/RB**  
**XY Axis**  
**Tab Position B**  
**Dual Element PIR**  
**Element Size: 2mm x 1mm: 1mm gap**



**Figure 14 - ZNCL10R/RB; XY Axis; Dual Element; Tab-B**



**ZNCL10R/RB**  
XY Axis  
Tab Position A or B  
Quad Element PIR  
Element Size: 1mm x 1mm: 1mm gap

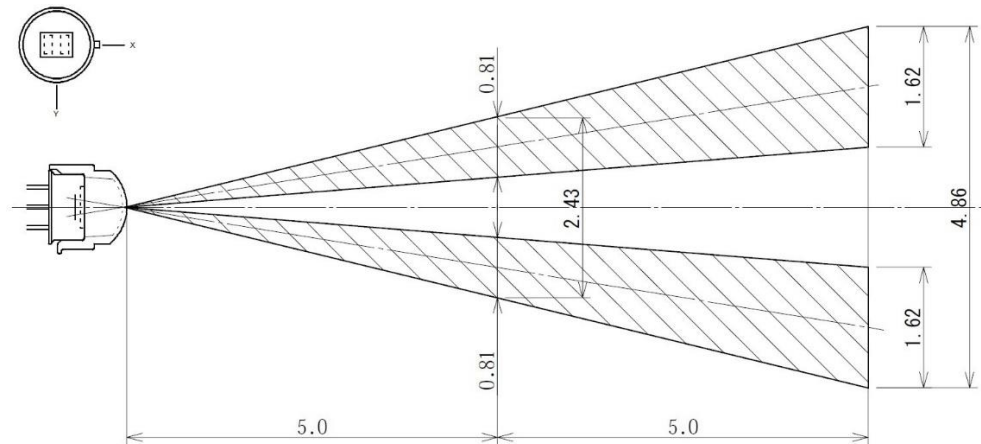


**Figure 15 - ZNCL10R/RB; XY Axis; Quad Element; Tab-A or Tab-B**

## ZNCL10S

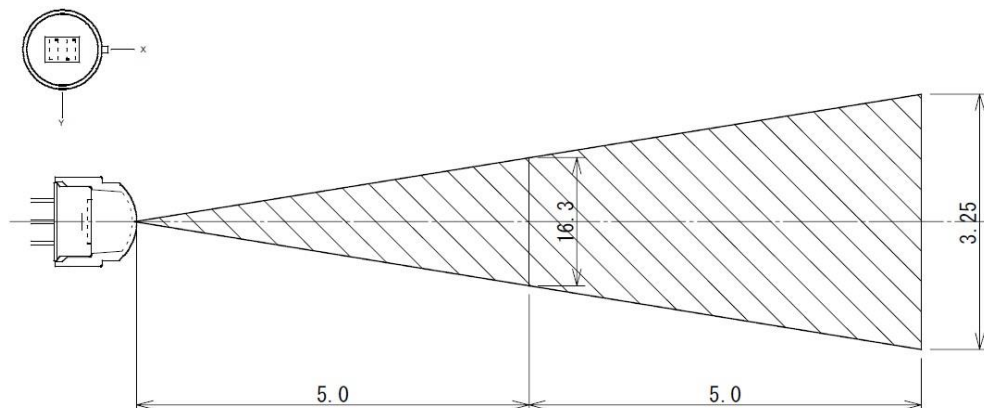
ZNCL10S beam patterns are shown in the following figures using dual and quad element PIR sensors. For this lens, tab position A (Tab-A) and tab position B (Tab-B) provide the same beam patterns. All dimensions are in meters.

**ZNCL10S**  
**X Axis**  
**Tab Position A or B**  
**Dual Element PIR**  
**Element Size: 2mm x 1mm: 1mm gap**



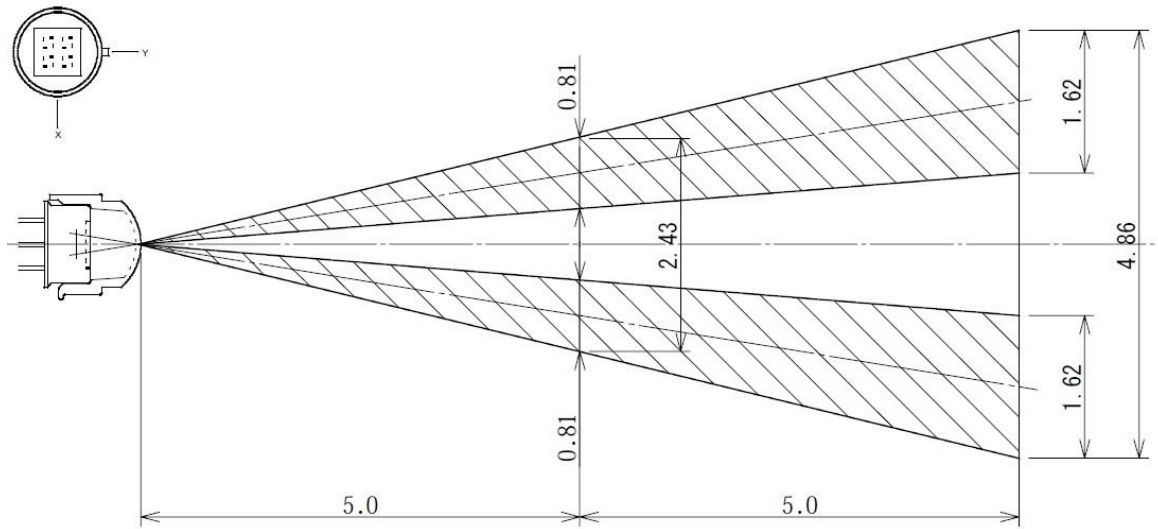
**Figure 16 - ZNCL10S; X Axis; Dual Element; Tab-A or Tab-B**

**ZNCL10S**  
**Y Axis**  
**Tab Position A or B**  
**Dual Element PIR**  
**Element Size: 2mm x 1mm: 1mm gap**



**Figure 17 - ZNCL10S; Y Axis; Dual Element; Tab-A or Tab-B**

**ZNCL10S**  
**X and Y Axis**  
**Tab Position A or B**  
**Quad Element PIR**  
**Element Size: 1mm x 1mm: 1mm gap**



**Figure 18 - ZNCL10S; X and Y Axis; Quad Element; Tab-A or Tab-B**

## Related Documents

The documents associated with the ZRE200GE PIR sensor are listed below. Each of these documents, and others can be obtained from the [ZMOTION Product Page](http://www.zilog.com) on the Zilog website: <http://www.zilog.com>.

| Document Number | Description               |
|-----------------|---------------------------|
| PB0264          | PIR Lens Product Brief    |
| PB0258          | ZMOTION MCU Product Brief |
| PS0263          | PIR Sensor Product Brief  |

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