

Classification		References		Issue No.
Part Name		Part No.		
Infrared Array Sensor Grid-EYE Unit Type		AMGU4241		9-1

1. Part Name : Infrared Array Sensor Grid-EYE Unit Type

2. Part No. : AMG4241

3. Characteristics

3-1 Ratings

Item	unit	Specification			Remarks
		Min.	Typ.	Max.	
Power supply voltage	VDC	21.6	24	26.4	—
Current Consumption	mA	—	25	50	—
Contact capacity	—	—	—	DC24V 0.1A	Photo MOS Relay
Person detectable surrounding temperature (spec. guaranteed temp.)	degC	+10 to +29			no condensation
Operating temperature (at power-on)	degC	0 to +50			no freezing and condensation
Storage temperature (at power-off)	degC	-20 to +70			no freezing and condensation

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3-2 Basic specifications

Item		Unit	Specification			Remarks	
			Min.	Typ.	Max.		
Installation height		m			2.7		*4
Detection range		m	3.6x3.6			At 1.6m distance from ceiling	*4
Moving velocity of target		m/s			1.7	*1	*4
Location accuracy	Target heat source: 400mmx400mm heater (Difference temp.: 4degC)	mm		+/-300		-	*4
	Target heat Source: Human	mm		+/-500		-	*4
Area resolution		-	Division into 16(4x4)			-	
Indicator light		-	Red (when detected human)			-	*4
Address setting range		-	1 to 63			sets up by DIPSW	
Wiring length (MAX)		m			500	*2	
Applicable electric wire		-	Power, Contact output line : ϕ 0.65 to 0.9 RS485 communication line : ϕ 0.65 to 0.9 (CPEV)			*3	
External Dimensions		mm	ϕ 120x63.5			-	
Weight		g	About 190				
Installation hole size		mm	ϕ 100 +5/-0			-	
Ceiling thickness		mm			30	-	

*1. The sensor would not be able to detect human who walks faster than 1.7m/s.

*2. Shall be tested/evaluated the performance of customer's system which incorporates Grid-EYE unit, and also checked the specification of the controller device to be connected.

*3. Shall be used CPEV cable with shield for RS485 communication line.

*4. Condition: detective temperature range 10 to 29 degC

References

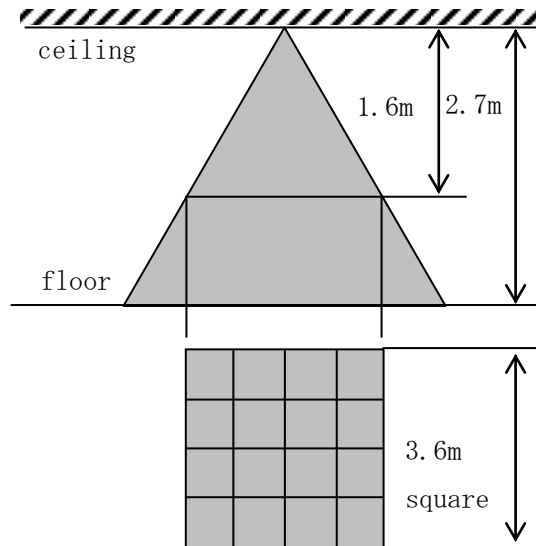
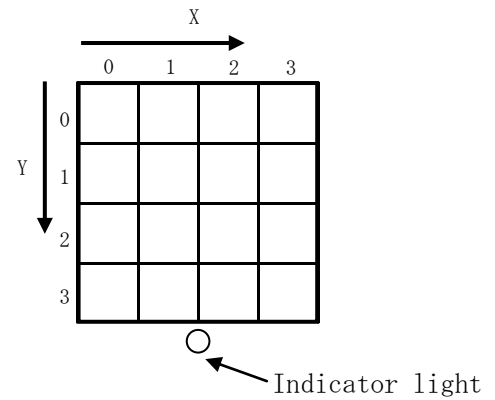
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Detection range (image)Coordinates (image)

3-3 Communication specification

item	unit	specification
electric specifications	-	Follow RS-485
Protocol	-	MODBUS (RTU)
Baud rate	bps	38400
Data length	Bit	8
Start bit	Bit	1
Stop bit	Bit	1
Parity check	Bit	1
Parity	-	Odd
Flow control	-	none

-Grid-EYE unit works as a Slave. (Controller: Master)

-Shall be checked communication with the controller device to be connected.

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2) human's coordinates (8 persons)

Grid-EYE unit outputs human's detected position with XY coordinates, and sequentially outputs the coordinates for the detected number of person in clause 1) from (Xad1, Yad1) in order.

Undetected data position is set to (0, 0).

Data (0, 0) to be determined/judged at system side whether undetected data (0, 0) or detected data of coordinates (0, 0), based on the data for detected number of person in clause 1);

7

6

5

4

3

2

1

0

Yad2 [1:0]	Xad2 [1:0]	Yad1 [1:0]	Xad1 [1:0]
Yad4 [1:0]	Xad4 [1:0]	Yad3 [1:0]	Xad3 [1:0]
Yad6 [1:0]	Xad6 [1:0]	Yad5 [1:0]	Xad5 [1:0]
Yad8 [1:0]	Xad8 [1:0]	Yad7 [1:0]	Xad7 [1:0]

} 4bytes

X

0123

0

1

2

3

Y

3) exist/absence data

Grid-EYE unit outputs the person exist/absence data in the divided 16 area.

0: absence, 1: exist

7

6

5

4

3

2

1

0

d8	d7	d6	d5	d4	d3	d2	d1
d16	d15	d14	d13	d12	d11	d10	d9

} 2bytes

X

0123

0

1

2

3

Y

d1	d2	d3	d4
d5	d6	d7	d8
d9	d10	d11	d12
d13	d14	d15	d16

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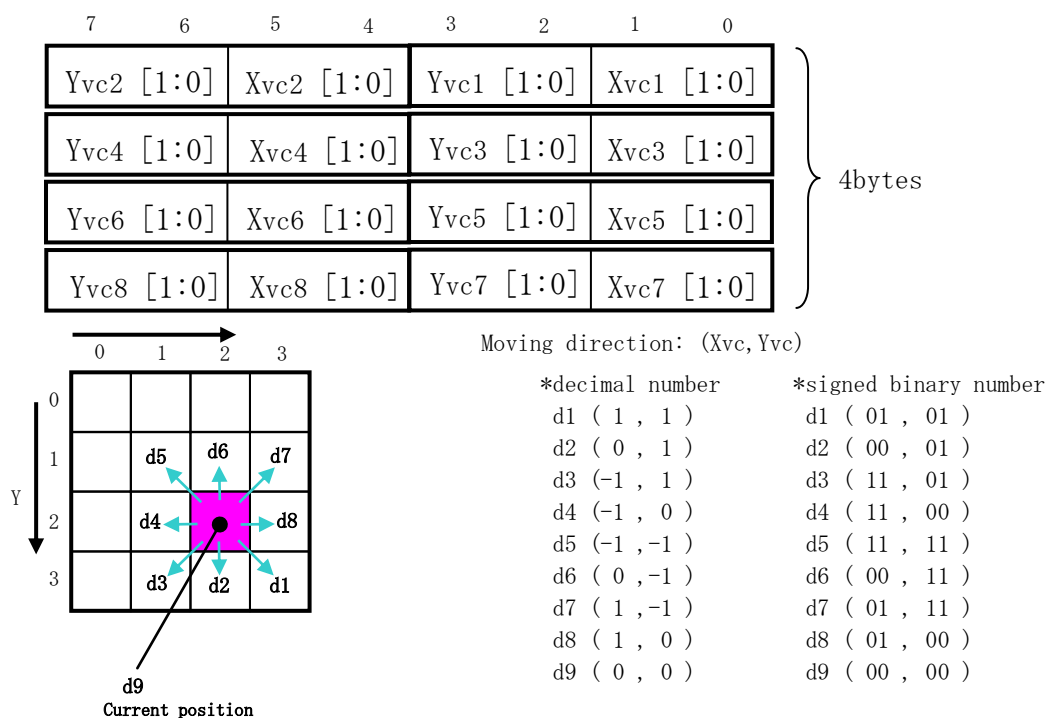
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4) Moving direction

Grid-EYE outputs person moving direction with total 9 codes, 8 directions surrounding current position and staying current position.



When the data undetected of Moving direction:

*decimal number	*signed binary number
(-2 , -2)	(10 , 10)

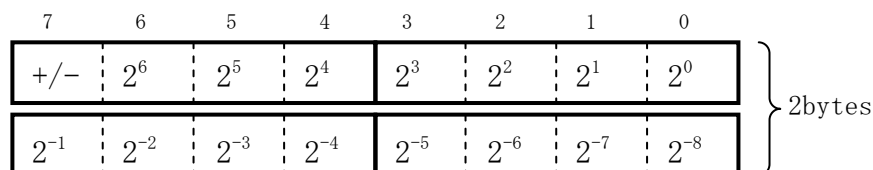
5) Temperature data

Average data of whole detection area to be outputted.

Measurement temperature range: 0 to 50 degC

*two's complement data in case of temperature below zero.

(Not guaranteed data due to out of temp. spec. range)



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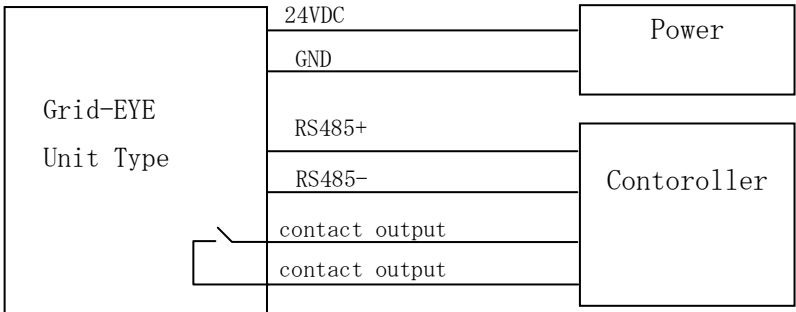
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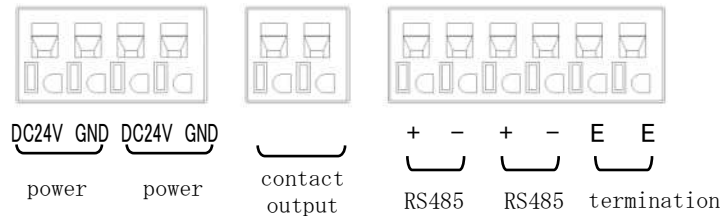
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3-6 Wiring diagram

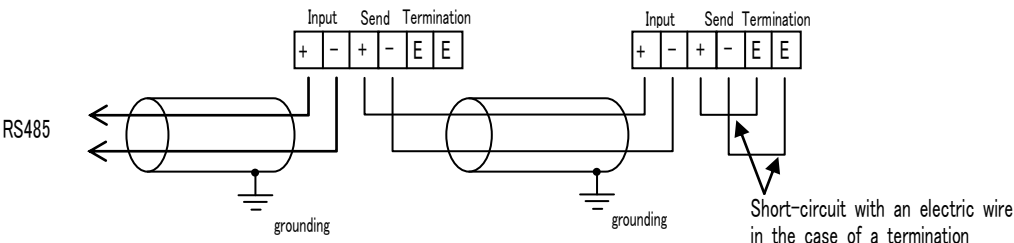


3-6-1 Terminal Arrangement



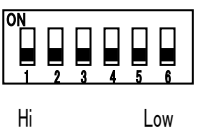
3-6-2 Wiring to RS485 communication line

- Be sure to use a twisted-pair cable with a shield.
- Be sure to ground a shield one side.
- Be sure to be exclusive D-class grounding with ground resistance of 100ohm or less.
- Be sure to make wiring into cascade connection.
- (Don't make wiring into star connection.)
- Be sure to be short-circuit between the send terminal(+,-) and the termination terminal(E,E) of a sensor connected to the end of the wiring.

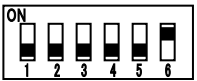


3-6-3 Address setup

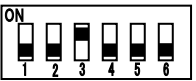
To be set up in 6-bit DIPSW (1 to 63).



Example) address: 1



Example) address: 8

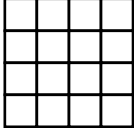
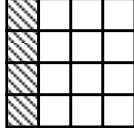
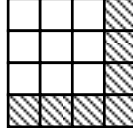
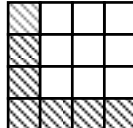
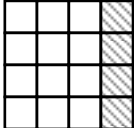
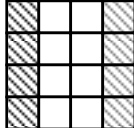


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3-6-4 Area mask setup

The mask of the detection area can be set by 4-bit DIPSW.

(Shading area can not be detected)

setteing	Mask area	setteing	Mask area	setteing	Mask area
					
					
					
					

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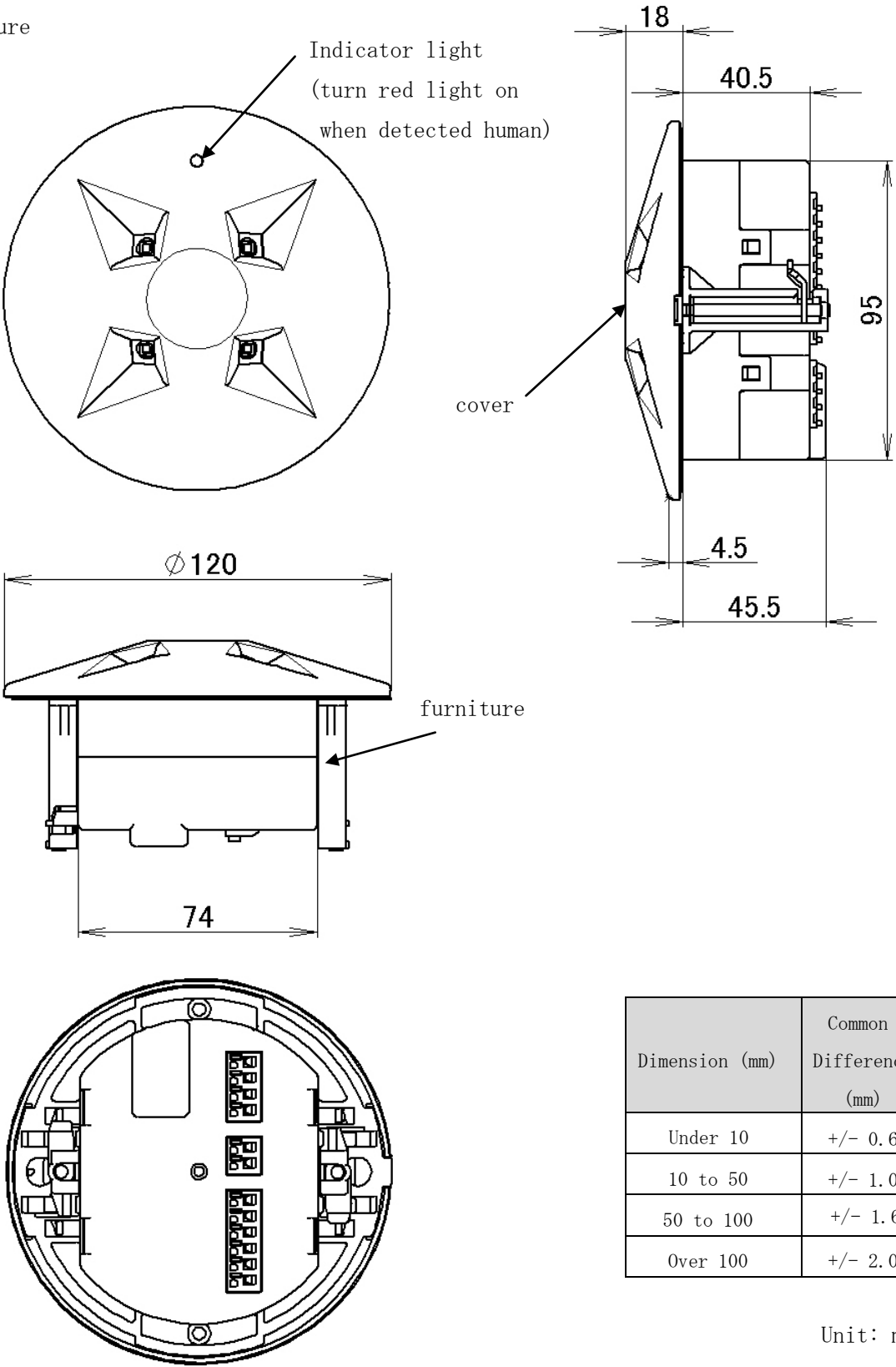
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4. Figure



Dimension (mm)	Common Difference (mm)
Under 10	+/- 0.6
10 to 50	+/- 1.0
50 to 100	+/- 1.6
Over 100	+/- 2.0

Unit: mm