

# PIG TAILS SERIES

## PIG TAILS INFORMATION

All pig tails are supplied with sleeve for identifying the cable, to improve the case of assembly.

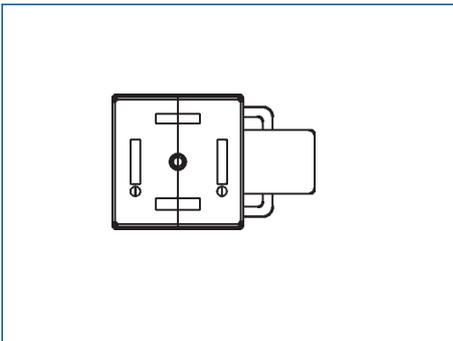
Photoelectric sensors



Proximity switch



Valve connector



Other products  
On request

MINI-STYLE 7/8"-16UN 2~5PINS



MICRO-STYLE 1/2"-20UN 3~5PINS



EURO-STYLE M12X1 3~5PINS



PICO-STYLE M8X1 3~4PINS

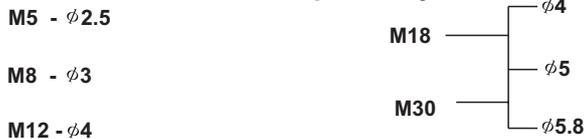


# PIG TAILS SERIES

## PIG TAILS MODEL NUMBERING SCHEME

### Pig tails model numbering scheme

**1. Standard cable diameter for proximity switch**



**standard cable lengths for proximity switch**

0.3M, 0.6M, 1.0M, 1.5M AND 2.0M.

**2. Standard cable diameter for valve connector**

$\phi$  5       $\phi$  5.5       $\phi$  6

**standard cable lengths for valve connector**

2M, 3M AND 5M

**3. Standard cable diameter for photo electric sensor**

$\phi$  3(3X0.5)       $\phi$  5(4X0.5)       $\phi$  5.8(4X0.5)

**Standard cable lengths for photo electric sensor**

6 (150MM), 0.5M, 2M, AND 9M

**4. Other cable lengths or cable diameter on request**

**5. Selection quid**



**1. Style**

N= MINI Series  
7/8"-16UN



M= MICRO Series  
1/2"-20UNF



E(H)= EURO Series  
Thick Style, M12x1



E(B)= EURO Series  
thin Style, M12x1

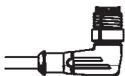


P= PICO Series  
M8x1

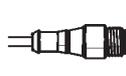


**2. Shape**

A= 90°



S= 180°



**3. Pins**

2



S



**4. Cable diameter**

$\phi$  2.5

$\phi$  3

$\phi$  3

$\phi$  4

$\phi$  5

$\phi$  5.5

$\phi$  5.8

$\phi$  6

**5. Cable diameter**

150MM

0.3M

0.5M

0.6M

1.0M

1.5M

2.0M

3.0M

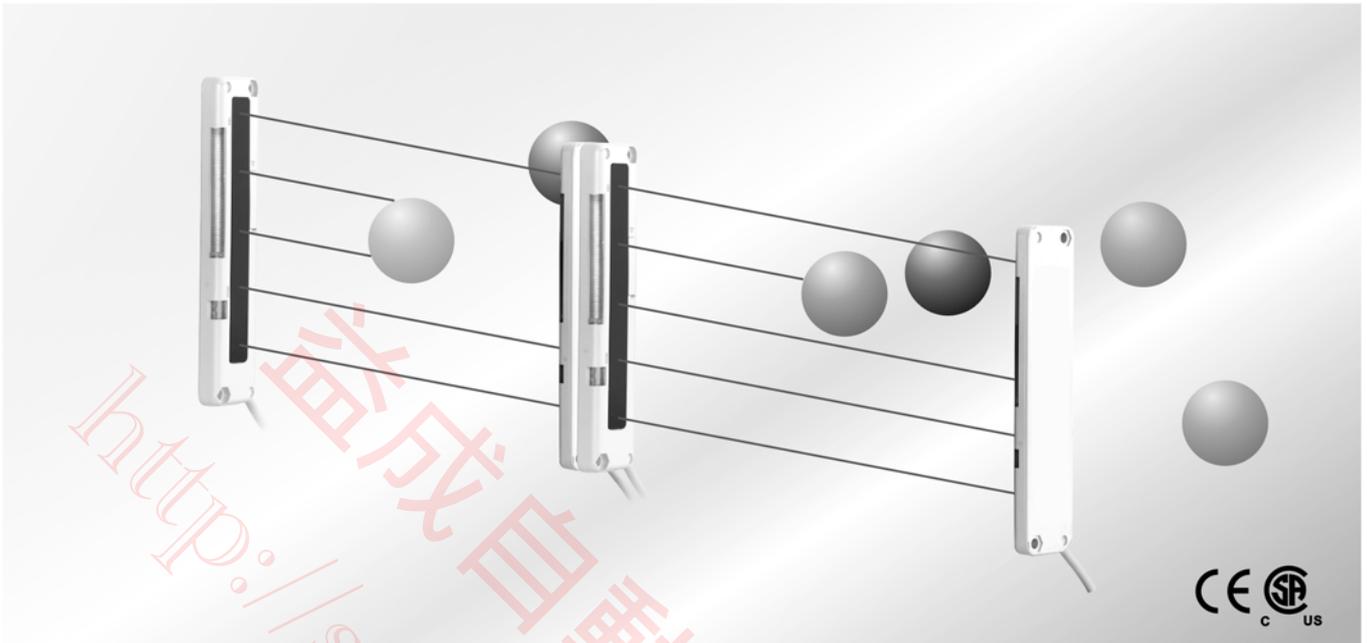
5.0M

9.0M

# PHOTOELECTRIC

AREA SENSORS

# PAS1 SERIES



### 10mm Thick: 1/2 of Conventional Model

It fits into a small space, without obstructing normal operation.



### Clearly Visible Job Indicator

Both the emitter and the receiver are incorporated with 55mm wide large job indicators. They can also be used as large size operation indicators if the job indicator input and the sensing output are connected together.



### Long Sensing Range: 3m

Its long sensing range of 3m is sufficient for confirming access to a parts shelf. Further, if the sensor has been set to the Light-ON mode, the output is turned OFF should the cable break.

### Parallel Installation

Setting different emission frequencies for two sensors prevents mutual interference. Use of two sensors together covers a wider detection area.



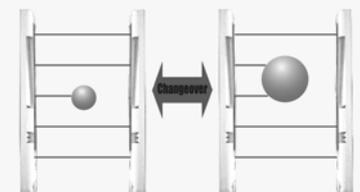
### Lighting Pattern Selectable

The job indicator operation can be selected as either continuous lighting or blinking.



### Detection Operation Selectable

Detection on interruption of either minimum one beam or minimum two beams can be selected to suit the application.

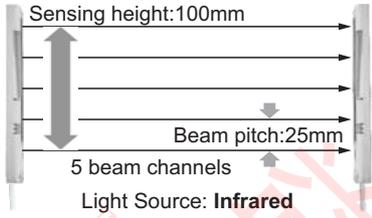
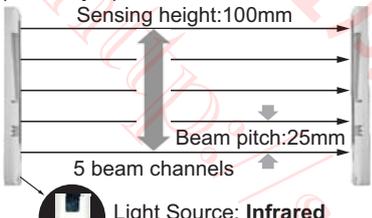
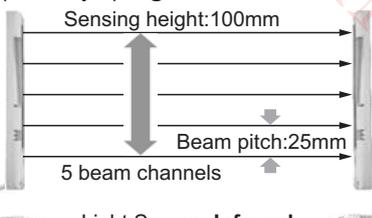
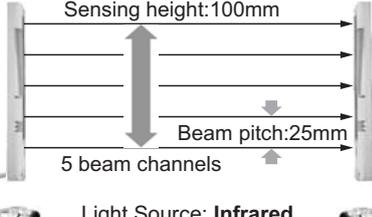


It can detect a Ø35mm or more opaque object at any place in the sensing area.

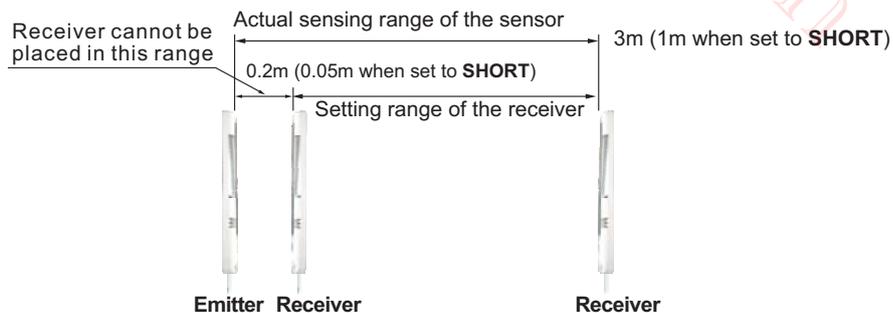
The sensor recognizes a larger object such as a hand, but ignores a small object, if some obstacle normally interrupts one of the beams.

# PAS1 SERIES

## Area Sensors

Appearance	Sensing Range (Note)	Supply Voltage	Output Mode	Part Number
<b>2 m Cable</b> 	<b>0.2 to 3m</b> (0.05 to 1m when set to <b>SHORT</b> ).	10-30V DC	Emitter	<u>PAS1-T3000D-EY9C3L2-5</u>
			NPN	<u>PAS1-T3000N-CY9C4U2-5</u>
			PNP	<u>PAS1-T3000P-CY9C4U2-5</u>
<b>M8 (Pico-style) connector</b> 	<b>0.2 to 3m</b> (0.05 to 1m when set to <b>SHORT</b> ).	10-30V DC	Emitter	<u>PAS1-T3000D-EY9Q4LP-5</u>
			NPN	<u>PAS1-T3000N-CY9Q4UP-5</u>
			PNP	<u>PAS1-T3000P-CY9Q4UP-5</u>
<b>M8 (Pico-style) Pig tail</b> 	<b>0.2 to 3m</b> (0.05 to 1m when set to <b>SHORT</b> ).	10-30V DC	Emitter	<u>PAS1-T3000D-EY9P4LP-5</u>
			NPN	<u>PAS1-T3000N-CY9P4UP-5</u>
			PNP	<u>PAS1-T3000P-CY9P4UP-5</u>
<b>M12 (Euro-style) Pig tail</b> 	<b>0.2 to 3m</b> (0.05 to 1m when set to <b>SHORT</b> ).	10-30V DC	Emitter	<u>PAS1-T3000D-EY9P4LE-5</u>
			NPN	<u>PAS1-T3000N-CY9P4UE-5</u>
			PNP	<u>PAS1-T3000P-CY9P4UE-5</u>

**Note:** The sensing range is the possible setting distance between the emitter and the receiver.  
 The sensor can detect an object less than 0.2m (0.05m when set to **SHORT**) away.



**Note:**  
 Coming Soon : Part numbers with underline  
 In Preparation: Part numbers with a line through the middle

**Specifications**

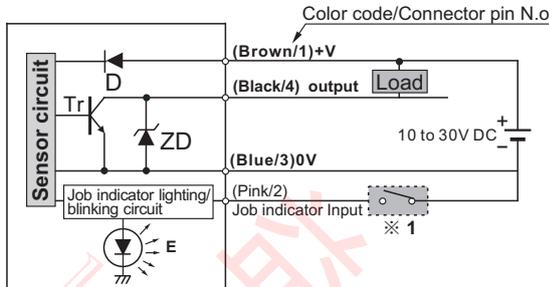
Type		Area sensor	
		NPN output	PNP output
<b>Sensing height</b>	100mm		
<b>Sensing range</b>	0.2 to 3m (0.05 to 1m when set to SHORT)		
<b>Beam pitch</b>	5 beam channels		
<b>Number of beam channels</b>	∅35mm or more opaque object		
<b>Sensing object</b>	10 to 30V DC Ripple P-P 10% or less		
<b>Power consumption</b>	Emitter: 0.5 W or less, Receiver: 0.8 W or less		Emitter: 0.6 W or less, Receiver: 0.9 W or less
<b>Sensing output</b>	<b>NPN</b> open-collector transistor Maximum sink current: 100mA Applied voltage: 30V DC or less (between sensing output and 0V) Residual voltage: 1V or less (at 100mA sink current)		<b>PNP</b> open-collector transistor Maximum source current: 100mA Applied voltage: 30V DC or less (between sensing output and +V) Residual voltage: 1V or less (at 100mA source current)
	<b>Utilization category</b>	DC-12 or DC-13	
	<b>Output operation</b>	ON or OFF when one or more beams are interrupted/ON or OFF when two or more beams are interrupted, selectable by operation mode switch	
	<b>Short-circuit protection</b>	Incorporated	
<b>Response time</b>	10ms or less (when the interference prevention is used, in Light state: 30ms or less, in Dark state: 13ms or less)		
<b>Indicators</b>	<b>Emitter</b>	Power indicator: Green LED ( lights up when the power is ON) Job indicator: Orange LED ( lights up or blinks when the job indicator input is Low (PNP input is High), lighting pattern is selected by operation mode switch)	
	<b>Receiver</b>	Operation indicator: Red LED ( lights up when one or more beams are interrupted, but lights up when two beams or more are interrupted ) in the double-beam-interruption mode Stable incident beam indicator: Green LED (lights up when all beams are stably received) Job indicator: Orange LED ( lights up or blinks when the job indicator input is Low (PNP input is High), lighting pattern is selected by operation mode switch)	
<b>Interference prevention function</b>	Incorporated		
<b>Environmental resistance</b>	<b>Pollution degree</b>	3(Industrial environment)	
	<b>Protection</b>	IP62(IEC)	
	<b>Ambient temperature</b>	-10 to +55 °C (No dew condensation or icing allowed), Storage: -20 to +70 °C	
	<b>Ambient humidity</b>	35 to 85% RH, Storage: 35 to 85% RH	
	<b>Ambient illuminance</b>	Sunlight: 10,000 lx at the light-receiving face Incandescent light: 3,000 lx at the light-receiving face	
	<b>EMC</b>	IEC 60947-5-2, Parts 7.2.6.1.2.3 or RFI > 20V/m (in 30-1000MHZ), EFT > 1KV, ESD > 4KV (contact)	
	<b>Voltage withstandability</b>	1,000V AC for one min. between all supply terminals connected together and enclosure	
	<b>Insulation resistance</b>	20M Ω, or more, with 250V DC megger between all supply terminals connected together and enclosure	
	<b>Vibration resistance</b>	IEC 60947-5-2, Part 7.4.2 or 10-55HZ, 1.0mm amplitude In X, Y and Z directions for 30 min	
<b>Shock resistance</b>	IEC 60947-5-2, Part 7.4.1 or 30g, 11ms in X, Y and Z directions for six times each		
<b>Emitting element</b>	Infrared LED (synchronized scanning system)		
<b>Material</b>	Enclosure: Heat-resistant ABS, Len cover: Acrylic, Indicator cover: Acrylic		
<b>Cable</b>	0.3mm <sup>2</sup> 4-core (emitter: 3-core) oil resistant cabtyre cable, 2m long		
<b>Cable extension</b>	Extension up to total 100m is possible for both emitter and receiver with 0.3mm <sup>2</sup> , or more, cable.		
<b>Pigtail type</b>	See <b>Pigtail Series</b> or our <b>Cable &amp; Connectors catalogue</b> .		
<b>Connector type</b>	M8 (Pico-style) 4pin		
<b>Weight</b>	Emitter: 70g approx., Receiver: 80g approx.		

# PAS1 SERIES

## Connection Diagrams

### NPN Output Type

I/O circuit diagram



**Note :** The emitter is not incorporated with the output.

**Symbol...**D : Reverse supply protection diode  
 ZD: Surge absorption zener diode  
 Tr : NPN output transistor  
 E: Job indicator

### Connector pin position

#### Euro-style



#### Pico-Style



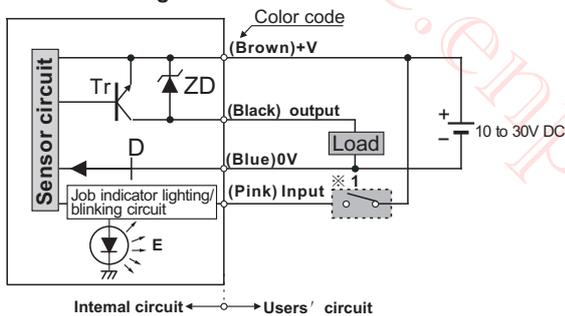
※ 1 : Non-contact voltage or NPN open-collector transistor



Low (0 to 2V): Lights up or Blinks  
 High (5 to 30V, or open): Lights off

### PNP Output Type

I/O circuit diagram



**Note :** The emitter is not incorporated with the output.

**Symbol...**D : Reverse supply protection diode  
 ZD: Surge absorption zener diode  
 Tr : NPN output transistor  
 E: Job indicator

### Connector pin position

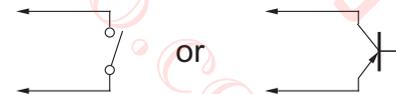
#### Euro-style



#### Pico-Style



※ 1 : Non-contact voltage or PNP open-collector transistor

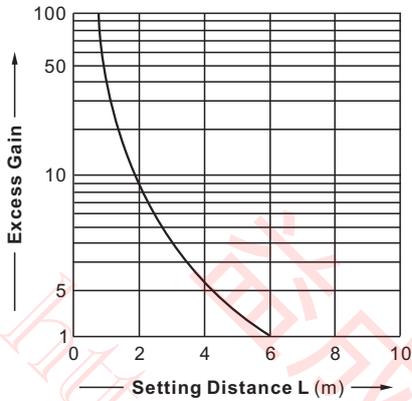


Low ( 4V or more): Lights up or Blinks  
 High (0 to 0.6V, or open): Lights off

# PAS1 SERIES

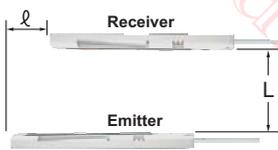
## Sensing Characteristics (Typical)

### Correlation between setting distance and excess gain

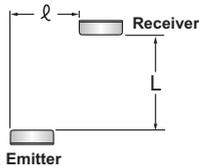


### Parallel deviation

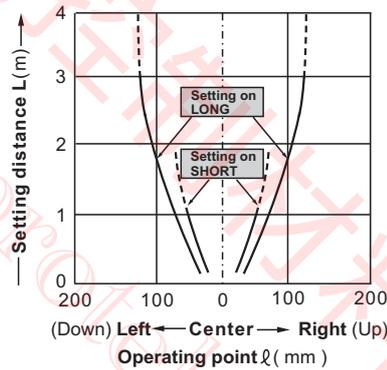
#### 1. Vertical direction



#### 2. Horizontal direction



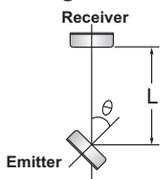
Common for both horizontal and vertical directions



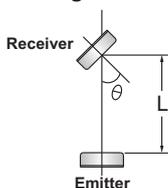
Ax: PAS1 SERIES

### Angular deviation

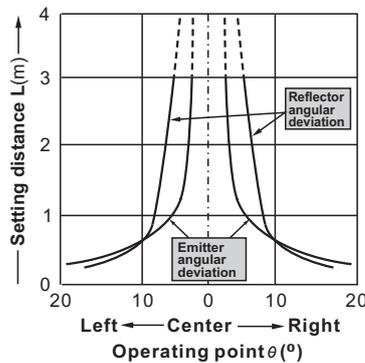
#### 1. Emitter angular direction



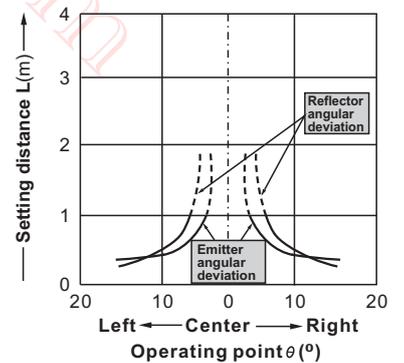
#### 2. Receiver angular direction



Setting on LONG



Setting on SHORT



# PAS1 SERIES

## Precautions For Proper Use

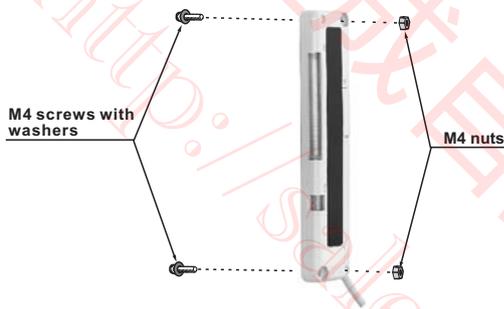


This sensor is not for press machine safeguard. Do not use this sensor for any press machine. This product is not a safety sensor. Its use is not intended or designed to protect life and prevent body injury or property damage from dangerous parts of machinery. It is a normal object detection sensor.

Area sensors conforming to standards are available.  
For details, please contact our office.

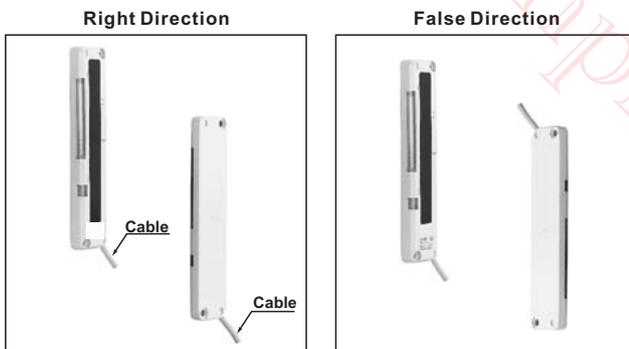
### Mounting

- Use M4 screws with washers and M4 nuts. The tightening torque should be 0.5N·m or less. (Please arrange the screws and nuts separately.)



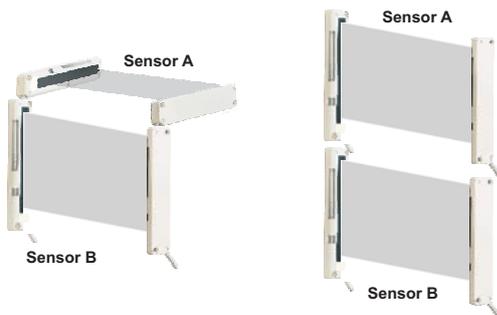
### Orientation

- The emitter and the receiver must face each other correctly. If they are set upside down, the sensor does not work.



### Interference prevention function

- By setting different emission frequencies, two units of PAS1-5 can be mounted close together, as shown in the figure below.



### LONG/SHORT selection switch (incorporated on the emitter)

- Select the switch setting according to the setting distance between the emitter and the receiver as given below. (The switches must be set with the power supply off. The operation mode does not change if the switch setting is changed with the power supplied)

Setting distance	Operation mode switch
0.05 to 1m	LONG  SHORT
1 to 3m	LONG  SHORT

### Selection of output operation

- The output operation mode is selected by the operation mode switch on the receiver. (The switches must be set with the power supply off. The operation mode does not change if the switch setting is changed with the power supplied.)

Output operation	Operation mode switch
ON when one or mode beams are interrupted.	SINGLE D/ON  DOUBLE L/ON
OFF when one or mode beams are interrupted. (ON when all beams are received).	SINGLE D/ON  DOUBLE L/ON
ON when any two or mode beams are interrupted.	SINGLE D/ON  DOUBLE L/ON
OFF when any two or mode beams are interrupted.	SINGLE D/ON  DOUBLE L/ON

### Job indicator operation selection

- Lighting/Blinking is selected by the operation mode switch on the emitter and the receiver.

	Operation mode switch			
	Emitter		Receiver	
Lighting	LIGHT	FLASH	LIGHT	FLASH
Blinking	LIGHT	FLASH	LIGHT	FLASH

### Others

- Do not use during the initial transient time (0.5 secondary.) After the power supply is switched on.

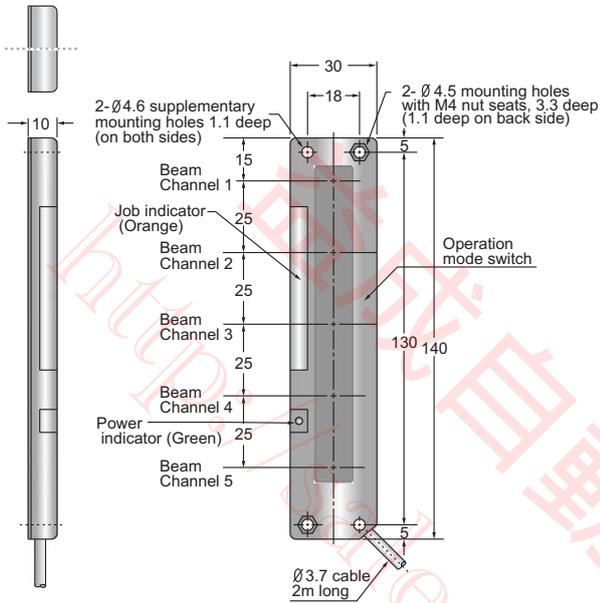
	Operation mode switch			
	Emitter		Receiver	
Sensor A (FREQ.A)	FREQ.A	FREQ.B	FREQ.A	FREQ.B
Sensor B (FREQ.B)	FREQ.A	FREQ.B	FREQ.A	FREQ.B

# PAS1 SERIES

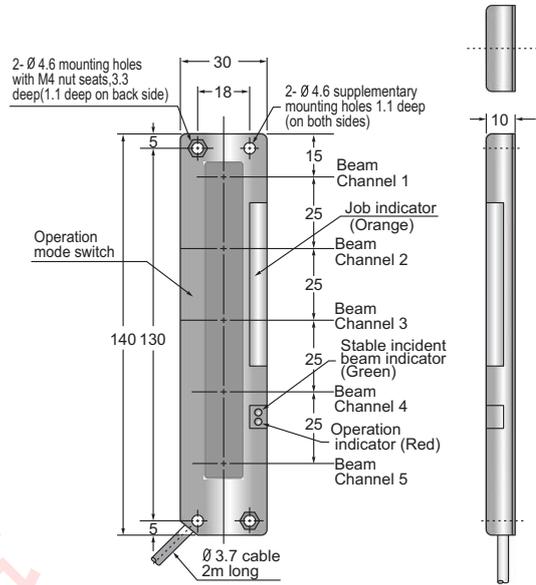
## Dimensions (Unit: mm)

### Sensor Type

#### Emitter



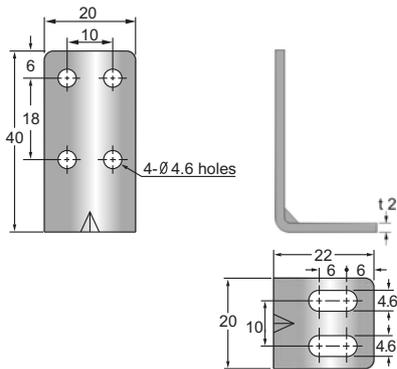
#### Receiver



Ax: PAS1 SERIES

### MB-4020 (Sensor mounting bracket-Optional)

#### Assembly dimensions Mounting drawing with the receiver

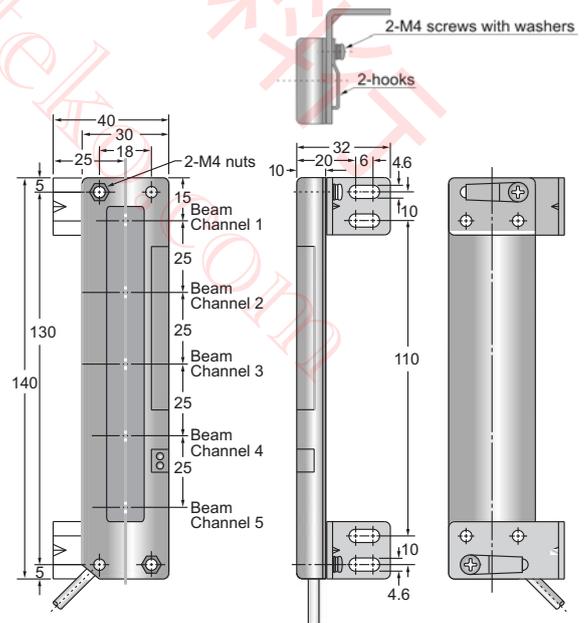


#### Material:

Cold rolled carbon steel (SPCC)(Uni-chrome plated)

#### Four bracket set

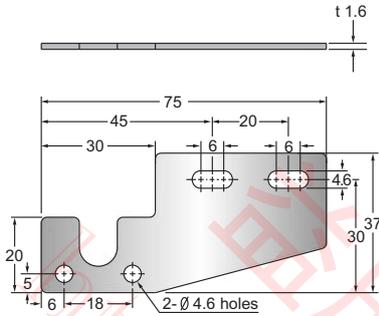
Four M4 (length 15mm) screws with washers, eight nuts, four hooks and eight M4 (length 18mm) screws with washers are attached. [ M4 (length 18mm) screws with washers are not used for PAS1-5.]



# PAS1 SERIES

## Dimensions (Unit: mm)

### MB-7537 (Sensor mounting bracket-Optional)



**Material:**

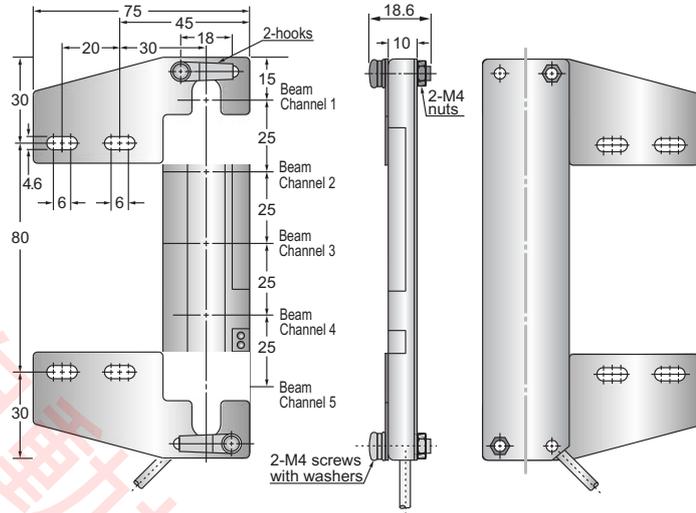
Cold rolled carbon steel (SPCC)(Uni-chrome plated)

**Four bracket set**

Four M4 (length 15mm) screws with washers, eight nuts, four hooks, four spacers and eight M4 (length 18mm) screws with washers are attached.

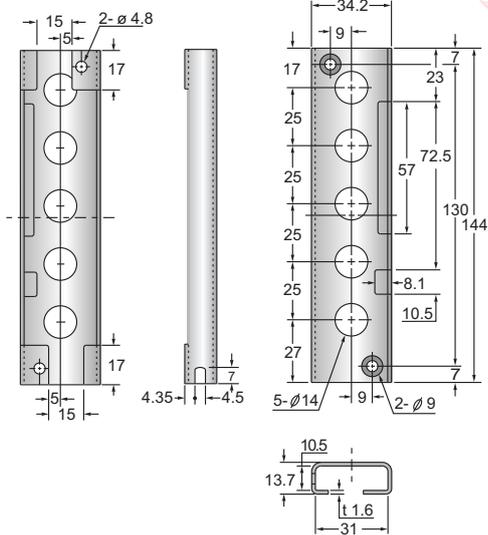
**Assembly dimensions**

Mounting drawing with the receiver

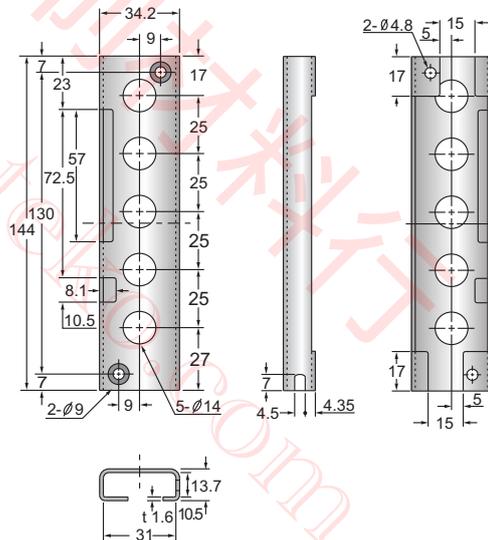


### PB-14434 (Sensor protective bracket-Optional)

**For Receiver**



**For Emitter**



**Material:**

Cold rolled carbon steel (SPCC) (Chrome plated)

**Two bracket set:**

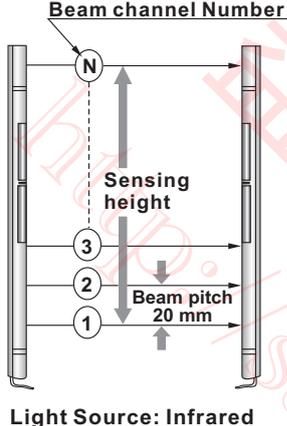
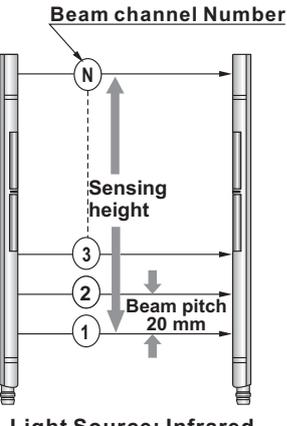
For M4 (length 15mm) screws with washers, and four nuts are attached.

Ax: PAS1 SERIES

# PAS2 SERIES

## Area Sensors

Ay: PAS2 SERIES

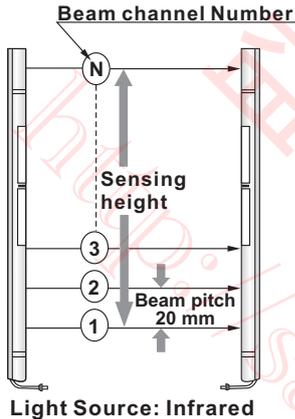
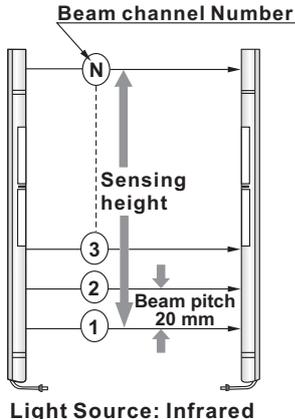
Appearance	Sensing range	Number of beam channels	Sensing Height	Output mode	Part number		
<b>2m Cable</b>   <p>Beam channel Number</p> <p>Sensing height</p> <p>Beam pitch 20 mm</p> <p>Light Source: Infrared</p>	5m	8	140mm	Emitter	<u>PAS2-T5000D-EY9C4L2-8</u>		
				NPN	<u>PAS2-T5000N-CY9C4U2-8</u>		
				PNP	<u>PAS2-T5000P-CY9C4U2-8</u>		
		12	220mm	Emitter	<u>PAS2-T5000D-EY9C4L2-12</u>		
				NPN	<u>PAS2-T5000N-CY9C4U2-12</u>		
				PNP	<u>PAS2-T5000P-CY9C4U2-12</u>		
		16	300mm	Emitter	<u>PAS2-T5000D-EY9C4L2-16</u>		
				NPN	<u>PAS2-T5000N-CY9C4U2-16</u>		
				PNP	<u>PAS2-T5000P-CY9C4U2-16</u>		
		20	380mm	Emitter	<u>PAS2-T5000D-EY9C4L2-20</u>		
				NPN	<u>PAS2-T5000N-CY9C4U2-20</u>		
				PNP	<u>PAS2-T5000P-CY9C4U2-20</u>		
		24	460mm	Emitter	<u>PAS2-T5000D-EY9C4L2-24</u>		
				NPN	<u>PAS2-T5000N-CY9C4U2-24</u>		
				PNP	<u>PAS2-T5000P-CY9C4U2-24</u>		
		28	540mm	Emitter	<u>PAS2-T5000D-EY9C4L2-28</u>		
				NPN	<u>PAS2-T5000N-CY9C4U2-28</u>		
				PNP	<u>PAS2-T5000P-CY9C4U2-28</u>		
		32	620mm	Emitter	<u>PAS2-T5000D-EY9C4L2-32</u>		
				NPN	<u>PAS2-T5000N-CY9C4U2-32</u>		
				PNP	<u>PAS2-T5000P-CY9C4U2-32</u>		
		<b>M8(Pico-style) Connector</b>   <p>Beam channel Number</p> <p>Sensing height</p> <p>Beam pitch 20 mm</p> <p>Light Source: Infrared</p>	5m	8	140mm	Emitter	<u>PAS2-T5000D-EY9Q4LP-8</u>
						NPN	<u>PAS2-T5000N-CY9Q4UP-8</u>
						PNP	<u>PAS2-T5000P-CY9Q4UP-8</u>
12	220mm			Emitter	<u>PAS2-T5000D-EY9Q4LP-12</u>		
				NPN	<u>PAS2-T5000N-CY9Q4UP-12</u>		
				PNP	<u>PAS2-T5000P-CY9Q4UP-12</u>		
16	300mm			Emitter	<u>PAS2-T5000D-EY9Q4LP-16</u>		
				NPN	<u>PAS2-T5000N-CY9Q4UP-16</u>		
				PNP	<u>PAS2-T5000P-CY9Q4UP-16</u>		
20	380mm			Emitter	<u>PAS2-T5000D-EY9Q4LP-20</u>		
				NPN	<u>PAS2-T5000N-CY9Q4UP-20</u>		
				PNP	<u>PAS2-T5000P-CY9Q4UP-20</u>		
24	460mm			Emitter	<u>PAS2-T5000D-EY9Q4LP-24</u>		
				NPN	<u>PAS2-T5000N-CY9Q4UP-24</u>		
				PNP	<u>PAS2-T5000P-CY9Q4UP-24</u>		
28	540mm			Emitter	<u>PAS2-T5000D-EY9Q4LP-28</u>		
				NPN	<u>PAS2-T5000N-CY9Q4UP-28</u>		
				PNP	<u>PAS2-T5000P-CY9Q4UP-28</u>		
32	620mm			Emitter	<u>PAS2-T5000D-EY9Q4LP-32</u>		
				NPN	<u>PAS2-T5000N-CY9Q4UP-32</u>		
				PNP	<u>PAS2-T5000P-CY9Q4UP-32</u>		

Note:

Coming Soon : Part numbers with underline  
 In Preparation: Part numbers with a line through the middle

# PAS2 SERIES

## Area Sensors

Appearance	Sensing range	Number of beam channels	Sensing height	Output mode	Part number		
<b>M8 (Pico-style) Pigtail</b>  	5m	8	140mm	Emitter	<u>PAS2-T5000D-EY9P4LP-8</u>		
				NPN	<u>PAS2-T5000N-CY9P4UP-8</u>		
				PNP	<u>PAS2-T5000P-CY9P4UP-8</u>		
		12	220mm	Emitter	<u>PAS2-T5000D-EY9P4LP-12</u>		
				NPN	<u>PAS2-T5000N-CY9P4UP-12</u>		
				PNP	<u>PAS2-T5000P-CY9P4UP-12</u>		
		16	300mm	Emitter	<u>PAS2-T5000D-EY9P4LP-16</u>		
				NPN	<u>PAS2-T5000N-CY9P4UP-16</u>		
				PNP	<u>PAS2-T5000P-CY9P4UP-16</u>		
		20	380mm	Emitter	<u>PAS2-T5000D-EY9P4LP-20</u>		
				NPN	<u>PAS2-T5000N-CY9P4UP-20</u>		
				PNP	<u>PAS2-T5000P-CY9P4UP-20</u>		
		24	460mm	Emitter	<u>PAS2-T5000D-EY9P4LP-24</u>		
				NPN	<u>PAS2-T5000N-CY9P4UP-24</u>		
				PNP	<u>PAS2-T5000P-CY9P4UP-24</u>		
		28	540mm	Emitter	<u>PAS2-T5000D-EY9P4LP-28</u>		
				NPN	<u>PAS2-T5000N-CY9P4UP-28</u>		
				PNP	<u>PAS2-T5000P-CY9P4UP-28</u>		
		32	620mm	Emitter	<u>PAS2-T5000D-EY9P4LP-32</u>		
				NPN	<u>PAS2-T5000N-CY9P4UP-32</u>		
				PNP	<u>PAS2-T5000P-CY9P4UP-32</u>		
		<b>M12(Euro-style) Pigtail</b>  	5m	8	140mm	Emitter	<u>PAS2-T5000D-EY9P4LE-8</u>
						NPN	<u>PAS2-T5000N-CY9P4UE-8</u>
						PNP	<u>PAS2-T5000P-CY9P4UE-8</u>
12	220mm			Emitter	<u>PAS2-T5000D-EY9P4LE-12</u>		
				NPN	<u>PAS2-T5000N-CY9P4UE-12</u>		
				PNP	<u>PAS2-T5000P-CY9P4UE-12</u>		
16	300mm			Emitter	<u>PAS2-T5000D-EY9P4LE-16</u>		
				NPN	<u>PAS2-T5000N-CY9P4UE-16</u>		
				PNP	<u>PAS2-T5000P-CY9P4UE-16</u>		
20	380mm			Emitter	<u>PAS2-T5000D-EY9P4LE-20</u>		
				NPN	<u>PAS2-T5000N-CY9P4UE-20</u>		
				PNP	<u>PAS2-T5000P-CY9P4UE-20</u>		
24	460mm			Emitter	<u>PAS2-T5000D-EY9P4LE-24</u>		
				NPN	<u>PAS2-T5000N-CY9P4UE-24</u>		
				PNP	<u>PAS2-T5000P-CY9P4UE-24</u>		
28	540mm			Emitter	<u>PAS2-T5000D-EY9P4LE-28</u>		
				NPN	<u>PAS2-T5000N-CY9P4UE-28</u>		
				PNP	<u>PAS2-T5000P-CY9P4UE-28</u>		
32	620mm			Emitter	<u>PAS2-T5000D-EY9P4LE-32</u>		
				NPN	<u>PAS2-T5000N-CY9P4UE-32</u>		
				PNP	<u>PAS2-T5000P-CY9P4UE-32</u>		

Note:

Coming Soon : Part numbers with underline

In Preparation: Part numbers with a line through the middle

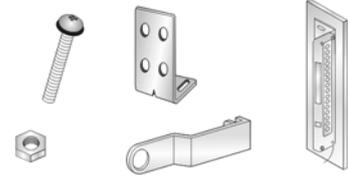
# PAS2 SERIES

## Options

Designation	Mode No	Description	
Slit mask	<u>OS-PAS2-N8</u>	For 8 beam channels	The slit mask restrains the amount of beam emitted or received . (Seal type , 10 Nos . Set) Sensing range : 4m (slit on one side), 1.5m (slit on both sides)
	<u>OS-PAS2-N12</u>	For 12 beam channels	
	<u>OS-PAS2-N16</u>	For 16 beam channels	
	<u>OS-PAS2-N20</u>	For 20 beam channels	
	<u>OS-PAS2-N24</u>	For 24 beam channels	
	<u>OS-PAS2-N28</u>	For 28 beam channels	
	<u>OS-PAS2-N32</u>	For 32 beam channels	
Sensor mounting bracket (Note)	<u>MS-PAS1-1</u>	Four bracket set Eight M4(length 18 mm )screws with washers (Four screws with washers are used), eight nuts ,four hooks four spacers and four M4(length 15mm)screws with washers are attached .	
	<u>MS-PAS2-2</u>	Spacers are not attached with MS-PAS2-1 . M4(length 15 mm) screws with washers are not used for PAS2 series .	
Sensor supporting bracket	<u>MS-PAS2-N8</u>	For 8 beam channels	Supports the body of the sensor when used in an environment with strong vibration .  Two bracket set
	<u>MS-PAS2-N12</u>	For 12 beam channels	
	<u>MS-PAS2-N16</u>	For 16 beam channels	
	<u>MS-PAS2-N20</u>	For 20 beam channels	
	<u>MS-PAS2-N24</u>	For 24 beam channels	
	<u>MS-PAS2-N28</u>	For 28 beam channels	
	<u>MS-PAS2-N32</u>	For 32 beam channels	

### Sensor mounting bracket

**MB-4020** (supplied with sensor)



M4 screws with washers , nuts and hooks are attached .

**MB-7537** (optional)



M4 screws with washers , nuts , hooks and spacers are attached .

### Sensor protective bracket (optional)

**PB-PAS2-08**  
**PB-PAS2-12**  
**PB-PAS2-16**  
.....

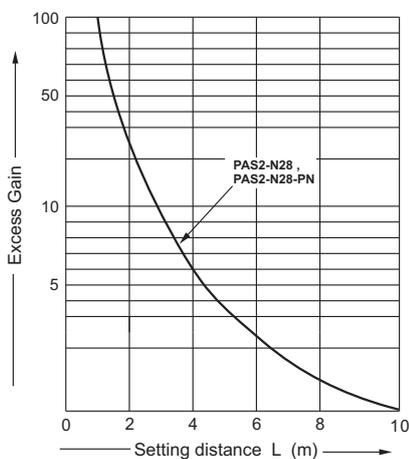


M4 screws with washers , and nuts are attached .

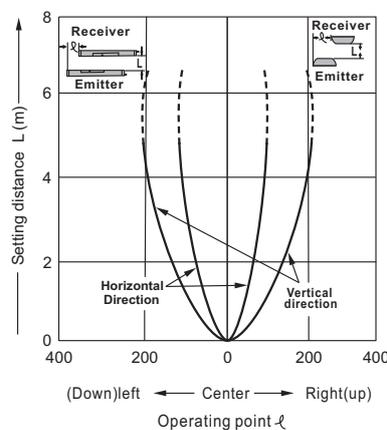
Note: Do not fix the sensor mounting bracket on the front surface of the sensor .

## Sensing Characteristics (Typical)

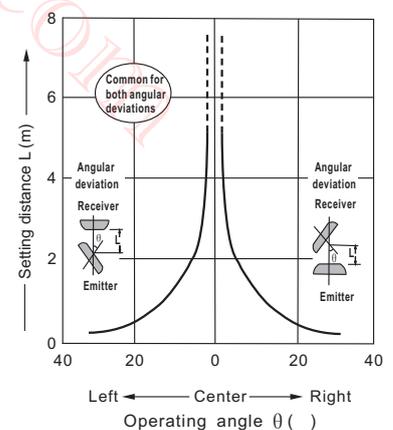
Correlation between distance and excess gain



Parallel deviation (All models)



Angular deviation (All models)



Note:

Coming Soon : Part numbers with underline  
In Preparation: Part numbers with a line through the middle

# PAS2 SERIES

## Specifications

Item	Model No	Number of beam channels	8	12	16	20	24	28	32	
		NPN output	PAS2-xxxN-8	PAS2-xxxN-12	PAS2-xxxN-16	PAS2-xxxN-20	PAS2-xxxN-24	PAS2-xxxN-28	PAS2-xxxN-32	
		PNP output	PAS2-xxxP-8	PAS2-xxxP-12	PAS2-xxxP-16	PAS2-xxxP-20	PAS2-xxxP-24	PAS2-xxxP-28	PAS2-xxxP-32	
Sensing height			140mm	220mm	300mm	380mm	460mm	540mm	620mm	
Sensing range			5m							
Beam pitch			20mm							
Sensing object			φ30mm or more opaque object							
Supply voltage			10-30V DC							
Power consumption (Note)	Emitter	Job indicator ON	0.7W or less	0.8W or less	0.9W or less	1.0W or less	1.1W or less	1.2W or less	1.3W or less	
		Job indicator OFF	0.6W or less	0.7W or less	0.8W or less	0.9W or less	1.0W or less	1.1W or less	1.2W or less	
	Receiver	Job indicator ON	0.7W or less	0.8W or less	0.9W or less	1.0W or less	1.1W or less	1.2W or less	1.3W or less	
		Job indicator OFF	0.6W or less	0.7W or less	0.8W or less	0.9W or less	1.0W or less	1.1W or less	1.2W or less	
Output			<NPN output type> NPN open-collector transistor Maximum sink current : 100mA Applied voltage :30 V DC or less (between output and 0V) Residual voltage : 1V or less(at 100mA sink current)				<PNP output type > PNP open-collector transistor Maxmum source current : 100mA Applied voltage : 30V DC or less (between output and +V) Residual voltage : 1V or less(at 100mA source ecurrent)			
Utilization category			DC-12 or DC-13							
Output operation			ON when all beams are received (OFF when one or more beams are interrupted)							
Short-circuit protection			Incorporated							
Response time			10ms or less ( 12ms or less when the interference prevention function is used )							
Indicators	Emitter		Emitting indicator :Green LED 2 ( light up during emission ; one LED lights up for Frequency A setting , both LEDs light up for Frequency B setting ) Job indicator : Red LED ( lights up , blinks or lights off when the job indicator input is applied , selected by operation mode switch )							
	Receiver		Operation indicator : Red LED ( lights up when one or more beams are interrupted ) Stable incident beam indicator : Green LED ( lights up when all beams are stably received ) Job indicator : Red LED ( lights up , blinks or lights off when the job indicator input is applied ,selected by operation mode switch ) ※When an excess current flows through the output , the stable incident beam indicator and the operation indicator on the receiver blink simultaneously due to operation of the short-circuit protection circuit .							
Interference prevention function			Incorporated							
Test-run function			Incorporated							
Environmental resistance	Pollution degree		3 ( Industrial environment )							
	Ambient temperature		-10 to +55℃ ( No dew condensation or icing allowed ) , Storage : -10 to +60℃							
	Ambient humidity		35 to 85 % RH ,Storage : 35 to 85 % RH							
	Ambient illuminance		Sunlight :10,000 ℓ at the light-receiving face , Incandescent light : 3,000 ℓ at the light-receiving face							
	EMC		IEC 60947-5-2 ,Parts 7.2.6.1.2.3 or RFI >3V/m ( in 30-1000MHZ ) ,EFT>1KV , ESD >4KV ( contact )							
	Voltage with standability		1,000V AC for one min . between all supply terminals connected together and enclosure							
	Insulation resistance		20MΩ , or more , with 250V DC megger between all supply terminals connected together and enclosure							
	Vibration resistance		IEC 60947-5-2 , Part 7.4.2 or 10-55HZ , 1.0 mm amplitude in x , y and z directions for 30 min							
Shock resistance		IEC 60947-5-2 , Part 7.4.1 or 30g , 11 ms in x , y and z directions for six time each								
Emitting element			Infrared LED ( modulated )							
Material			Enclosure : Heat-resistant ABS , Lens cover : Polyester , Indicator cover : Acrylic							
Cable			0.2mm <sup>2</sup> 4-core cable , 3m long							
Cable extension			Extension up to total 25 m is possible for both emitter and receiver , with 0.2 m <sup>2</sup> , or more , cable .							
Weight			350g approx .	400g approx .	450g approx .	500g approx .	570g approx .	650g approx .	730g approx .	

Note : Obtain the current consumption from the following equation .

$$\text{Current consumption} = \frac{\text{Power consumption}}{\text{Supply voltage}}$$

(e.g.)In case of PAS2-N8(when job indicator lights on)

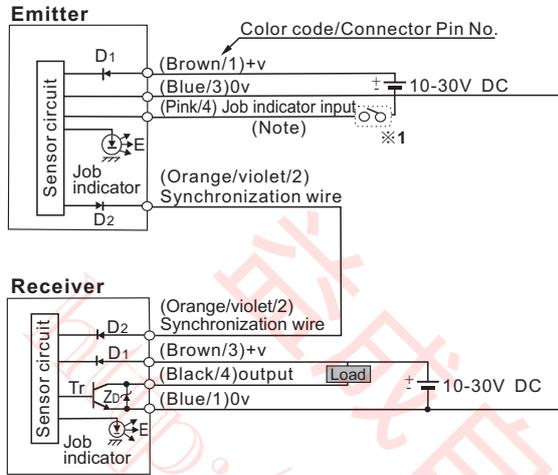
When the supply voltage is 12V ,the current consumption of the emitter is : 0.7W / 12V =0.058A=58mA

# PAS2 SERIES

## Connection Diagrams

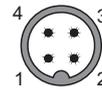
### NPN Output Type

#### I/O circuit diagram

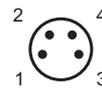


#### Connector pin position

##### Euro-style



##### Pico-Style



- 1.+V
- 2.Synchronization wire
- 3.0V
- 4.Receiver:Output  
Emitter: Job indicator input

- Notes : 1) Input (pink ) is the job indicator input when No.4 of the operation mode switch on the emitter is set to the OFF side , and it is the test input when the switch is set to ON side .  
 2) In order to use the job indicator as a large operation indicator , connect the input (pink) of the emitter to the output (black ) of the receiver .  
 3) When the test input is set ,the job indicator does not light up or blink .

Symbols...D1: Reverse supply polarity protection diode  
 D2: Reverse current protection diode  
 ZD: Surge absorption zener diode  
 Tr: NPN output transistor  
 E: Job indicator

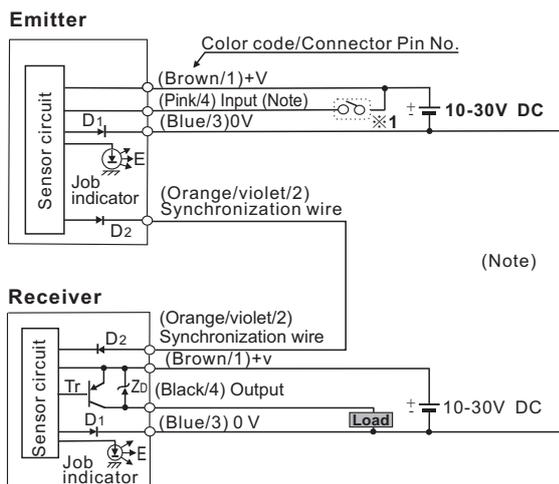
※1 Non-voltage contact or NPN open-collector transistor



Note :Refer to PRECAUTIONS FOR PROPRE USE(Page 7~) for job indicator operation or test input operation .

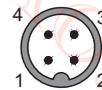
### PNP Output Type

#### I/o circuit diagram

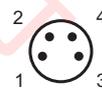


#### Connector pin position

##### Euro-style



##### Pico-Style



- 1.+V
- 2.Synchronization wire
- 3.0V
- 4.Receiver: Output  
Emitter: Job indicator input

- Notes : 1) Input (pink) is the job indicator input when No.4 of the operation mode switch on the emitter is set to the OFF side , and it is the test input when the switch is set to ON side .  
 2) In order to use the job indicator as a large operation indicator , connect the input (pink) of the emitter to the output (black) of the receiver .  
 3) When the test input is set ,the job indicator does not light up or blink .

Symbols...D1:Reverse supply polarity protection diode  
 D2:Reverse current protection diode  
 ZD: Surge absorption zener diode  
 Tr: PNP output transistor  
 E: Job indicator

※1 Non-voltage contact or PNP open-collector transistor



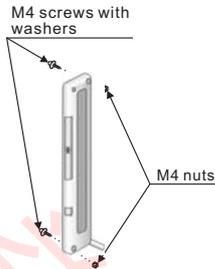
Note :Refer to PRECAUTIONS FOR PROPRE USE(Page 7~) for job indicator operation or test input operation .

# PAS2 SERIES

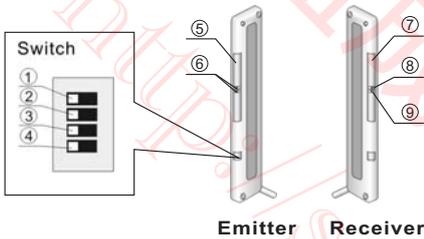
## Precautions For Proper Use

### Mounting

Use M4 screws with washers and M4 nuts. The tightening torque should be 0.5N·m or less. During mounting, do not apply any bending or twisting force to the sensor. (Please arrange the screws and nuts separately.)



### Functional description



		Description	Function	
Emitter	①	Emission frequency selection switch	1  : Frequency A	1  : Frequency B
	②	Job indicator mode switch	Lights up when 2  : the job indicator input is Low	Lights off when 2  : the job indicator input is at Low
	③		3  : Lighting	3  : Blinking
	④	Test-run switch	4  : OFF	4  : ON
	⑤	Job indicator (Red LED)	Lights up, blinks, or lights off when the job indicator input is at Low. Lighting pattern is selected by operation mode switch.	
	⑥	Power indicators (Green LED 2)	Light up when power is ON. Emission frequency a or b is indicated by the number of LEDs lighting up.	
Receiver	⑦	Job indicator (Red LED)	Lights up, blinks, or lights off when the job indicator input is at Low. Lighting pattern is selected by operation mode switch.	
	⑧	Stable incident beam indicator (Green LED)	Lights up when all beams are stably received. And blinks alternately with the operation indicator when an abnormal condition is found out by the test-run.	When an excess current flows through the output, the stable incident beam indicator and the operation indicator on the receiver blink simultaneously due to the operation of the short-circuit protection circuit.
	⑨	Operation indicator (Red LED)	Lights up when one or more beams are interrupted, and blinks alternately with the stable indicator when an abnormal condition is found out by the test-run.	

### Job indicator operation selection

The operation of the job indication can be selected with job indicator mode switch

Job indicator mode switch	Job indicator operation	
	Job indicator input : Low	Job indicator input : High or open
1 2 3 4	Lights up	Lights off
1 2 3 4	Lights off	Lights up
1 2 3 4	Lights up	Blinks
1 2 3 4	Lights off	Blinks

### Job indicator input signal condition

Output type	Signal	Signal condition
NPN output	Low	0 to 2V
	High	5 to 30V, or open
PNP output	Low	0 to 2V, or open
	High	8V to +V

### To use job indicator as large operation indicator

When the job indicator input of the emitter is connected to the output of the receiver, the job indicators can be used as large operation indicators.

Job indicator mode switch	Light state	Dark state
1 2 3 4	Light up	Light off
1 2 3 4	Light off	Light up
1 2 3 4	Light up	Blinks
1 2 3 4	Light off	Blinks

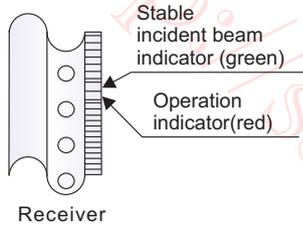
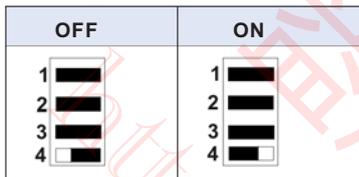
# PAS2 SERIES

## Precautions For Proper Use

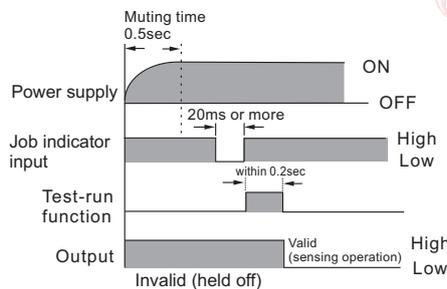
### Test-run function

Set the test-run switch to ON before switching on the power supply .  
 Turn the external input ON (job indicator input Low) after supplying power . Then , the sensor starts emission and checks itself whether each beam channel is in the Light or Dark state .  
 If all beams are properly received , the sensor starts normal sensing operation .  
 If the sensor may fail or the sensing area is blocked by some object , the sensor is held in the Dark state (safeside ) and the stable incident beam indicator and the operation indicator blink alternately .

#### Setting test-run switch



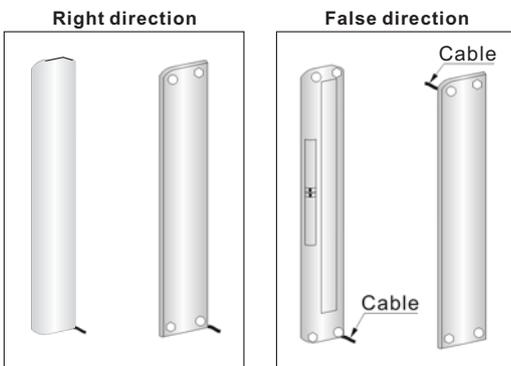
### Time chart



Note : The test-run function can be used only once after switching on the power supply .

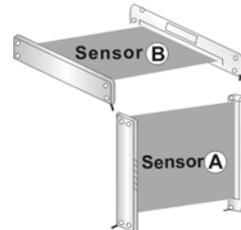
### Orientation

The emitter and the receiver must face each other correctly . If they are set upside down ,the sensor does not work .



### Interference prevention function

By setting different emission frequencies , two units of PAS2 can be mounted close together , as shown in the figure on the below . The emission frequency can be checked by the number of power indicator lighting up on the emission .



	Frequency selection switch	Power indicator (Emitter)
<b>Sensor A (FREQ .A)</b>	Frequency A 1 2 3 4	 One LED light up
<b>Sensor B (FREQ .B)</b>	Frequency B 1 2 3 4	 Two LEDs light up

### Wiring

Make sure to carry out the wiring in the power supply off condition .  
 Verify that the supply variation is within the rating .  
 If power is supplied from a commercial switching regulator , ensure that the frame ground (F . G .)terminal of the power supply is connected to an actual ground .  
 In case noise generating equipment (switching regulator , inverter motor ,etc .)is used in the vicinity of this sensor , connect the frame ground .(F .G .)terminal of the equipment to an actual ground .  
 Do not run the wires together with high-voltage lines or power line or put them in the same raceway . This can cause malfunction due to induction .

### Others

Do not use during the initial transient time (500 ms)after the power supply is switched on .  
 Avoid dust ,dirt and steam .  
 Take care that the sensor does not come in direct contact with water ,oil ,grease ,or organic solvents ,such as thinner , etc .  
 Take care that the sensor is not directly exposed to fluorescent light from a rapid-starter lamp or a high frequency lighting device ,as it may affect the sensing performance .



● This sensor is not for press machine safeguard .  
 Do not use this sensor for any press machine .

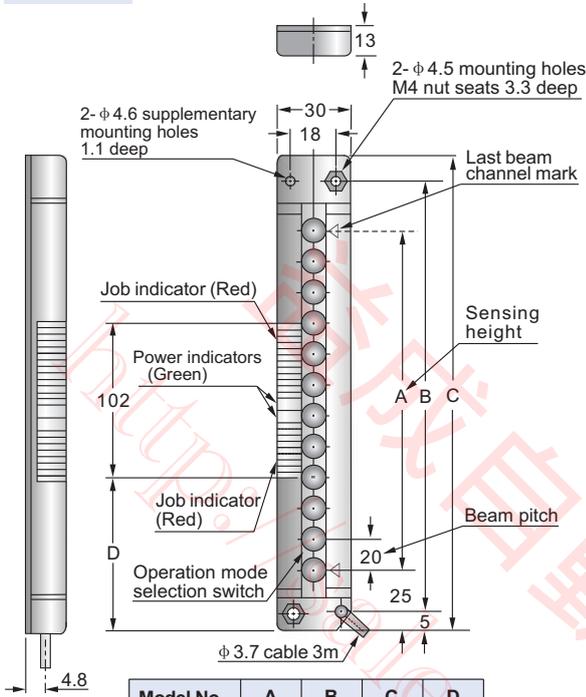
This product is not a safety sensor .Its use is not intended or designed to protect life and prevent body injury or property damage from dangerous parts of machinery .It is a normal object detection sensor .  
 Area sensor conforming to safety standards are available .  
 For details , please contact our office .

# PAS2 SERIES

## Dimensions (Unit: mm)

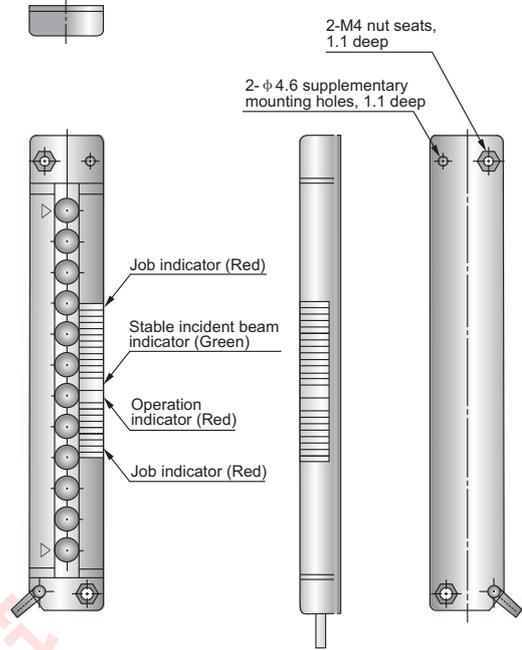
### Sensor Type

#### Emitter



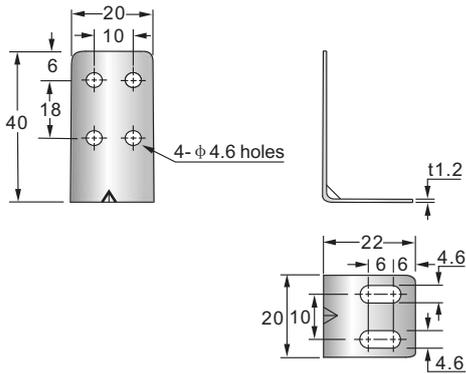
Model No.	A	B	C	D
PAS2-8	140	180	190	44
PAS2-12	220	260	270	84
PAS2-16	300	340	350	124
PAS2-20	380	420	430	164
PAS2-24	460	500	510	204
PAS2-28	540	580	590	244
PAS2-32	620	660	670	284

#### Receiver



AV: PAS2 SERIES

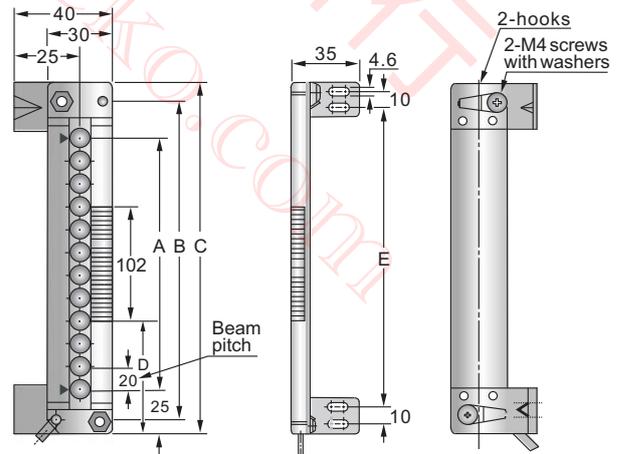
### MB-4020 (Sensor mounting bracket-optional)



#### Four bracket set

Eight M4 (length 18mm) screws with washers (Four screws with washers are used), eight nuts, four hooks and four M4 (length 15mm) screws with washers are attached.

#### Assembly dimensions Mounting drawing with the receiver

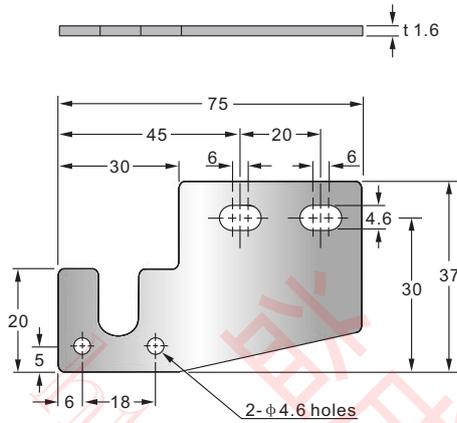


Model No.	A	B	C	D	E
PAS2-8	140	180	190	44	160
PAS2-12	220	260	270	84	240
PAS2-16	300	340	350	124	320
PAS2-20	380	420	430	164	400
PAS2-24	460	500	510	204	480
PAS2-28	540	580	590	244	560
PAS2-32	620	660	670	284	640

# PAS2 SERIES

## Dimensions (Unit: mm)

### MB-7537 (Sensor mounting bracket-optional)

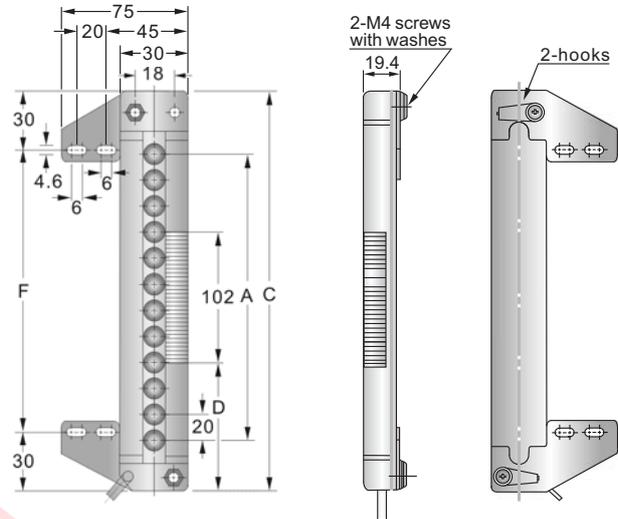


**Material :** Cold rolled carbon steel (SPCC)  
(Uni-chrome plated)

Four bracket set

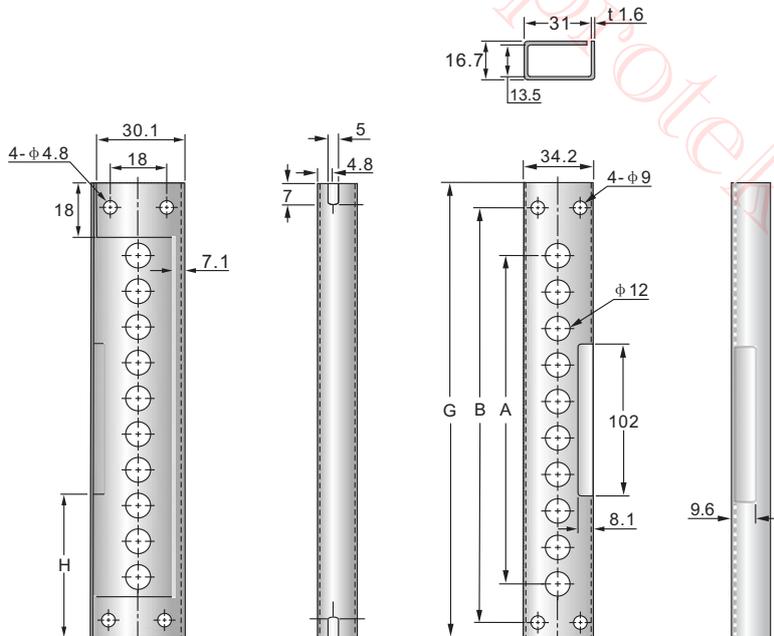
Eight M4 (length 18mm) screws with washers (four screws with washers are used), eight nuts, Four hooks, four spacers and four M4 (length 15 mm) screws with washers are attached. M4 (length 15 mm) screws with washers are not used for PAS2.

### Assembly dimensions Mounting drawing with the receiver



Model No.	A	C	D	F
PAS2-8	140	190	44	130
PAS2-12	220	270	84	210
PAS2-16	300	350	124	290
PAS2-20	380	430	164	370
PAS2-24	460	510	204	450
PAS2-28	540	590	244	530
PAS2-32	620	670	284	610

### Sensor protective bracket (optional)



Model No.	A	B	G	H
PB-PAS2-8	140	180	194	46
PB-PAS2-12	220	260	274	86
PB-PAS2-16	300	340	354	126
PB-PAS2-20	380	420	434	166
PB-PAS2-24	460	500	514	206
PB-PAS2-28	540	580	594	246
PB-PAS2-32	620	660	674	286

**Note :** The protection bracket can be used for both the emitter and the receiver .

**Material :** Cold rolled carbon steel (SPCC) (Chrome plated )

Two bracket set

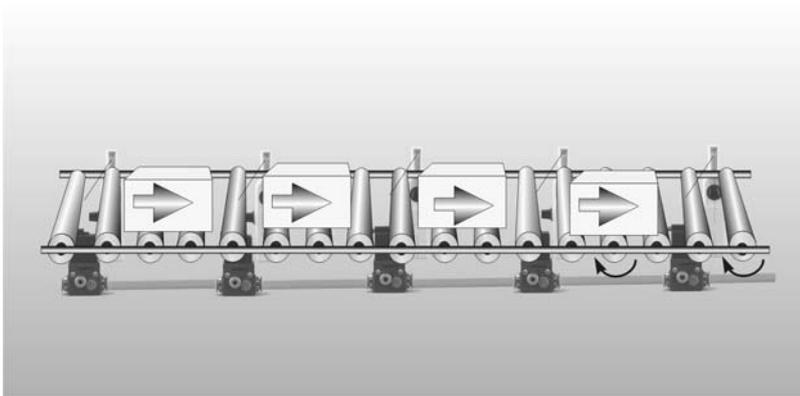
Four M4 (length 20mm) screws with washers , and four nuts are attached.

## Applications



### Automatic Interference Prevention Function

Accumulating conveyor system with no additional control elements—thanks to the integrated logics and valve unit. Peak throughput, irregular material flow and problems in material feed are detected with the RC photoelectric proximity switch—roller conveyors can, therefore, be used as accumulating roller conveyors.



Only the scanned objects passing the sensor at a defined distance trigger the RC. Personnel or objects within the scanning plane but outside the detection range are ignored.

# RC SERIES

## Diffuse Mode with Background Suppression

Bf: RC SERIES

Sensing Range	550 mm	
Type	Quick Disconnect (Euro-Style)	Pigtail (Euro-Style)
		
PNP Light-ON	<u>RC-D0550P-LY9Q4UE-BS</u>	—
PNP Dark-ON	<u>RC-D0550P-DY9Q4UE-BS</u>	<u>RC-D0550P-DY9P4UE-BS</u>
Supply voltage	18...30 V DC	
Voltage drop	< 2.5 V	
PNP Switching Output/Switching	400 mA	
Switching Outputs	1	2
Overload Protection	YES	
Protected against polarity reversal	YES	
Short-circuit protected	YES	
Response Time	5 ms	
Frequency of operating cycles	100 Hz	
Light Source	Infrared Light 880nm	
Switching hysteresis	<15 %	
Potentiometer min	220...270 mm	
Potentiometer center	320...400 mm	
Potentiometer max	550...630 mm	
Max. Ambient Light	10000 Lux	
Protective Insulation	Up to 50 V	
Ambient temperature range	-25...60°C	
Degree of protection	IP 65	
Service life (T = +25°C)	100000 h	
Opening Angle	5°	
Power Consumption Sensor	35 mA	
Temperature Drift	10 %	
Housing material	Plastic	
Connection	M12, 4pin Connector	

**Note:**  
 Coming Soon : Part numbers with underline — Bf-01 —

## Diffuse Mode with Background Suppression

Sensing Range	550 mm	
Type	Quick Disconnect (Euro-Style)	Pigtail (Euro-Style)
		
PNP Light-ON	—	
PNP Dark-ON	<b>RC-D0550P-DY9Q4UE-BP</b>	<b>RC-D0550P-DY9P4UE-BP</b>
Supply voltage	18...30 V DC	
Voltage drop	< 2.5 V	
PNP Switching Output/Switching	400 mA	
Switching Outputs	1	
Overload Protection	YES	
Protected against polarity reversal	YES	
Short-circuit protected	YES	
Response Time	5 ms	
Frequency of operating cycles	100 Hz	
Light Source	Infrared Light 880nm	
Switching hysteresis	<15 %	
Potentiometer min	220...270 mm	
Potentiometer center	320...400 mm	
Potentiometer max	550...630 mm	
Max. Ambient Light	10000 Lux	
Ambient temperature range	-15...50°C	
Degree of protection	IP 65	
Service life (T = +25°C)	100000 h	
Opening Angle	5°	
Power Consumption Sensor	35 mA	
Temperature Drift	10 %	
Housing material	Plastic	
Connection	M12, 4pin Connector	
<b>Pneumatic Solenoid Valve Unit</b>		
Power consumption valve	86mA	
Switch-ON duration	100 %	
Medium	Air	
Operating Pressure	7bar	
Nominal width	0.8 mm	
Quick exhausting valve 1->2	20 NL/min	
Quick exhausting valve 2->3	100NL/min	
Insulation class	B VDE 0580	
Weight	79 g	

Note: In Preparation: Part numbers with a line through the middle

Retroreflective Mode

Bf: RC SERIES

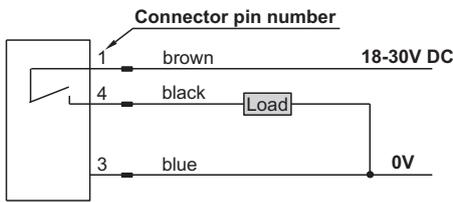
Sensing Range	6500 mm (Note)	
Type	Quick Disconnect (Euro-Style)	Pigtail (Euro-Style)
		
	<b>RG-L6500P-LY6Q4UE</b>	<b>RG-L6500P-LY6P4UE-P</b>
PNP Light-ON	—	—
PNP Dark-ON	—	—
Supply voltage	18...30 V DC	18...30 V DC
Voltage drop	< 2.5 V	< 2.5 V
PNP Switching Output/Switching	400 mA	400 mA
Switching Outputs	1	1
Overload Protection	YES	YES
Protected against polarity reversal	YES	YES
Short-circuit protected	YES	YES
Response Time	5 ms	5 ms
Frequency of operating cycles	100 Hz	100 Hz
Light Source	Red Light	Red Light
Switching hysteresis	<15 %	<15 %
Reference Reflector	RE100100	RE100100
Max. Distance on Reflector	100 mm	100 mm
Valve Control	—	YES
Max. Ambient Light	10000 Lux	10000 Lux
Protective Insulationr	Up to 50 v	—
Ambient temperature range	-25...60°C	-15...50°C
Degree of protection	IP 65	IP 65
Service life (T = +25°C)	100000 h	100000 h
Opening Angle	5°	5°
Power Consumption Sensor	35 mA	35 mA
Temperature Drift	10 %	10 %
Housing material	Plastic	Plastic
Connection	M12, 4pin Connector	M12, 4pin Connector
<b>Pneumatic Solenoid Valve Unit</b>		
Power consumption valve	—	86mA
Switch-ON duration	—	100%
Medium	—	Air
Operating Pressure	—	7bar
Nominal width	—	0.8 mm
Quick exhausting valve 1->2	—	20 NL/min
Quick exhausting valve 2->3	—	100 NL/min
Insulation class	—	B VDE 0580
Weight	—	79 g

Note: Used with RE-8484 (supplied with sensor) reflector.

# RC SERIES

## Connection Diagrams

### RC-D0550P-LY9Q4UE-BS / RC-L6500P-LY6Q4UE

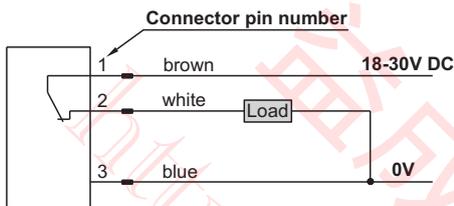


#### Connector pin position

##### Euro-style



### RC-D0550P-DY9Q4UE-BS

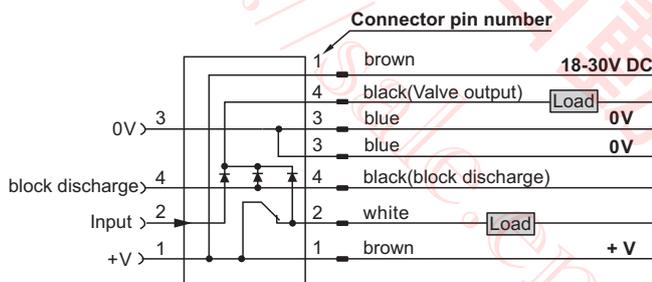


#### Connector pin position

##### Euro-style



### RC-D0550P-DY9P4UE-BS

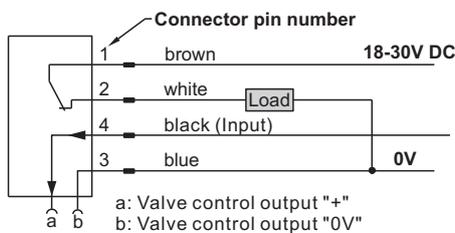


#### Connector pin position

##### Euro-style

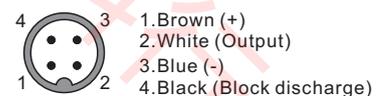


### RC-D550P-DY9Q4UE-BP

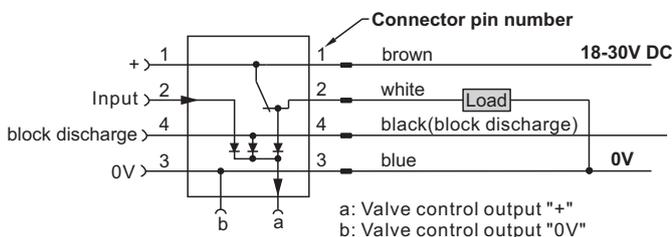


#### Connector pin position

##### Euro-style



### RC-D0550P-DY9P4UE-BP

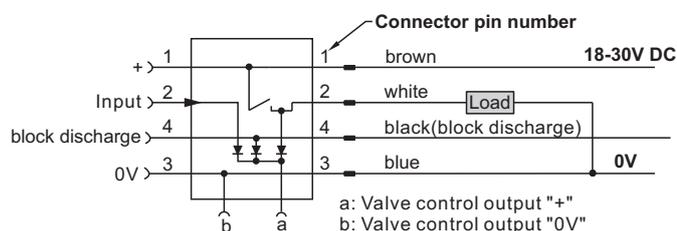


#### Connector pin position

##### Euro-style



### RC-L6500P-LY6P4UE-P



#### Connector pin position

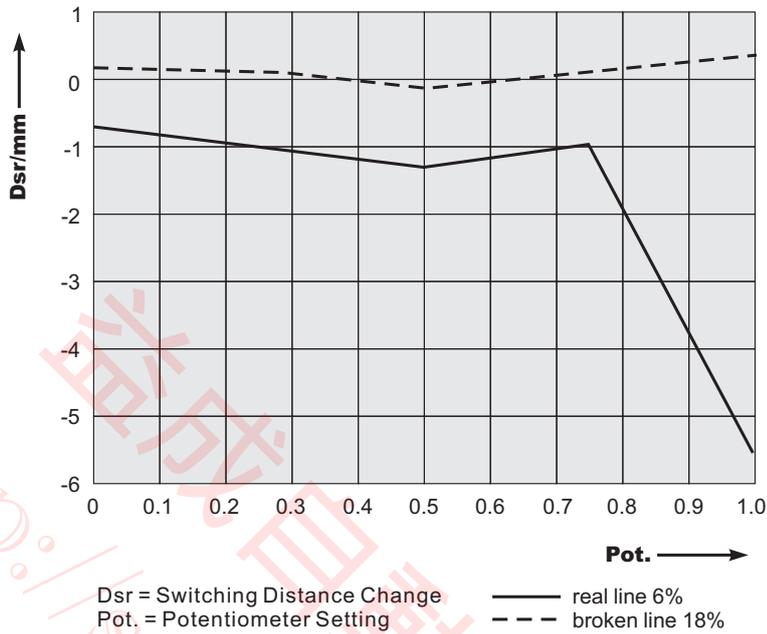
##### Euro-style



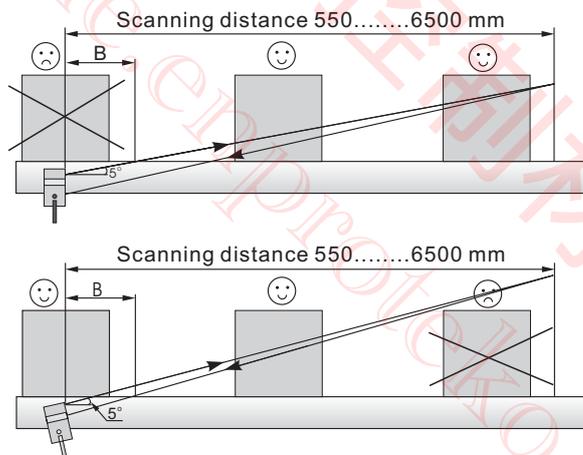
# RC SERIES

## Sensing Characteristics (Typical)

### Sensing Range Diagram (Background Suppression Diffuse Mode)

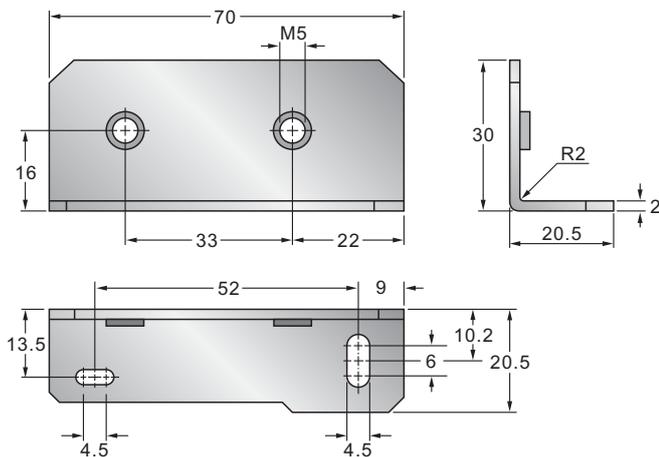


### Scanning distance and Opening angle



### Mounting Bracket's Dimensions (Unit: mm)

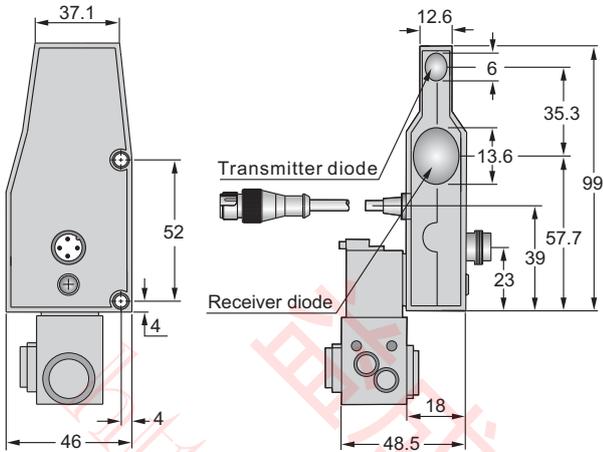
MB-7030 (optional)



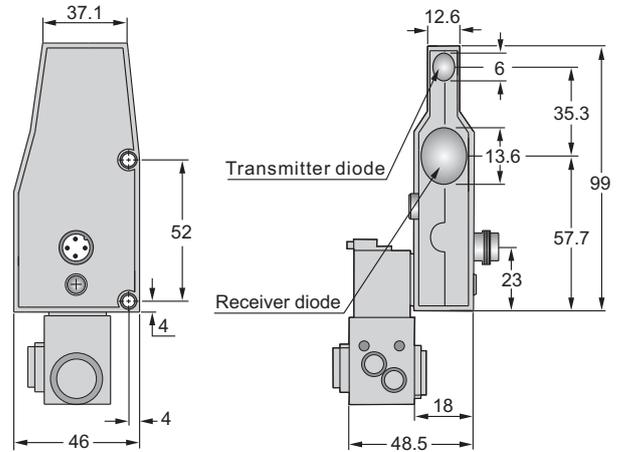
# RC SERIES

## Sensor Dimensions (Unit: mm)

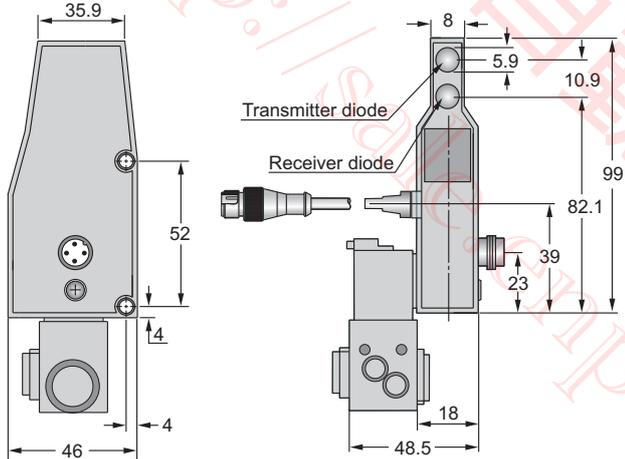
**RC-D0550P-DY9P4UE-BP (Pigtail Type)**



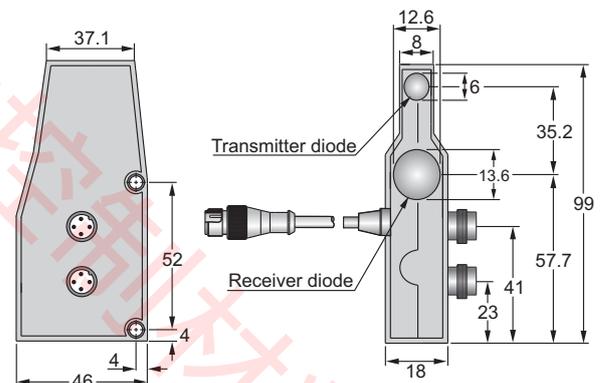
**RC-D0550P-DY9Q4UE-BP (Quick Disconnect Type)**



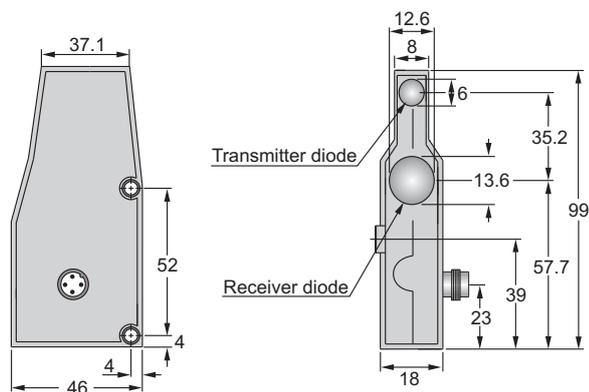
**RC-L6500P-LY6P4UE-P (Pigtail Type)**



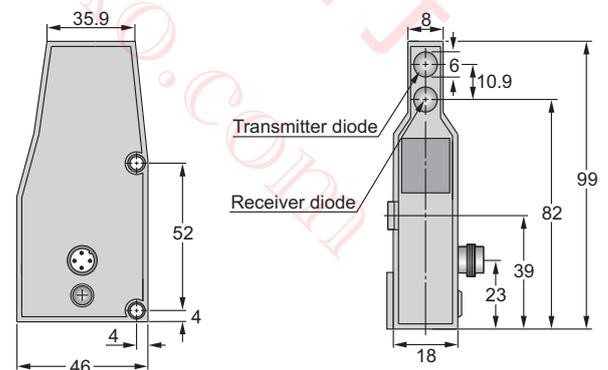
**RC-D0550P-DY9P4UE-BS (Pigtail Type)**



**RC-D0550P-LY9Q4UE-BS / RC-D0500P-DY9Q4UE-BS**



**RC-L6500P-LY6Q4UE (Quick Disconnect Type)**



Bf: RC SERIES

Thru-beam Mode (Slot Sensors)

Bg: U SERIES

Sensors type	U05	U15
Slot spacing	5mm	15mm
Dimensions(Unit: mm)		
PNP red light 660nm	U05-T0005P-CY6Q4UP	U15-T0015P-CY6Q4UP
NPN red light 660nm	U05-T0005N-CY6Q4UP	U15-T0015N-CY6Q4UP
PNP infrared light 880nm	U05-T0005P-CY9Q4UP	U15-T0015P-CY9Q4UP
NPN infrared light 880nm	U05-T0005N-CY9Q4UP	U15-T0015N-CY9Q4UP
Supply voltage	10...30 V DC	
Voltage drop	< 1.5 V	
Rated isolation voltage	75 V DC	
Rated operational current	200 mA	
No-load supply current	≤ 35 mA	
Protected against polarity reversal	YES	
Short-circuit protected	YES	
On/Off delay	0.2 ms	
Frequency of operating cycles	1000 Hz	
Switching hysteresis	≤ 0.1 mm	
Resolution	0.3 mm	
Repeatability	0.02 mm	
Output function	Light on / Dark on	
Permissible ambient light	10 Klux	
Function indicator	LED red	
Ambient temperature range	-10...60°C	
Degree of protection	IP 65	
EMC	IEC 60947-5-2, Parts 7.2.6.1.2.3 or RFI>3V/m (in 30-1000MHz), EFT>1KV, ESD>4KV(contact)	
Shock	IEC 60947-5-2, Part 7.4.1 or 30g, 11ms in x, y and z directions for six time each	
Vibration	IEC 60947-5-2, Part 7.4.2 or 10-55Hz, 1.0mm amplitude in x, y and z directions for 30min	
Housing material	Die-cast	
Connection	M8 4pin Connector	
Weight	20 g	23 g
Photo		

Note:  
 Coming Soon : Part numbers with underline  
 In Preparation: Part numbers with a line through the middle

Thru-beam Mode (Slot Sensors)

Sensors type	U30	U50
Slot spacing	30mm	50mm
Dimensions(Unit: mm)		
PNP red light 660nm	U30-T0030P-CY6Q4UP	U50-T0050P-CY6Q4UP
NPN red light 660nm	U30-T0030N-CY6Q4UP	U50-T0050N-CY6Q4UP
PNP infrared light 880nm	U30-T0030P-CY9Q4UP	U50-T0050P-CY9Q4UP
NPN infrared light 880nm	U30-T0030N-CY9Q4UP	U50-T0050N-CY9Q4UP
Supply voltage	10...30 V DC	
Voltage drop	< 1.5 V	
Rated isolation voltage	75 V DC	
Rated operational current	200 mA	
No-load supply current	≤ 35 mA	
Protected against polarity reversal	YES	
Short-circuit protected	YES	
On/Off delay	0.2 ms	
Frequency of operating cycles	500 Hz	
Switching hysteresis	≤ 0.1 mm	
Resolution	0.3 mm	0.5 mm
Repeatability	0.02 mm	0.04 mm
Output function	Light on / Dark on	
Permissible ambient light	10 Klux	
Function indicator	LED red	
Ambient temperature range	-10...60°C	
Degree of protection	IP 65	
EMC	IEC 60947-5-2, Parts 7.2.6.1.2.3 or RFI>3V/m (in 30-1000MHz),EFT>1KV, ESD>4KV(contact)	
Shock	IEC 60947-5-2, Part 7.4.1 or 30g, 11ms in x, y and z directions for six time each	
Vibration	IEC 60947-5-2, Part 7.4.2 or 10-55Hz, 1.0mm amplitude in x, y and z directions for 30min	
Housing material	Die-cast	
Connection	M8 4pin Connector	
Weight	36 g	58 g
Photo		

Bg: U SERIES

Note:  
 Coming Soon : Part numbers with underline  
 In Preparation: Part numbers with a line through the middle

# U SERIES

## Thru-beam Mode (Slot Sensors)

Sensors type	U80	U120
Slot spacing	80mm	120mm
Dimensions(Unit: mm)		
PNP red light 660nm	U80-T0080P-CY6Q4UP	U120-T0120P-CY6Q4UP
NPN red light 660nm	U80-T0080N-CY6Q4UP	U120-T0120N-CY6Q4UP
PNP infrared light 880nm	U80-T0080P-CY9Q4UP	U120-T0120P-CY9Q4UP
NPN infrared light 880nm	U80-T0080N-CY9Q4UP	U120-T0120N-CY9Q4UP
Supply voltage	10...30 V DC	
Voltage drop	< 1.5 V	
Rated isolation voltage	75 V DC	
Rated operational current	200 mA	
No-load supply current	≤ 35 mA	
Protected against polarity reversal	YES	
Short-circuit protected	YES	
On/Off delay	0.33 ms	
Frequency of operating cycles	500 Hz	
Switching hysteresis	≤ 0.2 mm	
Resolution	0.5 mm	0.8 mm
Repeatability	0.06 mm	0.08 mm
Output function	Light on / Dark on	
Permissible ambient light	5 Klux	
Function indicator	LED red	
Ambient temperature range	-10...60°C	
Degree of protection	IP 65	
EMC	IEC 60947-5-2, Parts 7.2.6.1.2.3 or RFI>3V/m (in 30-1000MHz),EFT>1KV, ESD>4KV(contact)	
Shock	IEC 60947-5-2, Part 7.4.1 or 30g, 11ms in x, y and z directions for six time each	
Vibration	IEC 60947-5-2, Part 7.4.2 or 10-55Hz, 1.0mm amplitude in x, y and z directions for 30min	
Housing material	Die-cast	
Connection	M8 4pin Connector	
Weight	79 g	116 g
Photo		

Bg: U SERIES

**Note:**  
 Coming Soon : Part numbers with underline  
 In Preparation: Part numbers with a line through the middle

# U SERIES

## Thru-beam Mode (Slot Sensors)

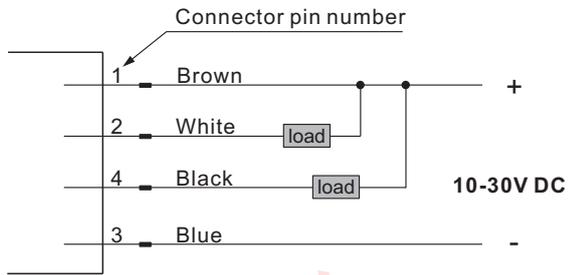
Sensors type	<b>U180</b>	<b>U220</b>
Slot spacing	180mm	220mm
Dimensions(Unit: mm)		
PNP red light 660nm		
NPN red light 660nm		
PNP infrared light 880nm		
NPN infrared light 880nm		
Supply voltage	10...30 V DC	
Voltage drop	< 1.5 V	
Rated isolation voltage	75 V DC	
Rated operational current	200 mA	
No-load supply current	≤ 35 mA	
Protected against polarity reversal	YES	
Short-circuit protected	YES	
On/Off delay	0.33 ms	
Frequency of operating cycles	1500 Hz	
Switching hysteresis	≤ 0.2 mm	
Resolution	0.8 mm	1.0 mm
Repeatability	0.08 mm	0.10 mm
Output function	Light on / Dark on	
Permissible ambient light	5 Klux	
Function indicator	LED red	
Ambient temperature range	-10...60°C	
Degree of protection	IP 65	
EMC	IEC 60947-5-2, Parts 7.2.6.1.2.3 or RFI>3V/m (in 30-1000MHz),EFT>1KV, ESD>4KV(contact)	
Shock	IEC 60947-5-2, Part 7.4.1 or 30g, 11ms in x, y and z directions for six time each	
Vibration	IEC 60947-5-2, Part 7.4.2 or 10-55Hz, 1.0mm amplitude in x, y and z directions for 30min	
Housing material	Die-cast	
Connection	M8 4pin Connector	
Weight	190 g	220 g
Photo		

Bg: U SERIES

**Note:**  
 Coming Soon : Part numbers with underline  
 In Preparation: Part numbers with a line through the middle

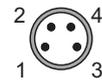
## Connection Diagrams

### NPN output type



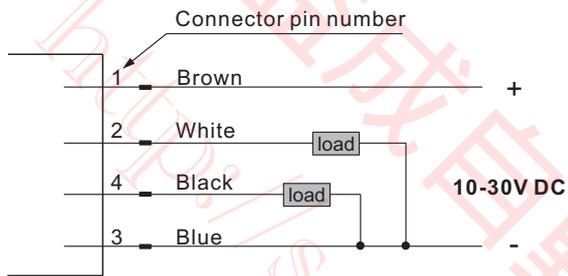
#### Connector face view

##### Pico-Style



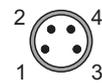
- 1. Brown (+)
- 2. White (Output)
- 3. Blue (-)
- 4. Black (Output)

### PNP output type



#### Connector face view

##### Pico-Style



- 1. Brown (+)
- 2. White (Output)
- 3. Blue (-)
- 4. Black (Output)