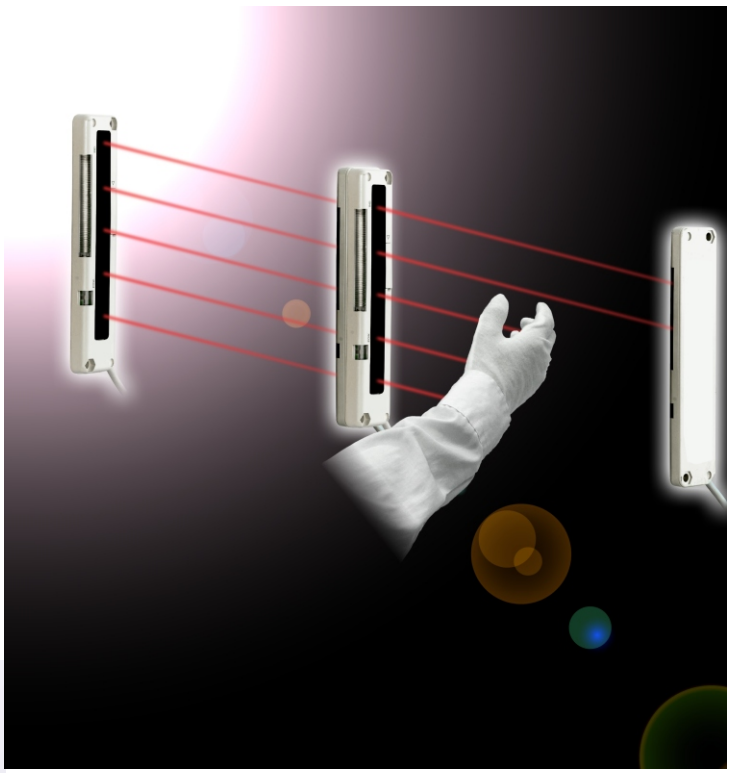
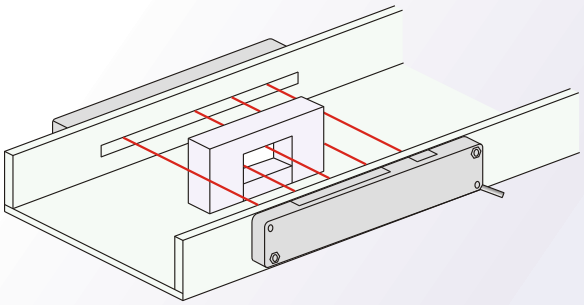
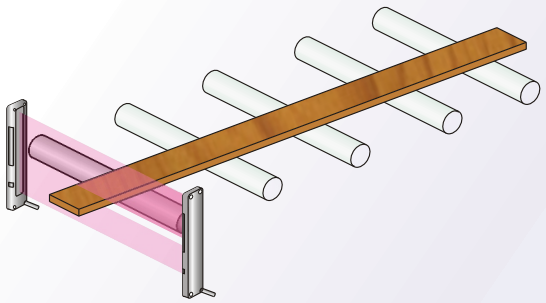
PAS1 SERIES



Detecting parts having wide positioning area



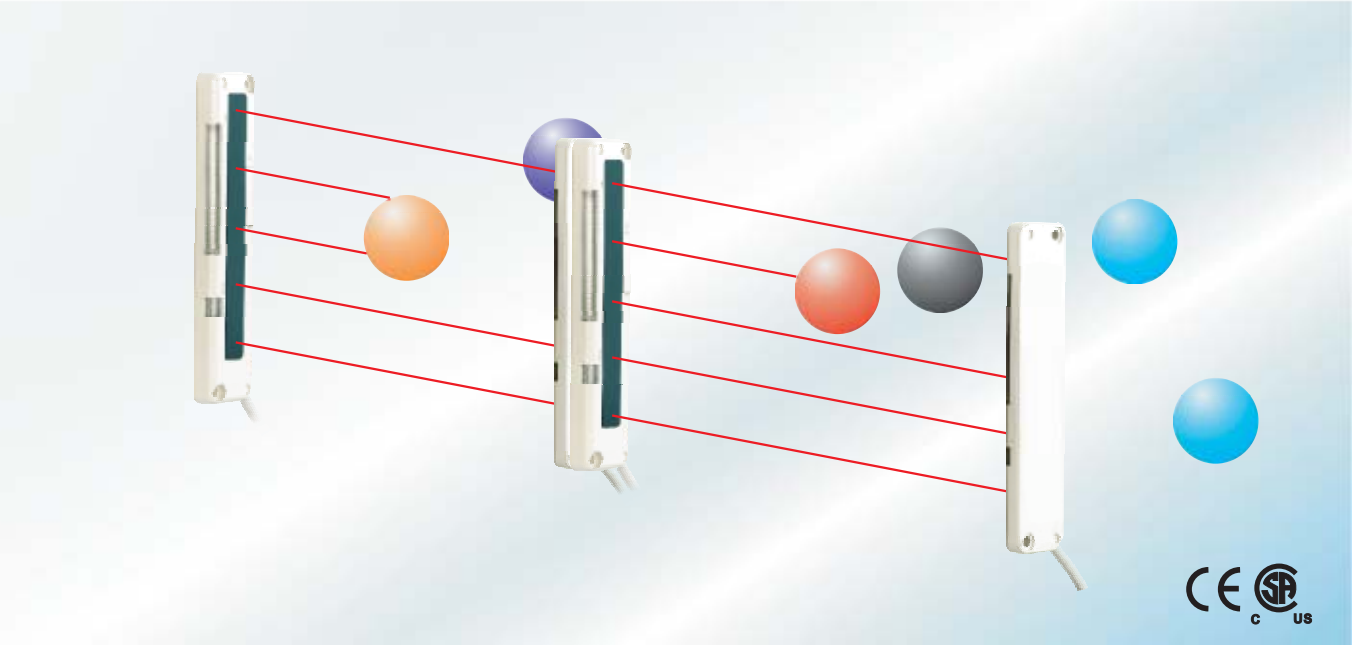
Detecting edge of moving object



PHOTOELECTRIC

AREA SENSORS

PAS1 SERIES

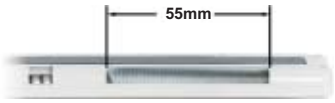


10mm Thick: 1/2 of Conventional Model

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

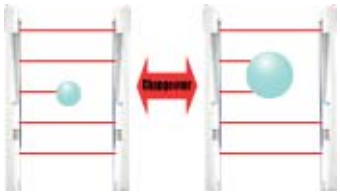
Setting different emission frequencies for two sensors prevents mutual interference. Use of two sensors together covers a wider detection area.

Lighting Pattern Selectable

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

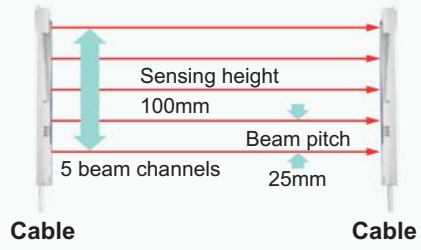
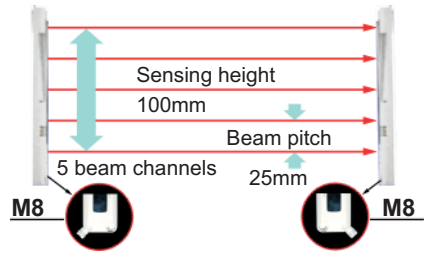
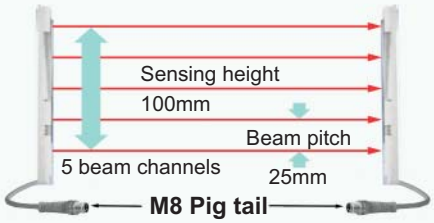
Detection Operation Selectable

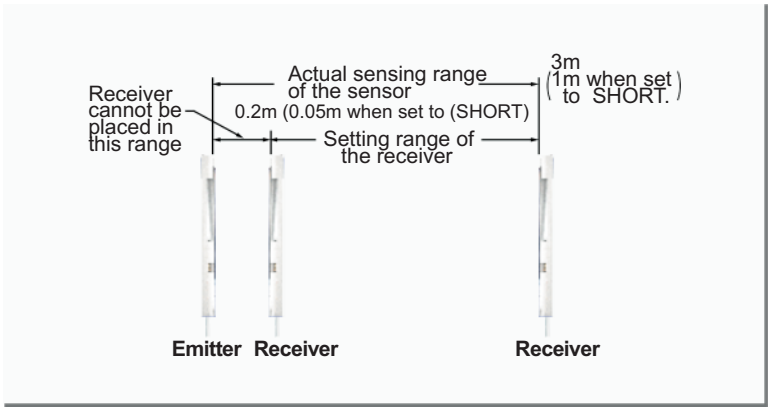
Detection on interruption of either minimum one beam or minimum two beams can be selected to suit the application.



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.

Appearance	Sensing range (Note)	Supply Voltage	Output mode	Part Number
	0.2 to 3m [0.05 to 1m when set to SHORT.]	10-30V DC	Emitter	PAS1-T3000D-EY9C3L2-5
			NPN	PAS1-T3000N-CY9C4U2-5
			PNP	PAS1-T3000P-CY9C4U2-5
	0.2 to 3m [0.05 to 1m when set to SHORT.]	10-30V DC	Emitter	PAS1-T3000D-EY9Q4LP-5
			NPN	PAS1-T3000N-CY9Q4UP-5
			PNP	PAS1-T3000D-CY9Q4UP-5
	0.2 to 3m [0.05 to 1m when set to SHORT.]	10-30V DC	Emitter	PAS1-T3000P-EY9P4LP-5
			NPN	PAS1-T3000N-CY9P4UP-5
			PNP	PAS1-T3000P-CY9P4UP-5



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.

OPTIONS - Sensors Mounting bracket
- Mask

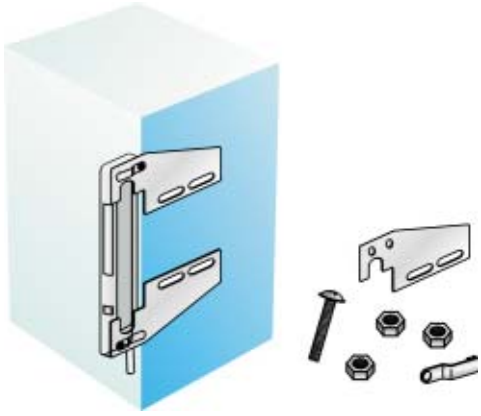
Protection bracket

MS-PAS1-1

M4 screws with washers, nuts and hooks are attached.

MS-PAS1-2

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



MS-PAS1-3

M4 screws with washers, and nuts are attached

MS-PAS1-1

Description

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. (Spacers are not attached with MS-PAS1-1.)

MS-PAS1-2

Description

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. (Spacers are not attached with MS-PAS1-1.)

MS-PAS1-3

Description

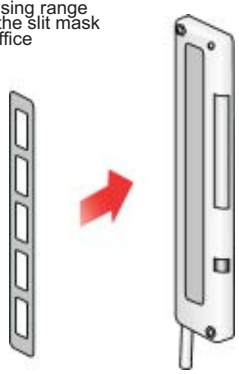
It protects the sensor body.Two bracket set

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

Slit mask .

OS-PAS1-5

Since the slit mask is seal type,it can be used by sticking it to the detection surface. Take care that the sensing range will be reduced when the slit mask is used. Contact our office for details.



OS-PAS1-5

Description

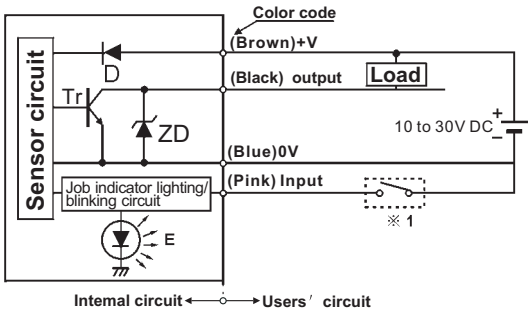
The slit mask restrains the amount of beam emitted or received.

(Seal type, 10 Nos. Set)

Item \ Type	Area sensor	
	NPN output	PNP output
Sensing height	100mm	
Sensing range	0.2 to 3m (0.05 to 1m when set to SHORT)	
Beam pitch	5 beam channels	
Number of beam channels	O 35mm or more opaque object	
Sensing object	10 to 30V DC Ripple P-P 10% or less	
Power consumption	Emitter: 0.5w or less, Receiver: 0.8w or less	Emitter: 0.6w or less, Receiver: 0.9w or less
Sensing output	**NPN** open-collector transistor Maximum sink current: 100mA Applied voltage: 30V DC or less (between sensing output and 0V) Residual voltage: 1.5V or less	**PNP** open-collector transistor Maximum sink current: 100mA Applied voltage: 30V DC or less (between sensing output and +V) Residual voltage: 1.5V or less
Utilization category	DC-12 or DC-13	
Output operation	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	
Short-circuit protection	Incorporated	
Response time	10ms or less (when the interference prevention is used, in Light state: 30ms or less, in Dark state: 13ms or less)	
Indicators — Emitter	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, lighting pattern is selected by operation mode switch)	
Indicators — Receiver	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, lighting pattern is selected by operation mode switch)	
Interference prevention function	Incorporated	
Environmental resistance — Pollution degree	3(Industrial environment)	
Environmental resistance — Protection	IP62(IEC)	
Environmental resistance — Ambient temperature	-10 to +55°C(No dew condensation or icing allowed),Storage:-20 to +70 C°	
Environmental resistance — Ambient humidity	35 to 85% RH, Storage:35 to 85% RH	
Environmental resistance — Ambient illuminance	Sunlight:10,000ℓxat the light-receiving face Incandescent light:3,000ℓx at the light-receiving face	
Environmental resistance — EMC	IEC 60947-5-2, Parts 7.2.6.1.2.3 or RFI>20V/m(in 30-1000MHZ), EFT>1KV, ESD>4KV(contact)	
Environmental resistance — Vlotage withstandability	1,000V AC for one min.between all supply terminals connected together and enclosure	
Environmental resistance — Insulation resistance	20MΩ,or more,with 250V DC megger between all supply terminals connected together and enclosure	
Environmental resistance — Vibration resistance	IEC 60947-5-2, Part 7.4.2 or 10-55HZ, 1.0mm amplitude In X, Y and Z directions for 30 min	
Environmental resistance — Shock resistance	IEC 60947-5-2, Part 7.4.1 or 30g,11ms in X,Y and Z directions for six times each	
Emitting element	Infrared LED (synchronized scanning system)	
Material	Enclosure: Heat-resistant ABS, Len cover: Acrylic, Indicator cover: Acrylic	
Cable	0.3mm^2 4-core (emitter: 3-core) oil resistant cabtyre cable, 2m long	
Cable extension	Extension up to total 100m is possible for both emitter and receiver with 0.3mm^2, or more,cable.	
Pigtail type	M8 pico 4pin+6″ . cable	
Connection type	M8 pico 4pin	
Weight	Emitter: 70g approx., Receiver: 80g approx.	

NPN output type

1. I/O circuit diagram

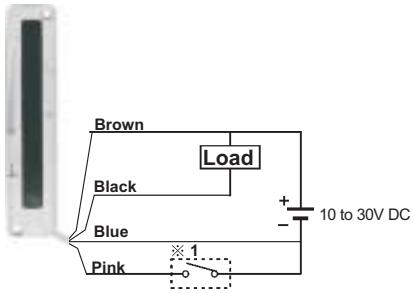


Note :

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

2. Wiring diagram

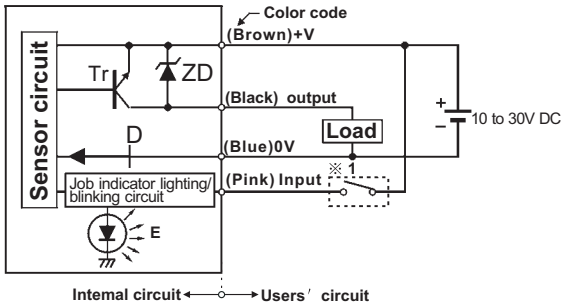


※ 1
Non-contact voltage or
NPN open-collector transistor

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

PNP output type

1. 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
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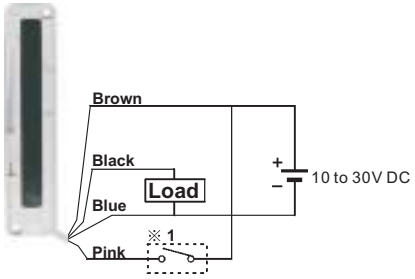
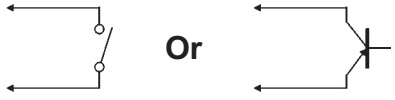
2. Wiring diagram

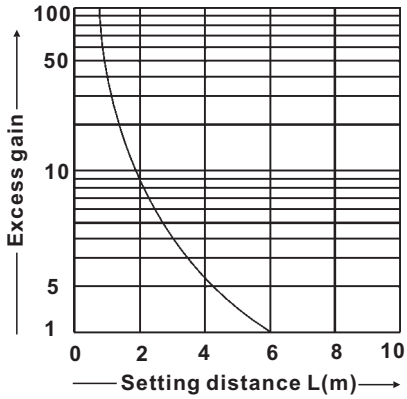


※ 1
Non-contact voltage or
PNP open-collector transistor



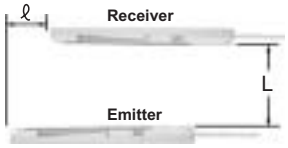
Low (4V or more): Lights up or Blinks
High (0 to 0.6V, or open): Lights off

Correlation between setting distance and excess gain

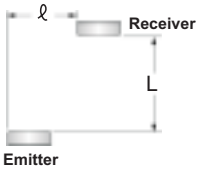


Parallel deviation

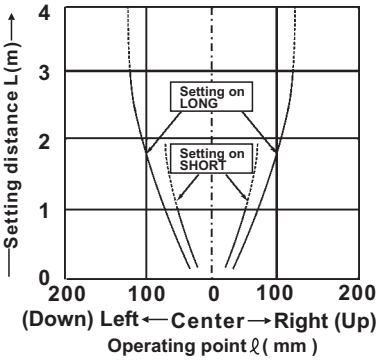
1. Vertical direction



2. Horizontal direction

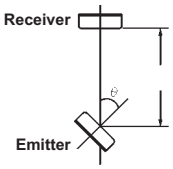


• Common for both horizontal and vertical directions

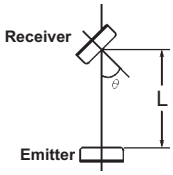


Angular deviation

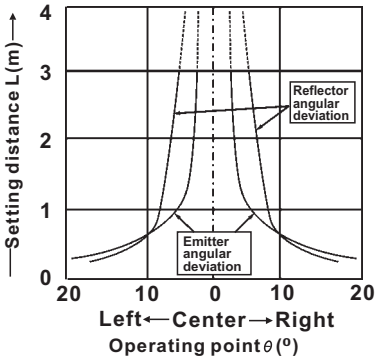
1. Emitter angular direction



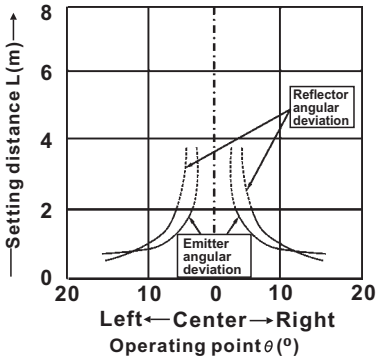
2. Receiver angular dir



• Setting on LONG



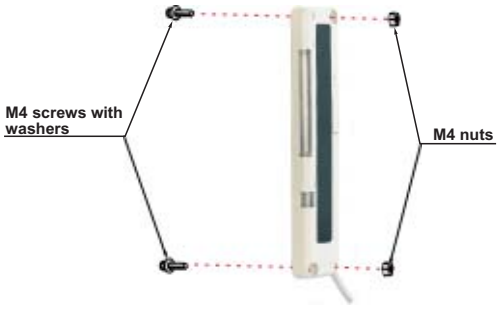
• Setting on SHORT



- 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 form dangerous parts of machinery. It is a normal object detection sensor.
- Area sensors conforming to standards are available. For details, please contact our office.

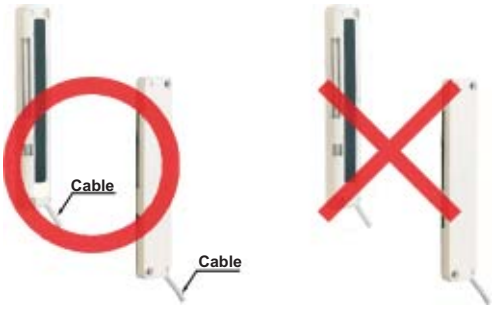
Mounting

- 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.)



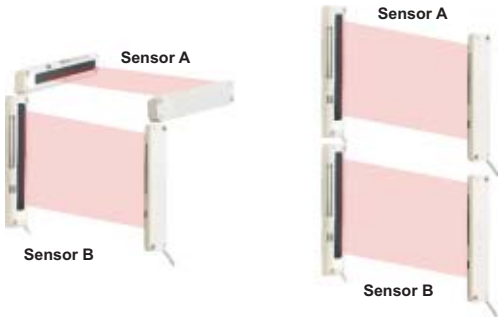
Orientation

- 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.

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

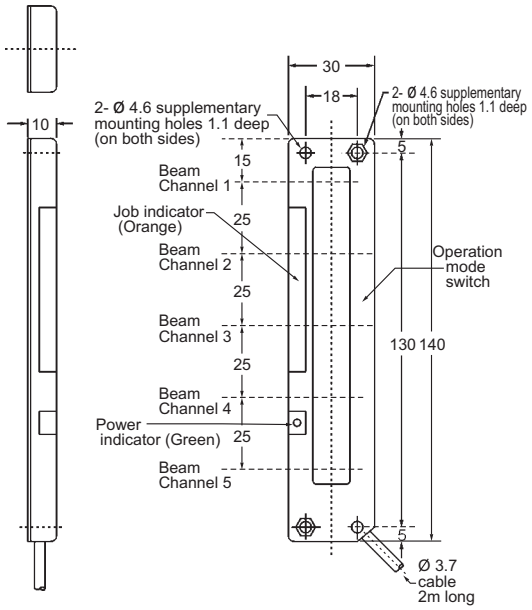
- **Do not use during the initial transient time (0.5 secretary.) After the power supply is switched on.**

	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

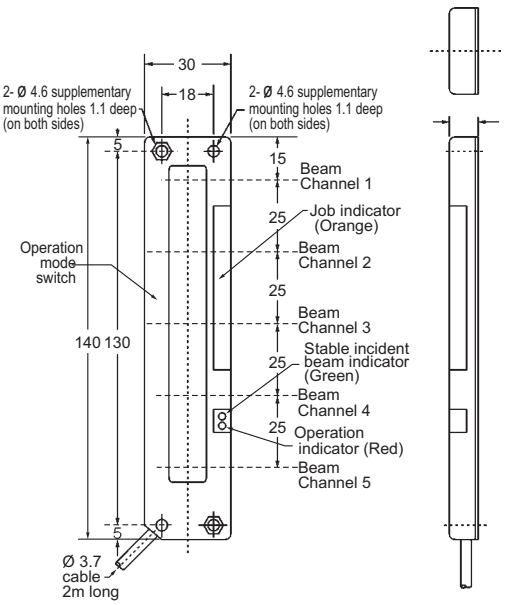
PAS1-5 PAS1-5-PN

DIMENSIONS(Unit: mm)

1. Emitter



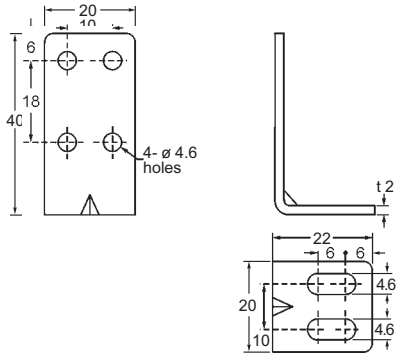
2. Receiver



MS-PAS1-1

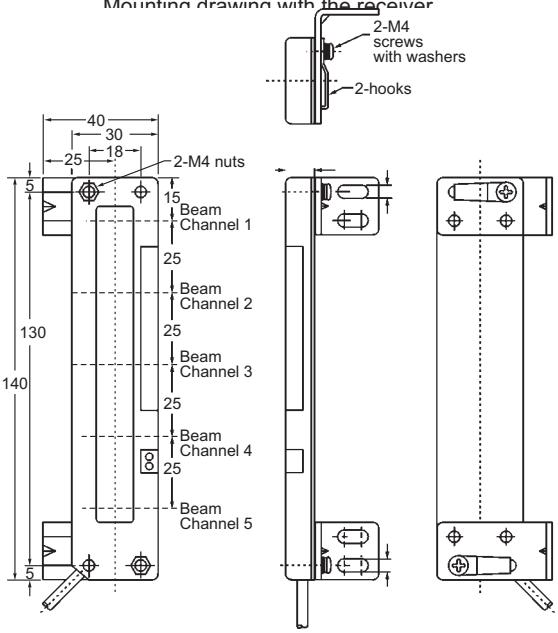
Sensor mounting bracket (Optional)

1.



2.

Assembly dimensions
Mounting drawing with the receiver



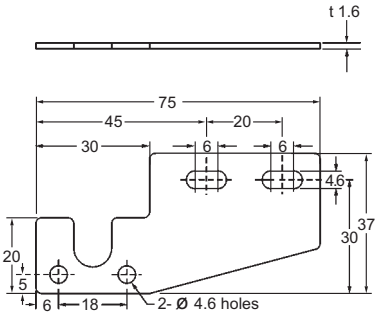
Material:
Cold rolled carbon steel (SPCC)(Uni-chrome plated)

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.]

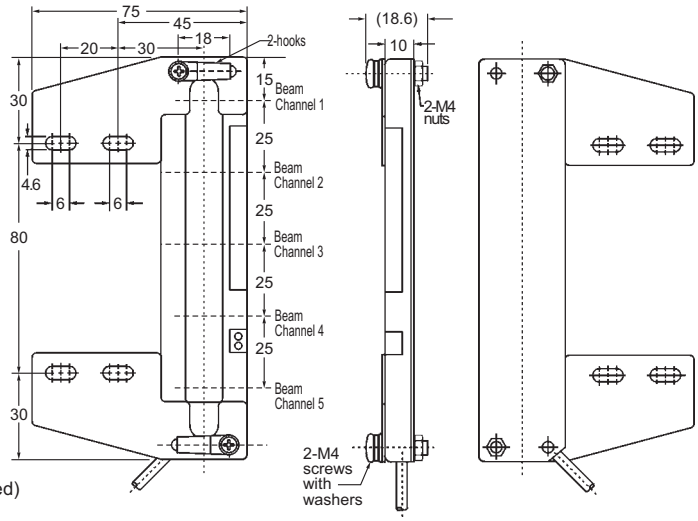
MS-PAS1-2

Sensor mounting bracket (Optional)

1.



2. Assembly dimensions
Mounting drawing with the receiver



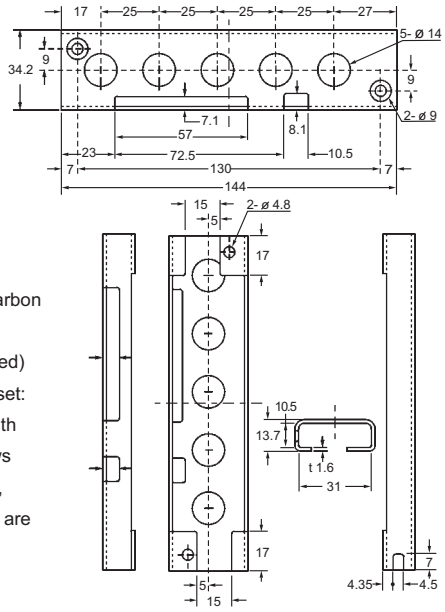
Material:
Cold rolled carbon steel (SPCC)(Uni-chrome plated)

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

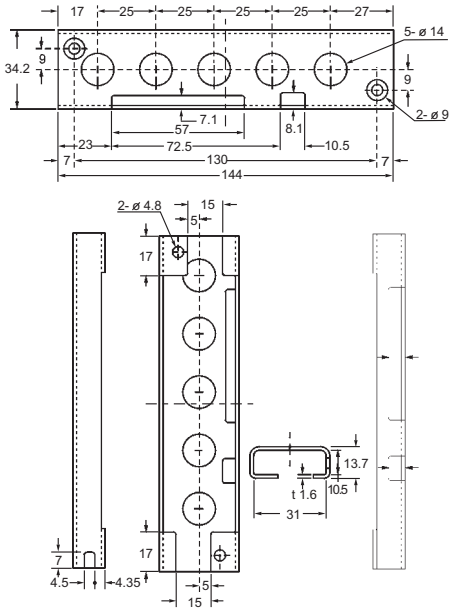
MS-PAS1-3

Sensor mounting bracket (Optional)

1. For receiver



2. 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.