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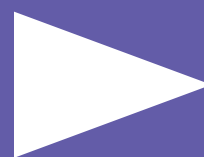
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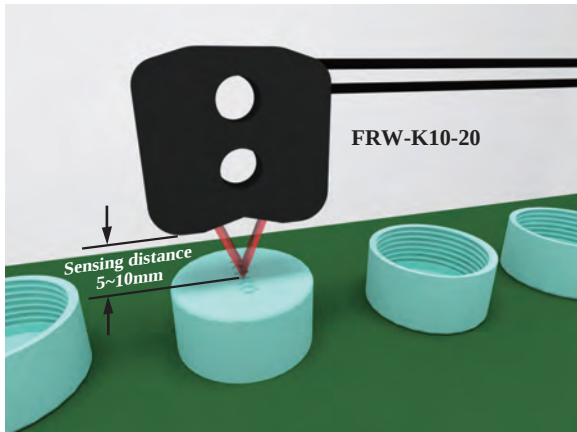
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Fiber & Fiber Amplifier



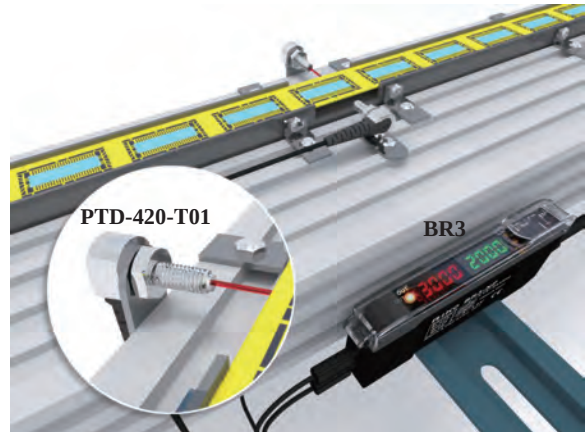
Fiber Amplifier /光纖放大器	FZ1	018
Digital Fiber Amplifier /數位型光纖放大器	BR1 BR2 BR3	021 025 029
Anti-Bending Fiber Optic /耐彎抗拉保護光纖	Reflective Type / 反射型 Thru-beam Type / 對照型 90 Degree / 90° Array Fiber / 矩陣型	038 043 047 051
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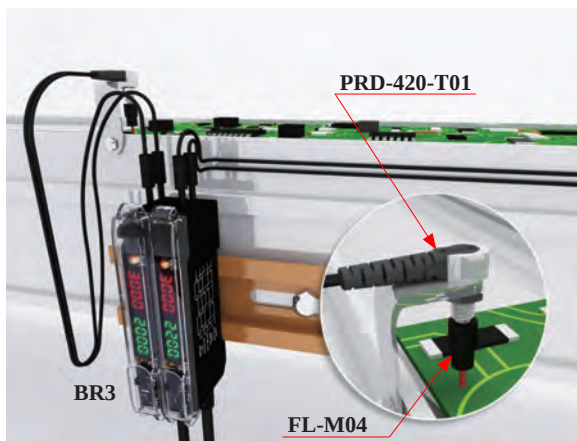
Detecting front and opposite side of cap.
檢測瓶蓋正反面

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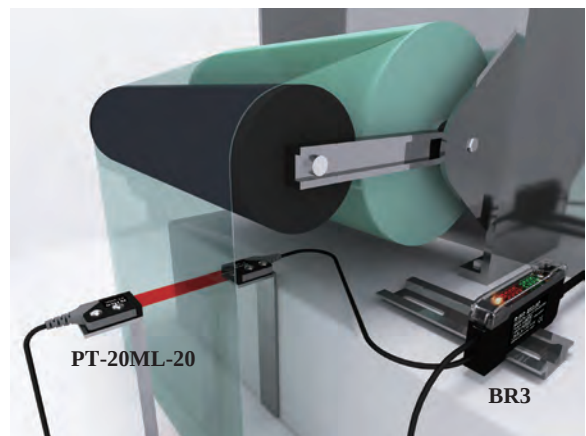
Detecting leadframe.
檢測導線架

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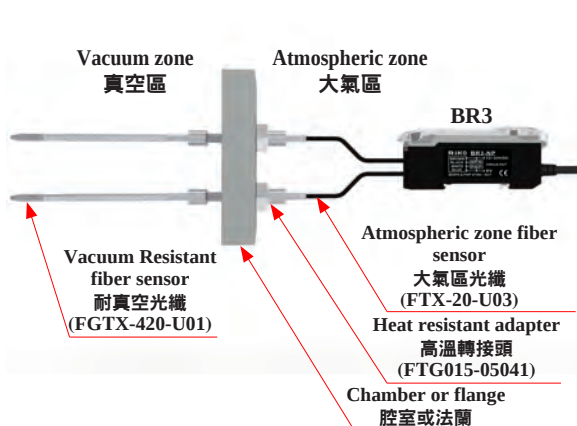
Detecting PCB.
檢測PCB

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Detecting thin film.
檢測薄膜

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Applied to high temperature and vacuum environments.
用於高溫真空環境

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Detecting box passing.
檢測盒子通過

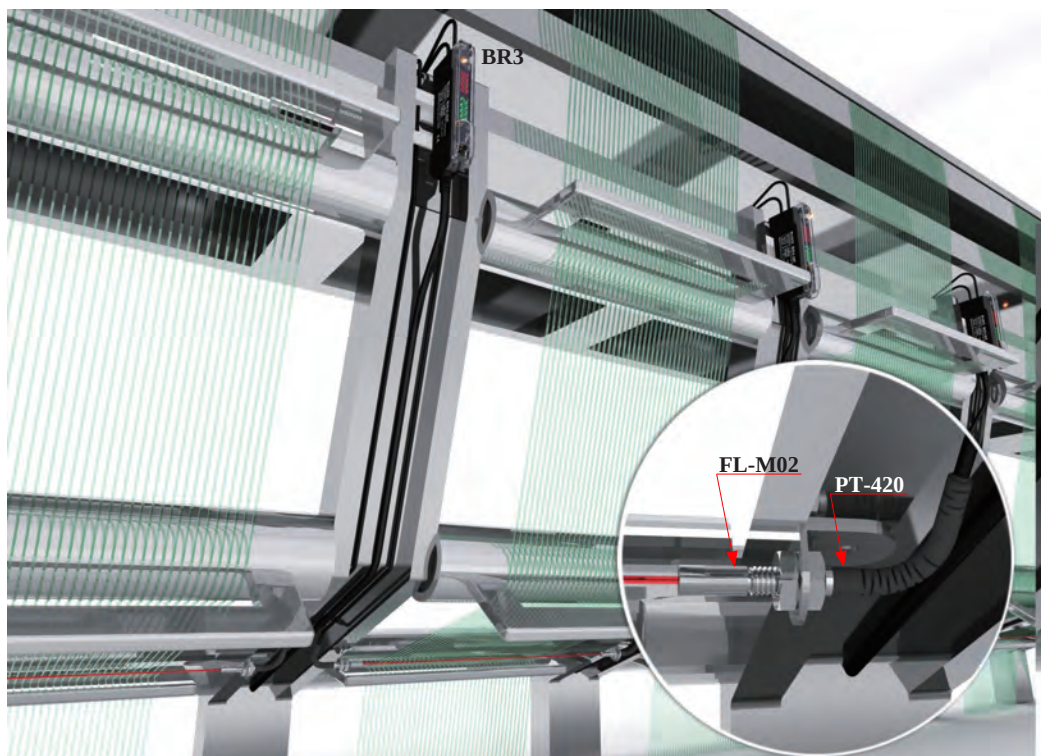
Fiber Sensor

Photo / Area Photo / Ultrasonic Sensor

Inductive / Capacitive Proximity Sensor

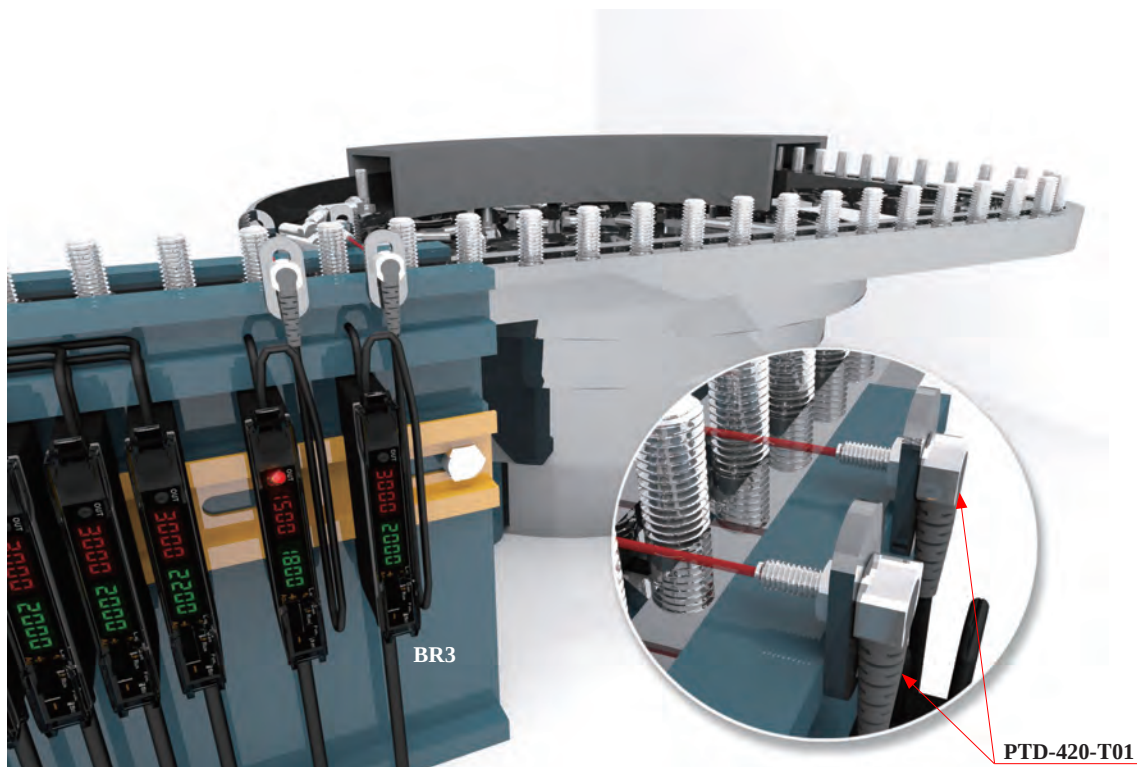
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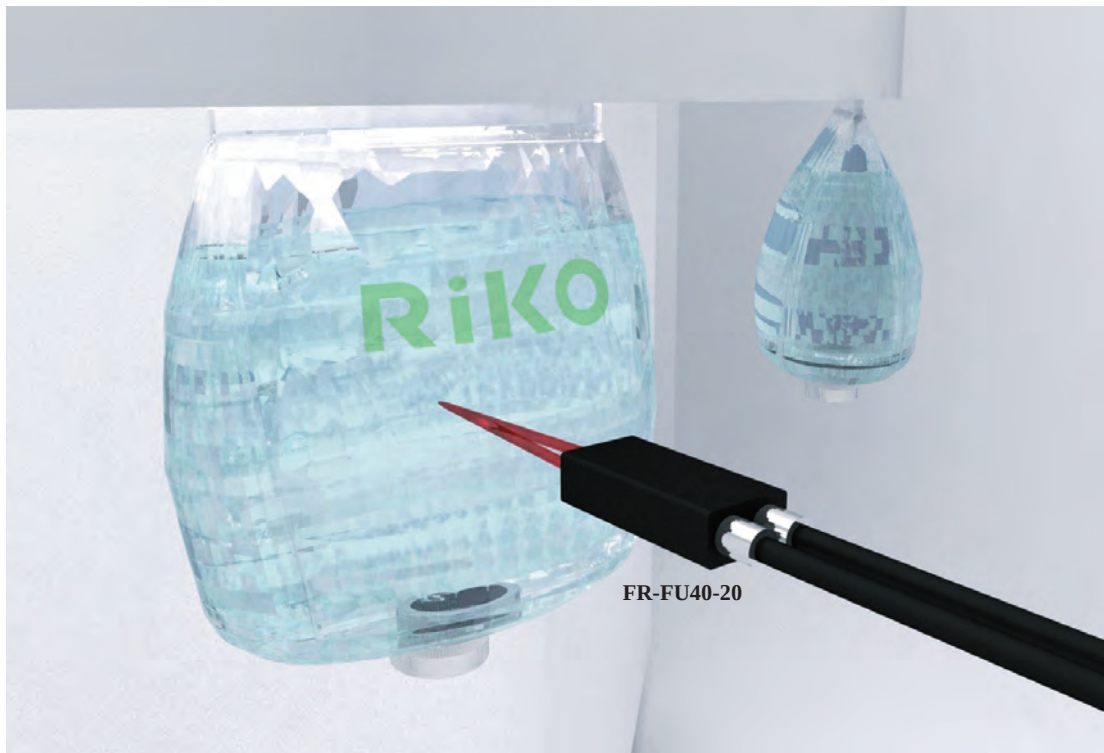
Detecting textile.
檢測紡織

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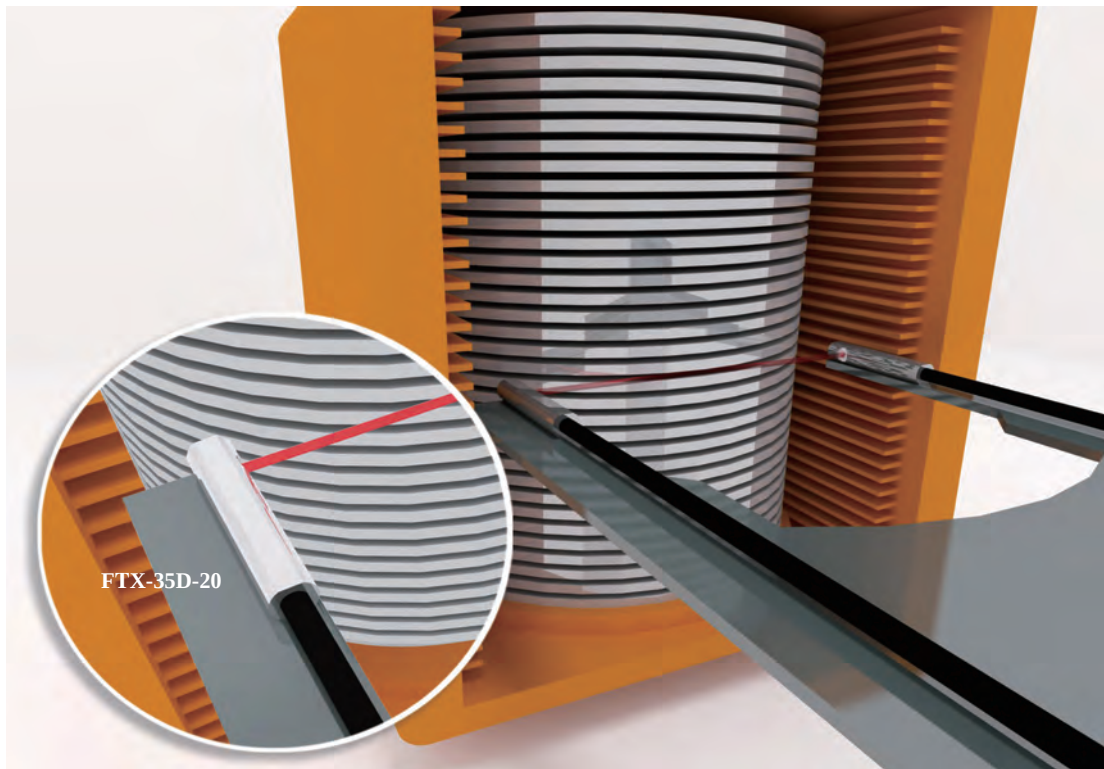
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Detecting medicine bag passing.
檢測藥袋通過

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Detecting wafer.
檢測晶圓

Fiber Sensor

Photo / Area Photo / Ultrasonic Sensor

Inductive / Capacitive Proximity Sensor

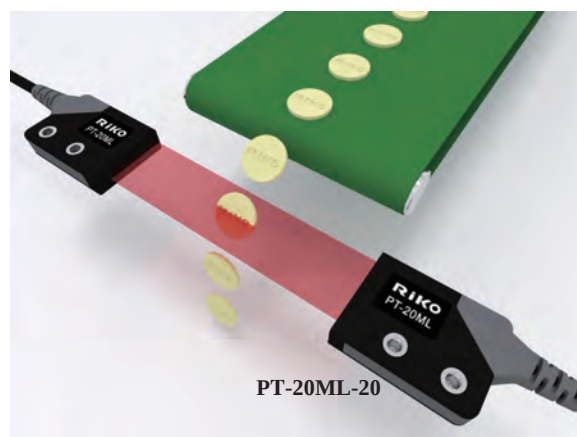
Others

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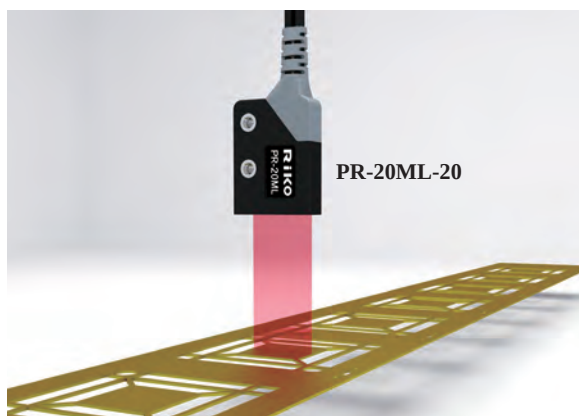
Detecting fill-up into medicine can.
檢測藥罐填充物

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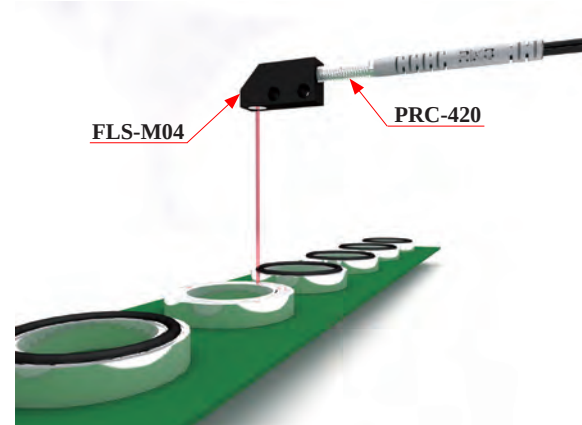
Detecting pill or tablet.
檢測藥片

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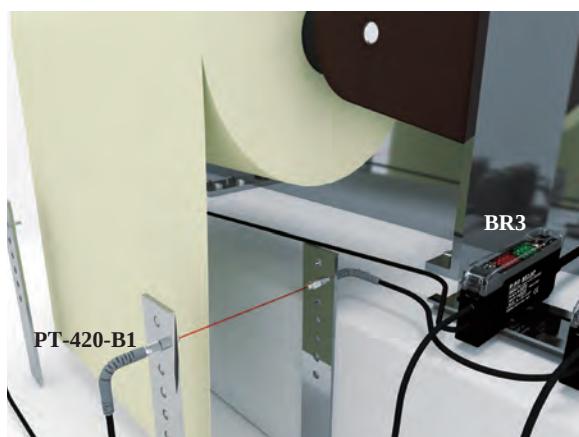
Detecting leadframe.
檢測導線架

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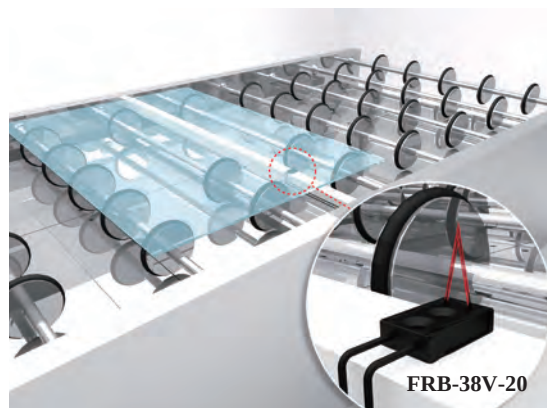
Side-view lens attached for detection.
可裝90度聚焦鏡檢測物件

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Detecting edge of paper.
檢測紙張邊緣

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Detecting glasses.
檢測玻璃

F0017

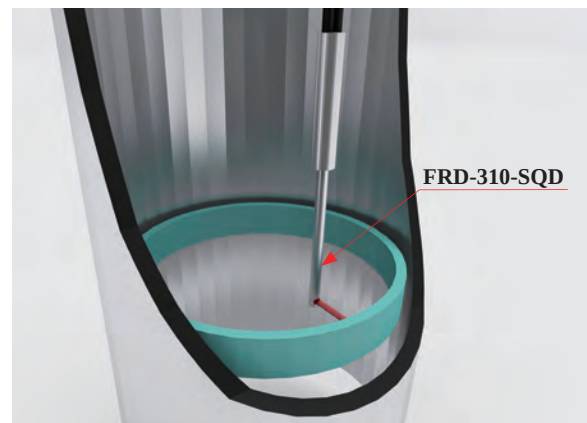
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Detecting tiny componet.
檢測微小零件

F0018

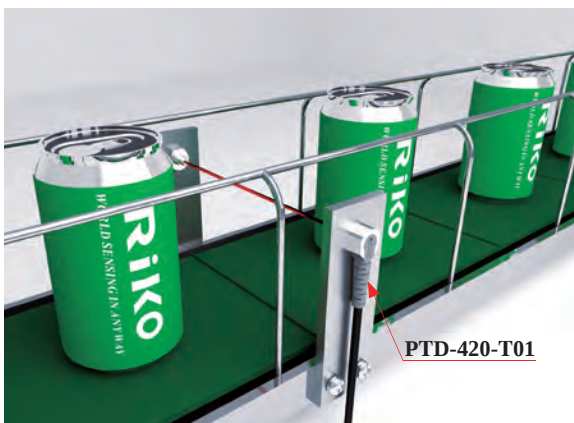
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Side-view fiber sensor applied in narrow space.
90度反射光纖，可用於狹小空間檢測

F0019

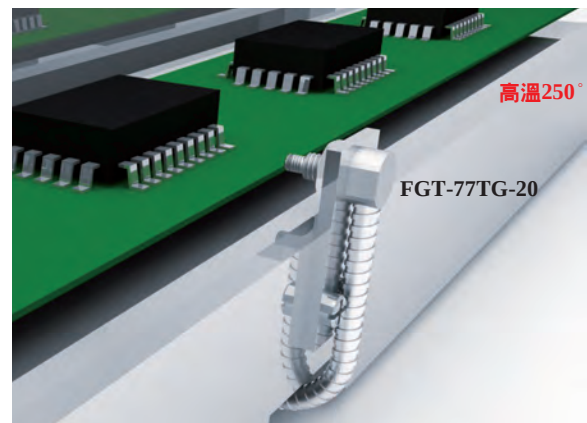
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Detecting conveying.
輸送檢測

F0020

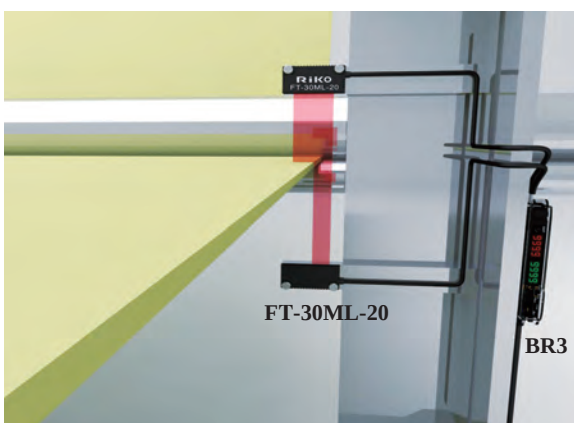
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Detecting IC in the high temperature processor.
檢測高溫製程中的IC

F0021

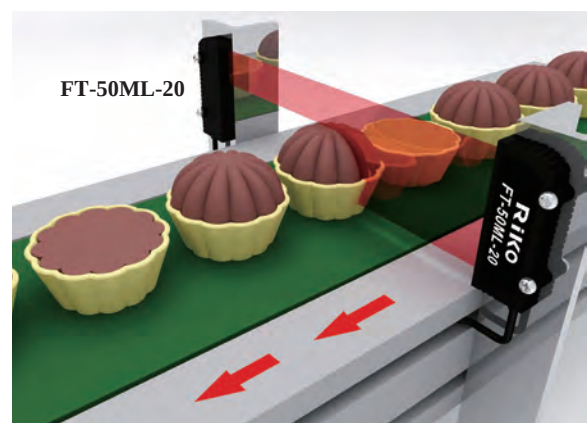
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Detecting edge of target.
檢測物件邊緣

F0022

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Detecting and counting on conveyer.
輸送帶上計數檢測

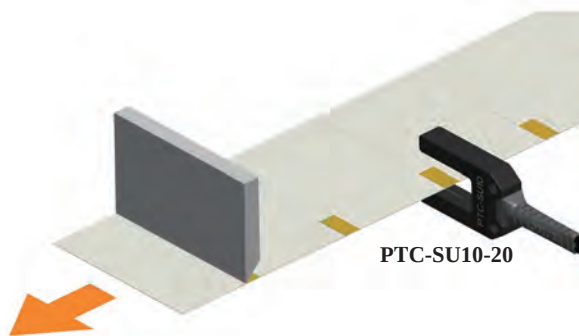
Fiber Sensor

Photo / Area Photo / Ultrasonic Sensor

Inductive / Capacitive Proximity Sensor

Others

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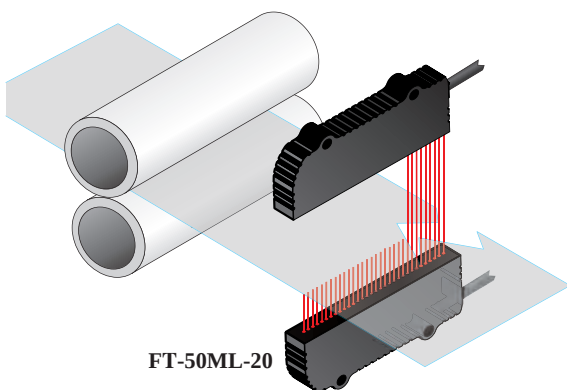
Detecting location of color mark.
檢測色標定位

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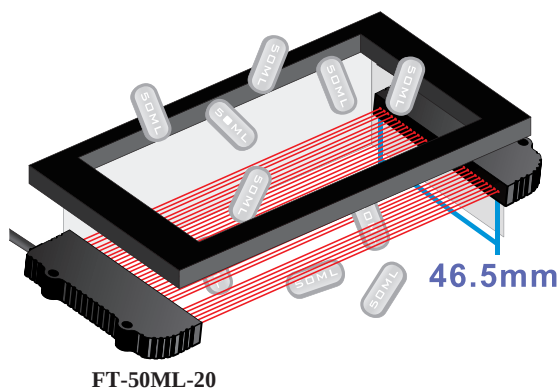
To detect the level of liquids.
液位檢測

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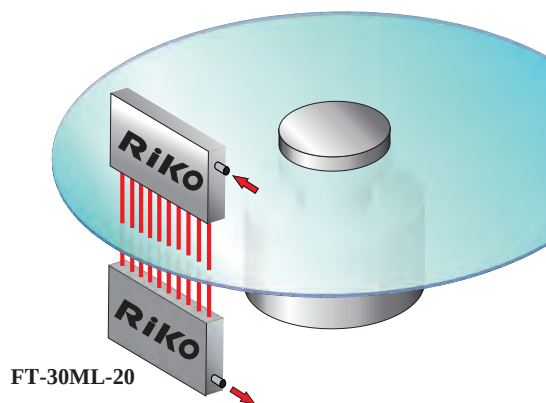
Detecting rupture of thin film.
檢測缺口斷裂

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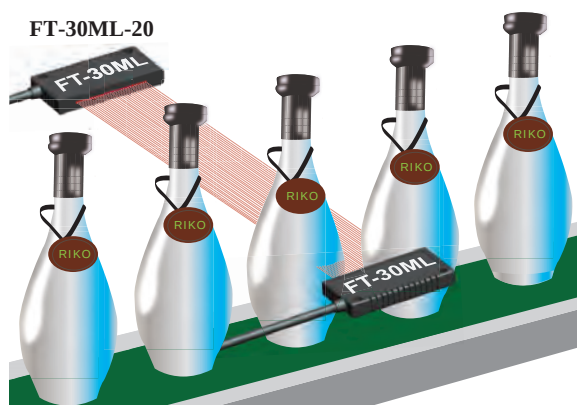
Detecting dropping objects.
檢測不規則產品掉落

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Detecting damage of metal disc.
檢測金屬圓盤是否破損

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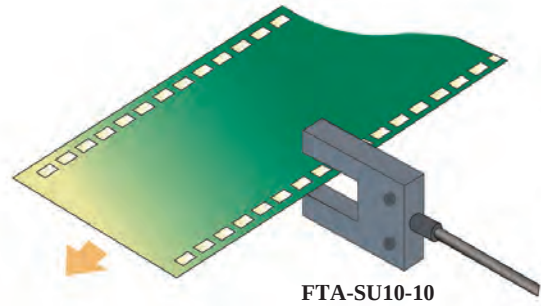
Measuring the quantity of bottles.
檢測瓶子數量

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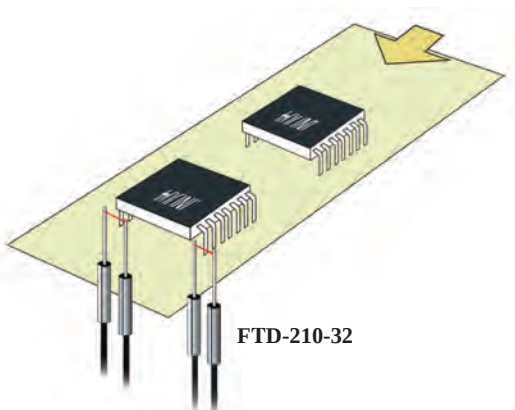
Detecting the level of liquid.
檢測水位

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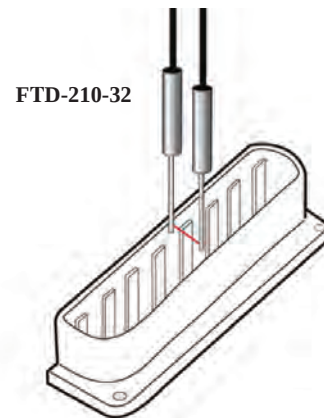
Detecting position of film.
檢測底片位置

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Detecting IC deflection.
檢測IC是否缺腳

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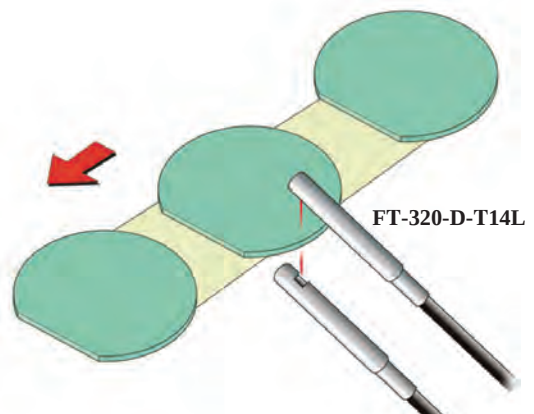
Detecting lack of pins from D type connectors.
檢測D型接頭是否缺PIN

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Detecting IC deflection.
檢測IC是否缺腳

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Detecting shortage of goods.
檢測物件是否缺少

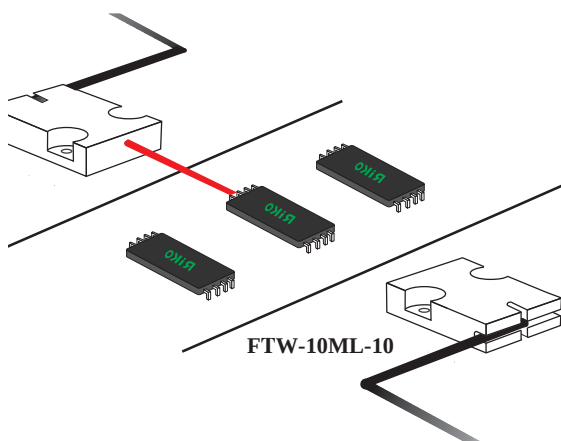
Fiber Sensor

Photo / Area Photo / Ultrasonic Sensor

Inductive / Capacitive Proximity Sensor

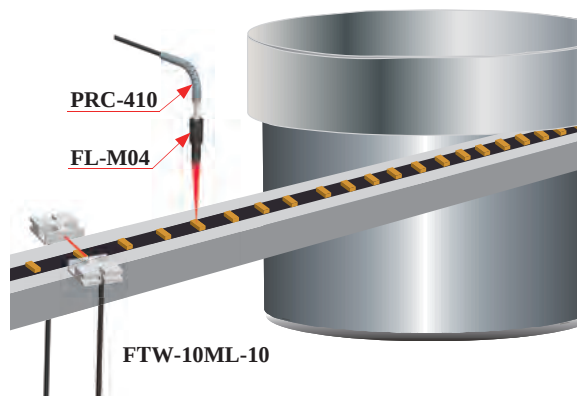
Others

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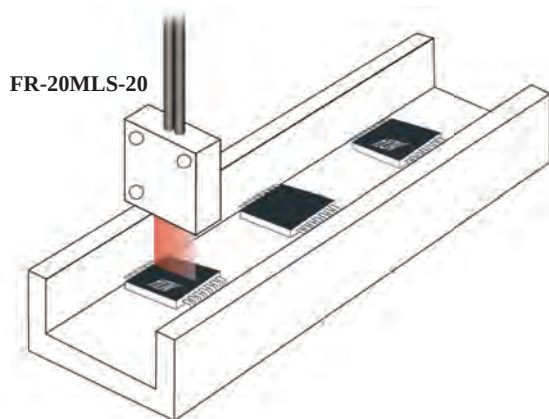
Detecting IC defection.
檢測IC是否缺腳

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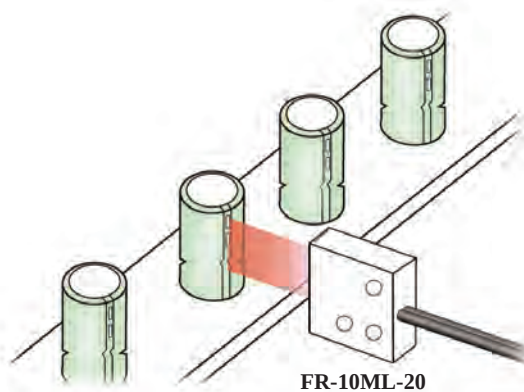
Detecting if the right side of the objects on the feeder.
檢測送料機上物品的正反面

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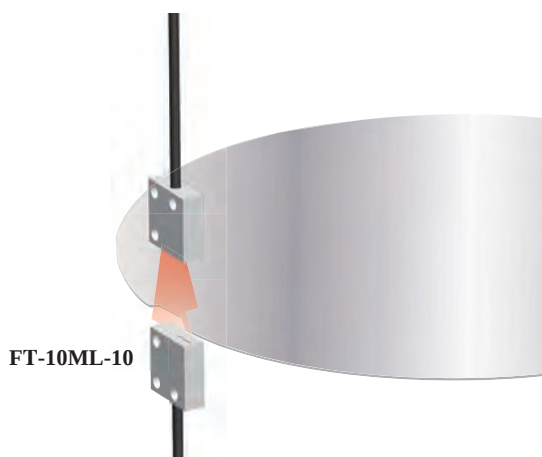
Detecting IC defection.
檢測IC是否缺損

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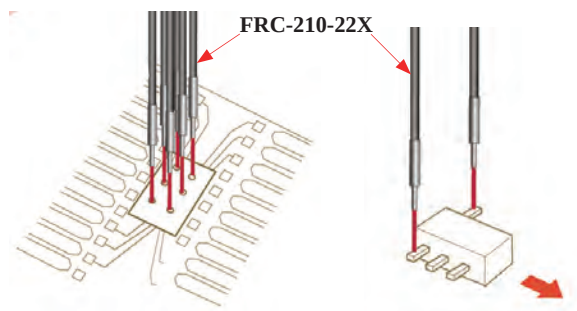
Detecting capacitor defection.
檢測電容是否缺損

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Detecting if the wafer is broken.
檢測晶片缺口

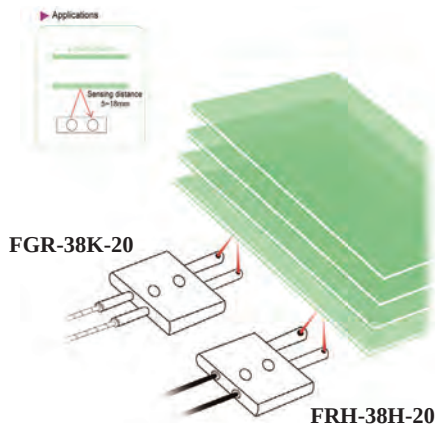
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Object positioning / IC small spot defection
物件定位 / 檢測IC腳位

F0041

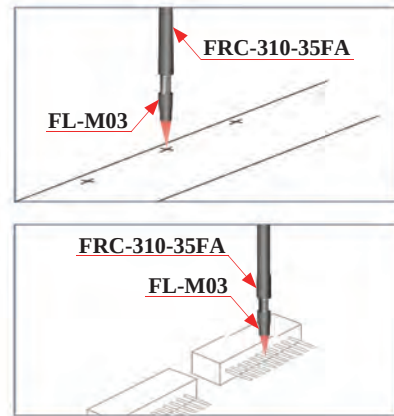
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Detecting position of transparent glass.
檢測透明玻璃位置

F0042

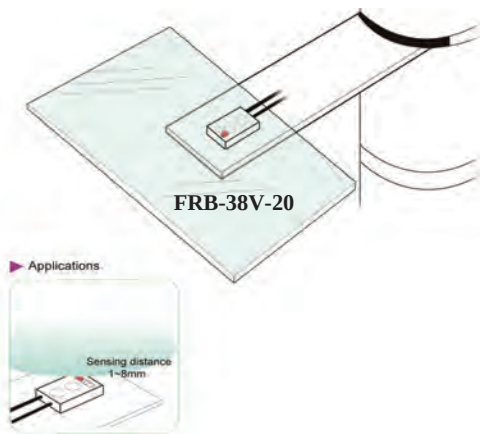
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Detecting tiny mark. / Detecting IC deflection.
檢測標記 / 檢測IC是否缺腳

F0043

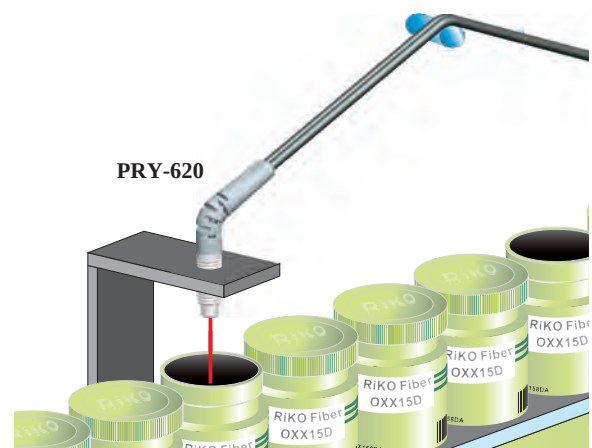
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Detecting glass wafer.
檢測玻璃面板

F0044

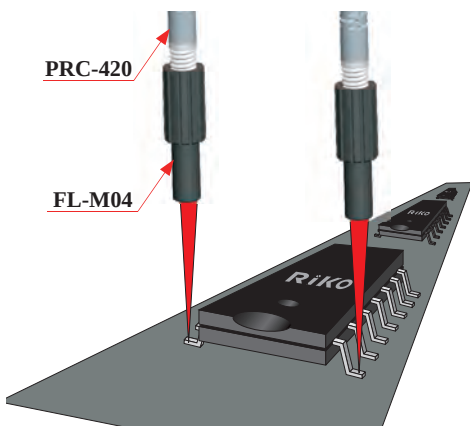
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Detecting presence of cap.
檢測有無蓋子

F0045

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IC small spot deflection
檢測IC腳位

F0046

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Detecting tiny mark.
檢測標記

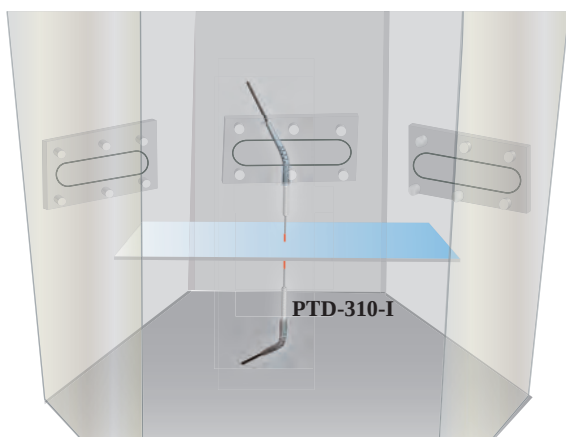
Fiber Sensor

Photo / Area Photo / Ultrasonic Sensor

Inductive / Capacitive Proximity Sensor

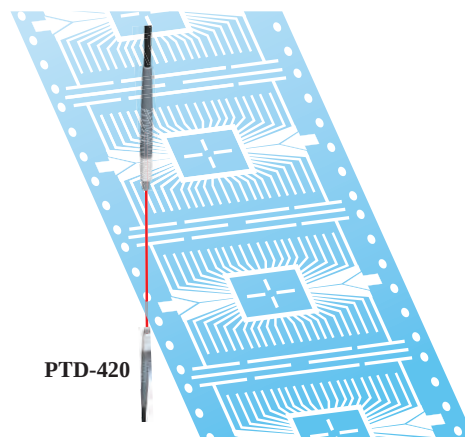
Others

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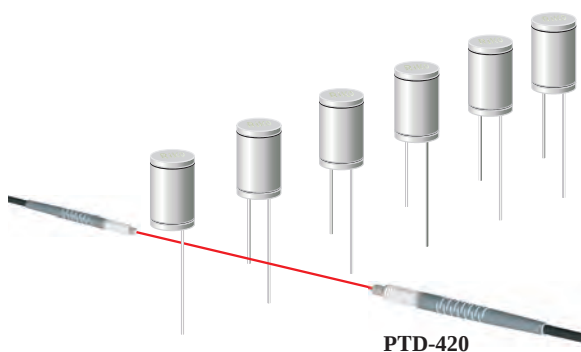
Detecting a glass in a vacuum room.
在真空室檢測玻璃

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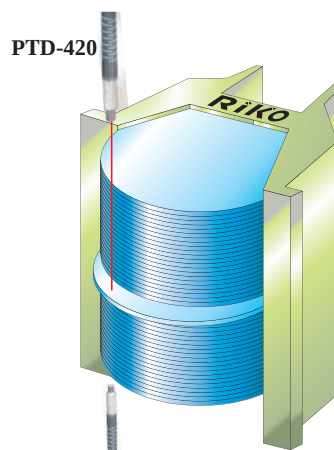
Detecting hole position of leadframe.
偵測導線架的孔位

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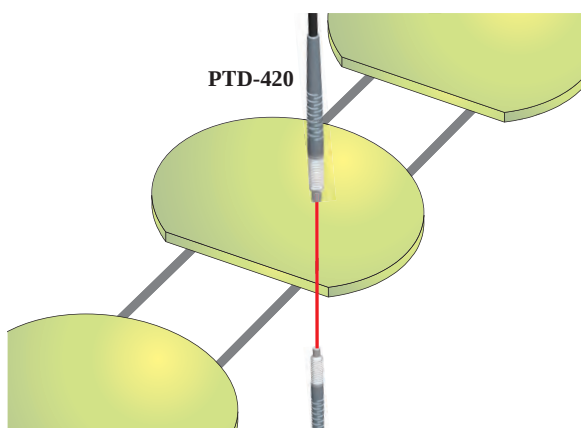
Detecting capacitor deflection.
檢測電容是否缺腳

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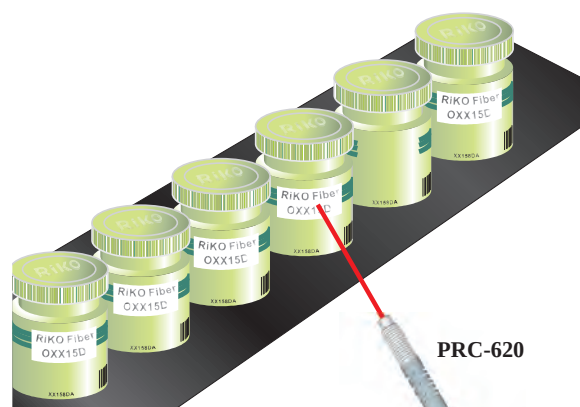
Detecting abnormal position.
檢測是否有凸出

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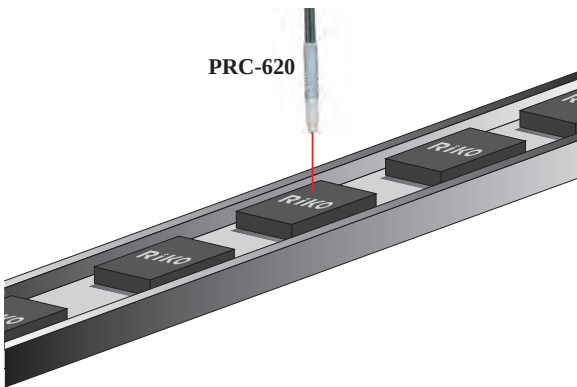
Detecting wafer.
檢測晶圓

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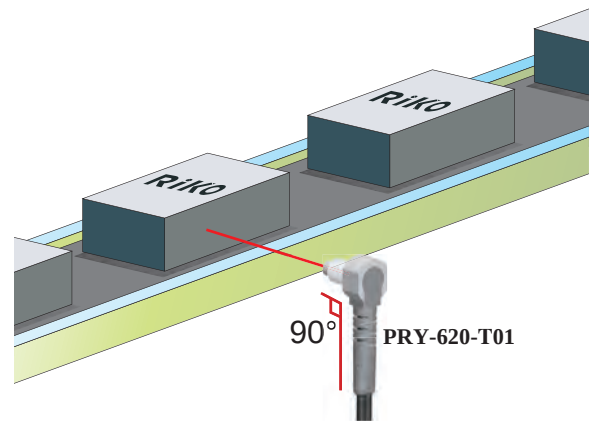
Detecting presence of label.
檢測有無標籤

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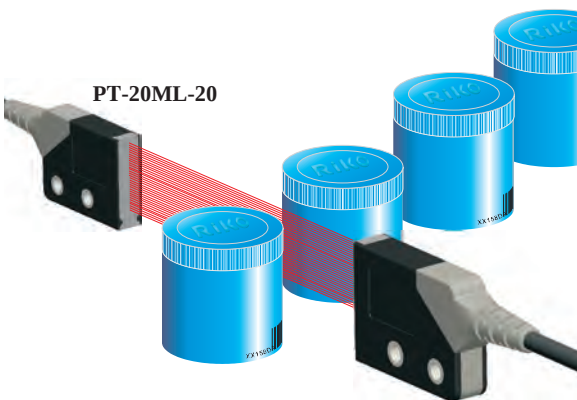
Detecting missing part of object.
檢測產品是否缺件

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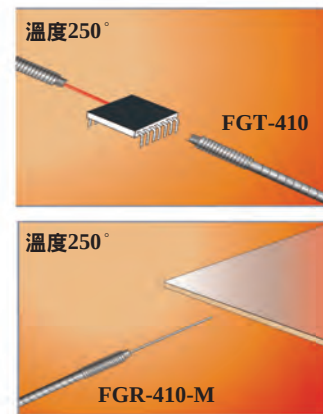
90 angle detection.
90度檢測

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Detecting missing part of object.
檢測產品是否缺件

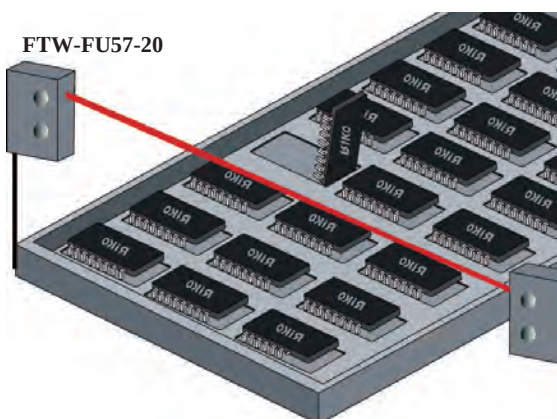
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Detecting IC defection in high temperature environments.
/ Detecting presence of glass plate in high temperature environments.

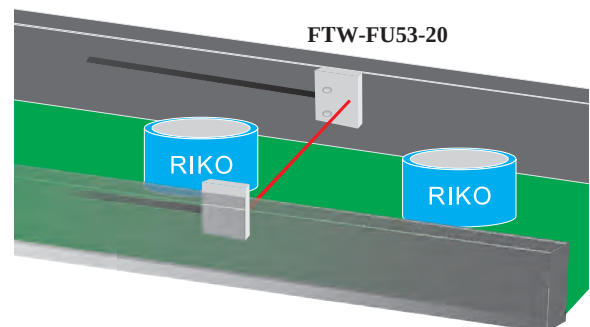
在高溫環境：檢測IC是否缺腳 / 檢測有無玻璃片

F0057 Page 061



Detecting the unseated IC.
檢測IC是否翻開

F0058 Page 061



Detecting the passing of products on line.
隨線檢測產品通過

Fiber Sensor

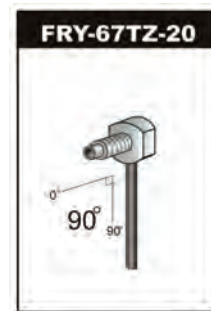
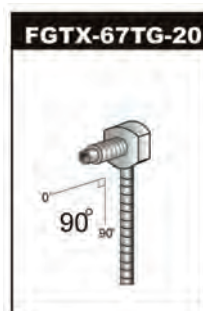
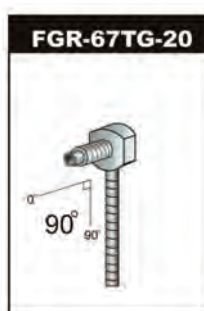
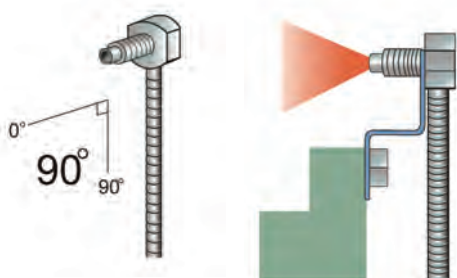
Photo / Area Photo / Ultrasonic Sensor

Inductive / Capacitive Proximity Sensor

Others

F0059 Page 068 / Page 072

◆Characteristic



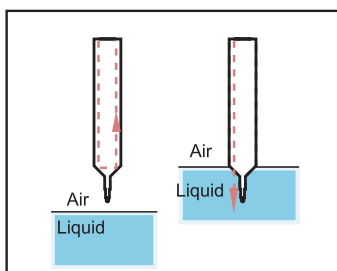
◆Specifications

P/N	FGR-67TG-20	FGTX-67TG-20	FRY-67TZ-20
Description	Reflective fiber optics	Thrubeam fiber optics(Glass)	Flexible
Core	Ø1.5	Ø1.5	Ø1.0 x 2
Operate temperature	-40°C ~ +250°C	-40°C ~ +250°C	-40°C ~ +70°C
Wavelength	380 ~ 1300nm	380 ~ 1300nm	650nm
Bending radius	R20	R20	R2
Nut size	M6	M6	M6
Detecting distance	80mm	500mm	70mm

Please refer to Fiber Optics Catalogue.

F0060 Page 057

◆Theory of detection

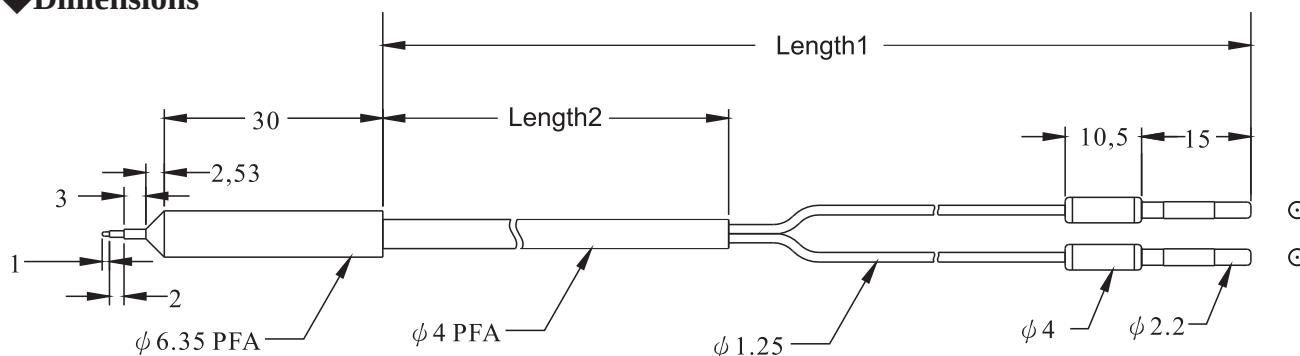


◆Specifications

Description	FRJ-9301-20	FRJ-9302-20	FRJ-9310-20	FRJ-9320-25
Material	Fluorine resin (Teflon)			
Sensing object	Liquid (except milkwhite liquid)			
Ambient temperature	-55°C to +70°C			
Minimum bending radius	R15 / R40			
Length1	2.0M			2.5M
Length2	10cm	20cm	1M	2M

* Unable to detect milkwhite liquid and hydrofluoric acid.

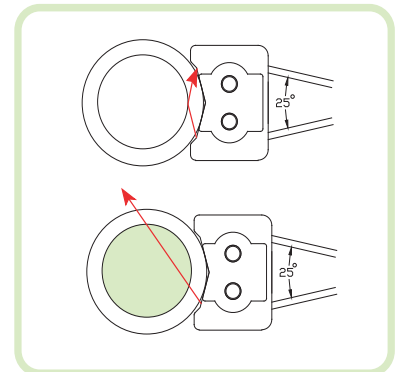
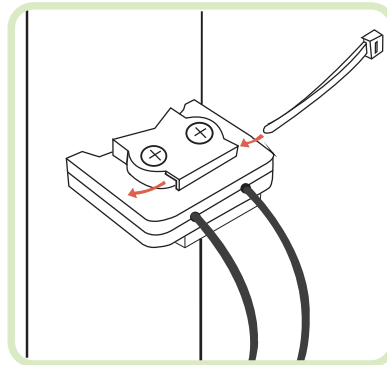
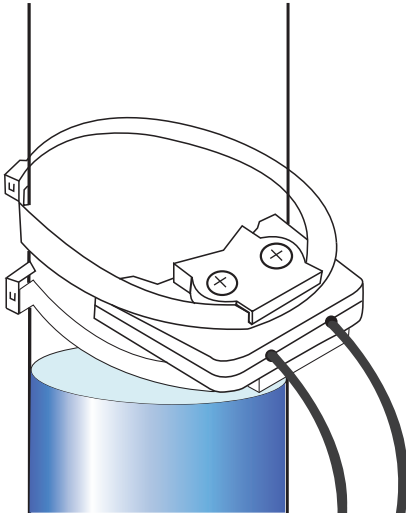
◆Dimensions



Fiber optic sensor fixed on the tube to detect the level of liquids:

FRD-FU901-20 is a liquid level sensor which can be easily fixed on a tube. Based on the theory of refraction, it can be easily used to detect the level of liquids inside the tube.

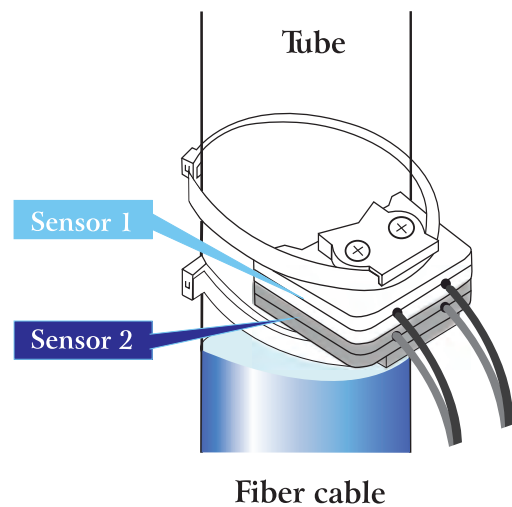
Features: light weight, easy to install (with installation band attached), small dimension.



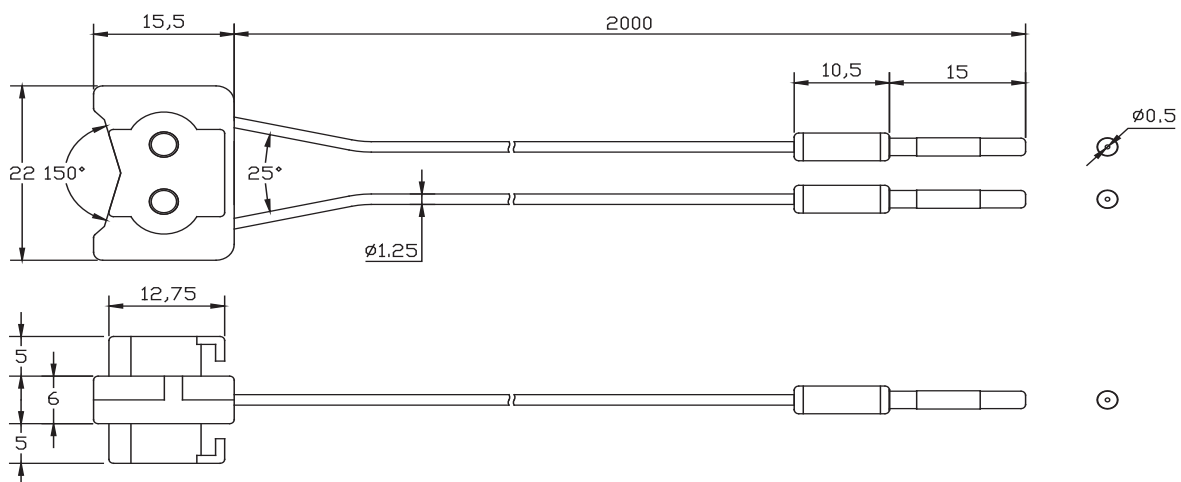
◆ Specifications

Model	FRD-FU901-20
Detecting object	Liquid
Tube size	Ø6~26 mm
Operating temperature	-40℃ ~ +70℃
Humidity	35 to 85% RH
Bending radius	R15
Cable length	2M
Material	Housing: Polycarbonate Fiber: Plastic
Repeatability	2mm
Tube thickness under	3mm
Protection	IP50
Weight	9g
Adaptable amplifier	FZ1-N

* Remark: Milkwhite liquid excluded .



◆ Dimensions



◆ Characteristic / 特點：

- Small size, 10 mm thickness, can be mounted in a small space. Several amplifiers can be mounted side by side.
/ 體積薄，厚度只有10mm，使用空間小，多個併排安裝。
- 20-Turns Sensitivity Adjuster. The optimum sensitivity can be set easily.
/ 多迴轉(20 TURNS)靈敏度調整。
- Long (Long distance) : 8~11cm/ Middle (Middle distance) : 4~6cm selectable.
/ 可選擇Long/ Middle檢測距離。



• FZ1-KP2

**L.on/D.on Switch**

Easy selection to switch the output operation as either Light-ON or Dark-ON.

**Sensing Distance Switch**

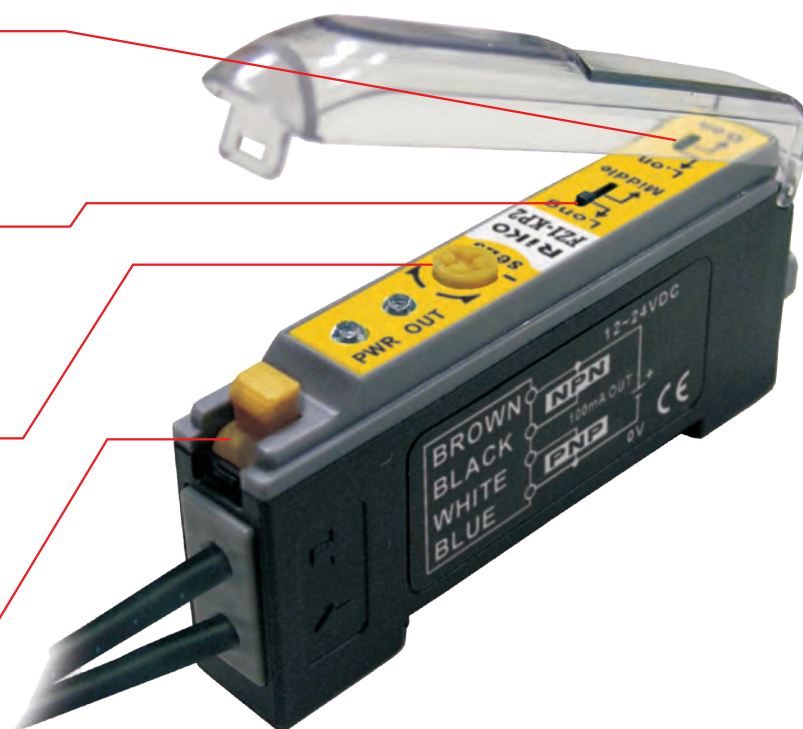
Long, Middle selectable.

**20-turn Sensitivity Adjuster**

Users can adjust the sensitivity more optimum according to different objects.

**Fiber Lock Lever**

Special design for fiber cables fixed. Simple operation and easy maintenance.

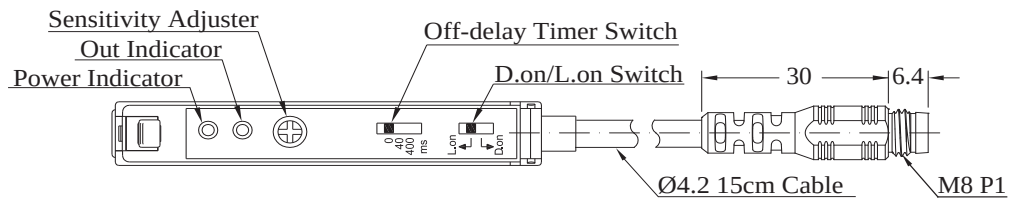


◆ Specifications / 規格表：

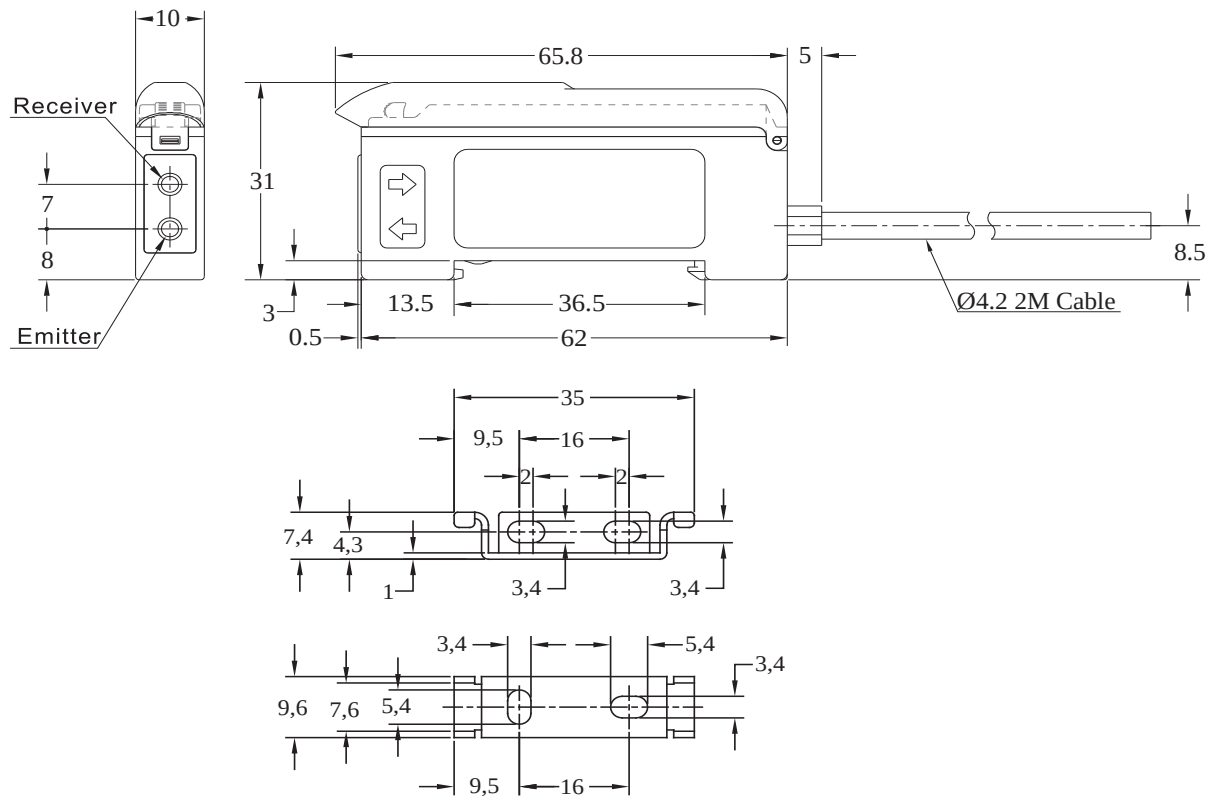
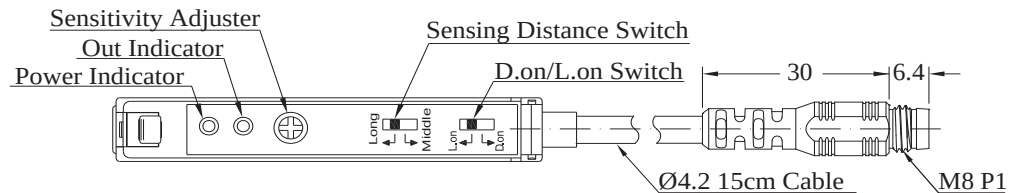
Model / 型號	NPN L.on / D.on PNP D.on / L.on	FZ1-KP2	FZ1-KP2B	FZ1-NPI
Emitting light / 發光源		Red LED 680 nm		Infrared LED 850nm
Operating voltage / 工作電壓		DC12~24V ± 5%		
Current Consumption / 消耗電流		40mA Max.		
Load current / 負載電流		100mA Max. at DC24V		
Protection circuit / 保護電路		Reversed polarity protection, over-current protection		
Response time / 反應時間		on 1 ms, off 1ms		
Indicators/指示燈		Output indicator : Red LED, Power indicator : Green LED		
Sensitivity adjustment/靈敏度功能		20 turns trimmer		
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)		
Voltage withstandability / 絕緣耐壓		AC500V 60Hz for 60 Sec.		
Operating temperature/工作溫度		- 10 °C ~ + 60 °C		
Ambient humidity / 工作溼度		35% ~ 85% RH		
Protection degree / 防水等級		IP50		
Material / 外觀材質		ABS		
Wiring method / 出線方式		Pre-wired Ø4.2 x 2 M / 4-wires	M8 pigtailed type / M8 接頭 15cm電線式	Pre-wired Ø4.2 x 2 M / 4-wires
Weight / 重量		Approx. 65g	Approx. 35g	Approx. 65g

◆ Dimensions / 外型尺寸圖 : (unit:mm)

• FZ1-NPI

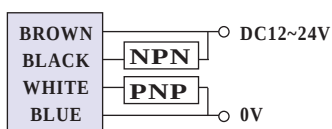


• FZ1-KP2

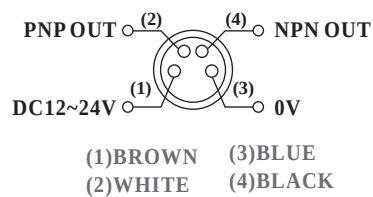


◆ Wiring diagrams / 接線圖 :

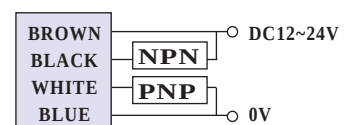
KP2 Output



KP2B Output

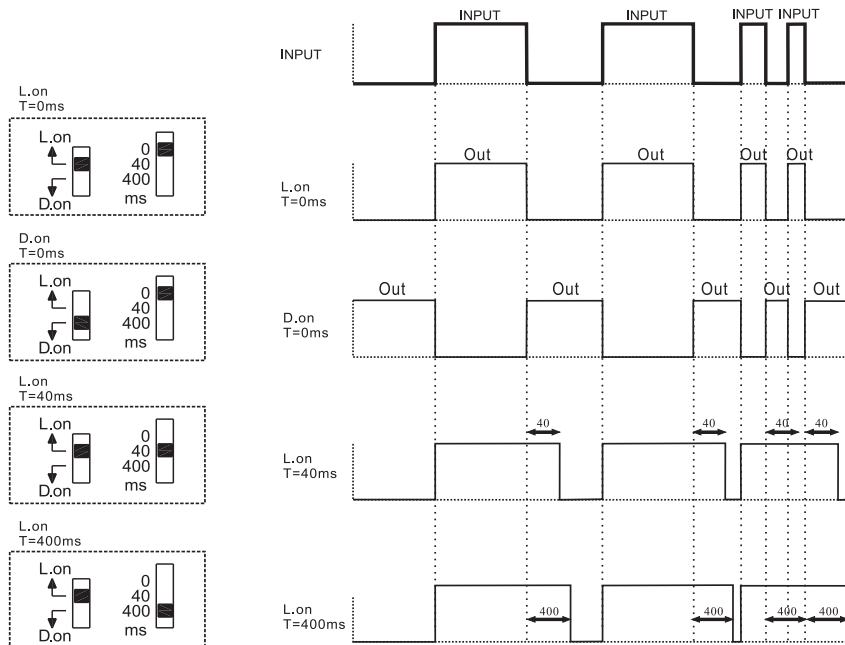
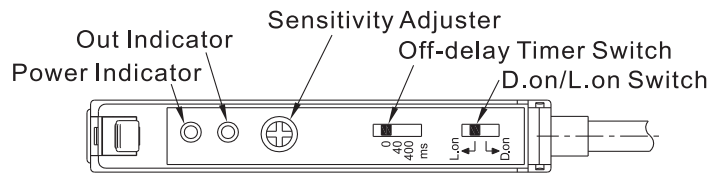


NP Output



※ NPN & PNP SYNC. OUT

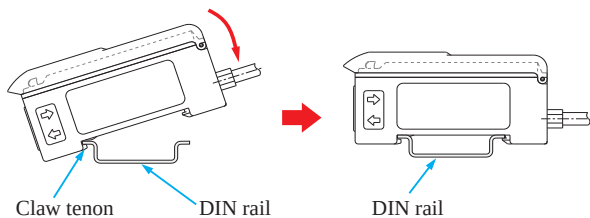
◆ FZ1-NPI Operation timing chart :



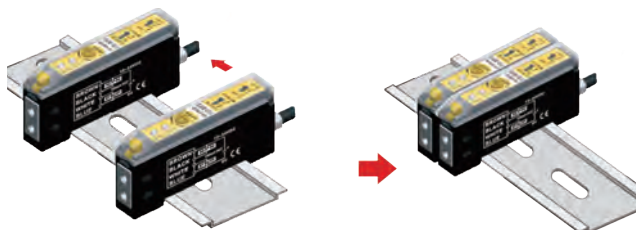
◆ Fiber amplifier mounting/detaching operation :

1. Mounting / 安裝

- (1) To mount each amplifier to the attached mounting bracket or DIN rail in sequence.



- (2) To connect two amplifiers close together by sliding the amplifier bodies.



2. Detaching / 卸下

*To detach the amplifiers in sequence by sliding the amplifier bodies. Don't detach two amplifiers at a time.

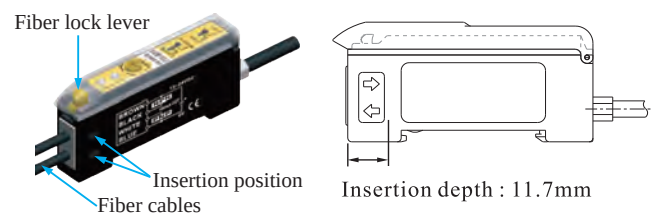


Be sure to switch off the power supply when mounting or detaching the amplifier.

◆ Fiber cables fixing operation :

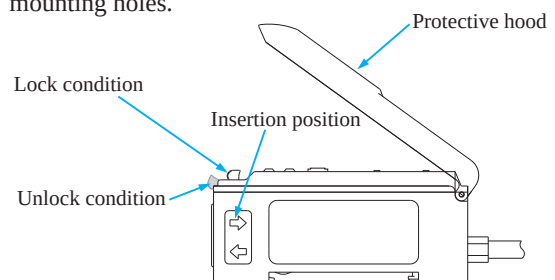
1. Insert the fiber cables / 插入光纖

*Open the protective hood and tilt the fiber lock lever to release the lock condition. Referring to the side seal of insertion position, fully insert the fiber cables into the mounting holes until the limit. Pull the fiber lock lever back to lock the cables.



2. Pull out the fiber cables / 拔出光纖

*Open the protective hood and tilt the fiber lock lever to release the lock condition. Pull the fiber cables straight out from the mounting holes.



1. To protect the fiber cables from incorrect operation, be sure to tilt the fiber lock lever to release the lock condition before pulling out the fiber cables.
2. Pull up the protective hood forcefully may damage the fixing pin of the hood (**not exceed 90 degrees**).

◆ Characteristic / 特點：

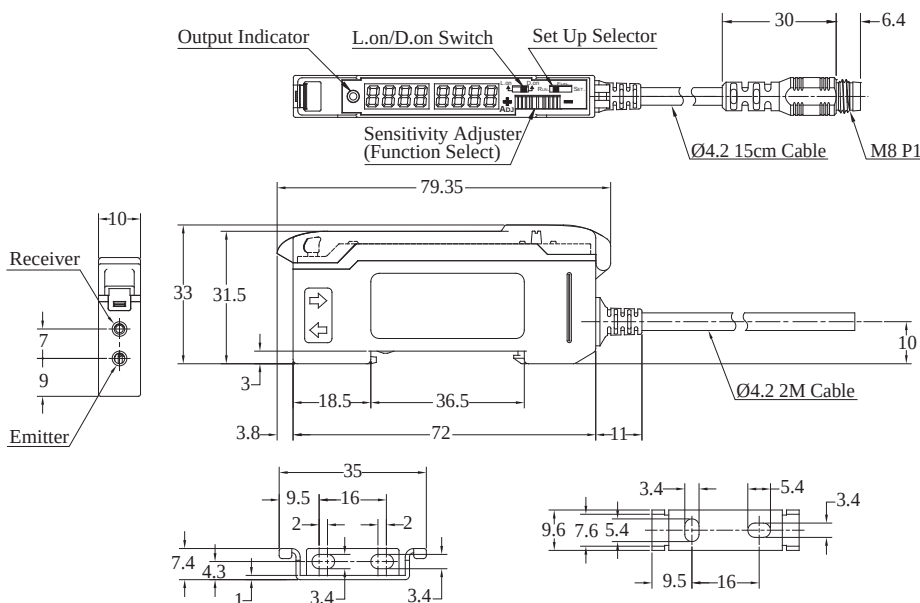
- Easy to install. / 設定方便，容易上手。
- Numeric displays, interactive prompts./ 雙數顯字型面板，且運算快。
- Applications focus on many industries, such as semiconductor assembly, handling technology and packing. / 此產品可應用在許多產業中，包含半導體、裝卸作業和包裝產業等。
- Depends on the mounting direction, the digital display of BR1 can be inverted. / BR1的雙數顯字面板，可依您裝上的方向，而作反轉調整。
- Response time selectable: (200、500、1000、5000) μ s.
/ 4段速度選擇: (200、500、1000、5000) μ s。



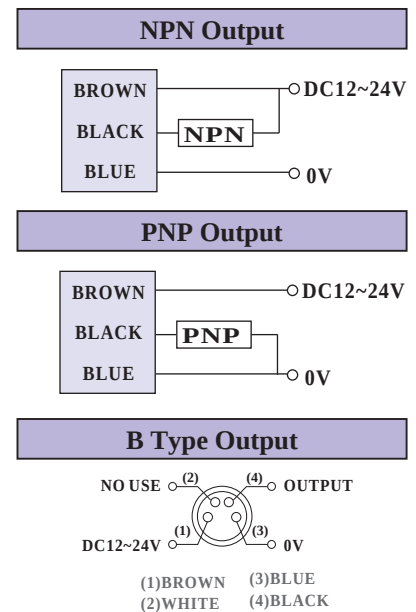
◆ Specifications / 規格表：

Model / 型號	Pre-wired ϕ 4.2	BR1-N	BR1-P
	M8 pigtailed type	BR1-NB	BR1-PB
Emitting light / 發光源		Red LED 660nm	
Operating voltage / 工作電壓		DC12 to 24 $\pm$ 10%	
Current Consumption / 消耗電流		75 mA Max. (+12VDC), 45 mA (+24VDC)	
Load current / 負載電流		100mA Max. at DC 24V	
Output type / 輸出模式		NPN L.on / D.on	PNP L.on / D.on
Protection circuit / 保護電路		Reversed polarity protection, over-current protection	
Response time / 反應時間		on: 200 μ s, off: 200 μ s MAX (200、500、1000、5000) μ s	
Indicators / 指示燈		Output indicator : Red LED	
Sensitivity adjustment/靈敏度功能		4 Digits (53-9991), (27-3982)	
Insulation resistance / 隔離阻抗		20M Ω min. (DC500V)	
Voltage withstandability / 絕緣耐壓		AC500V 60Hz for 60 Sec.	
Operating temperature/工作溫度		- 10 $^{\circ}$ C $\sim$ + 60 $^{\circ}$ C	
Ambient humidity / 工作溼度		35% $\sim$ 85% RH	
Protection degree / 防水等級		IP50	
Material / 外觀材質		ABS	
Wiring method / 出線方式	BR1-□	Pre-wired ϕ 4.2 x 2M / 3-wires	
	BR1-□B	M8 pigtailed type / M8 接頭15cm電線式	
Weight / 重量	BR1-□	Approx.65 g	
	BR1-□B	Approx.30 g	

◆ Dimensions / 尺寸圖：(unit:mm)

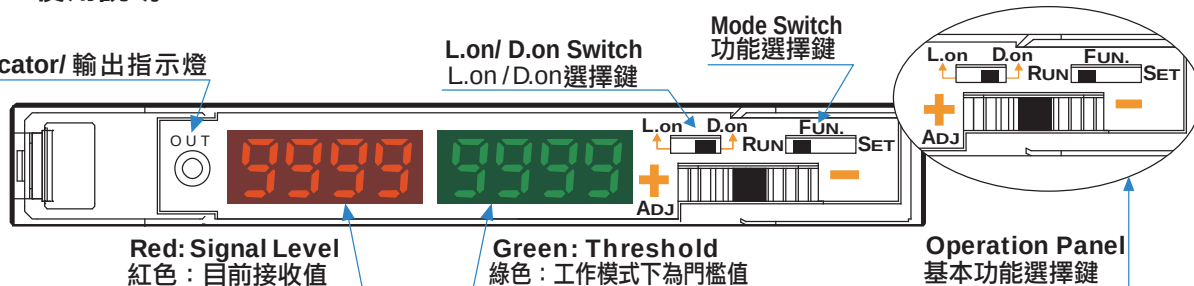


◆ Wiring diagrams / 接線圖：



◆ MANUAL / 使用說明：

功能配置：
可設定所有的
功能，如果在
設定的時候，
您可以利用簡
單的選項來使
用所有的功能



L.on/ D.on Switch
L.on/ D.on選擇鍵



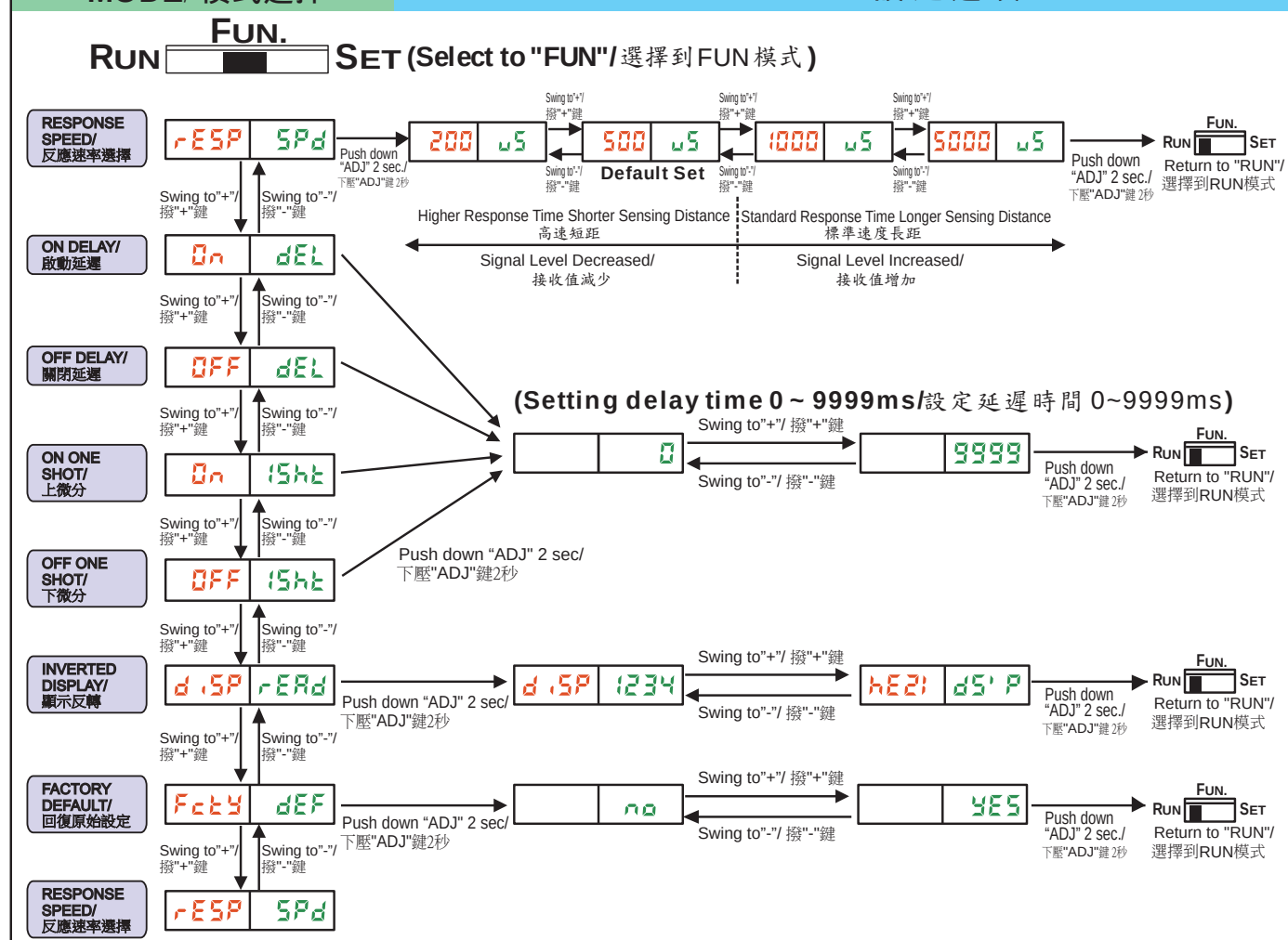
Mode Switch
功能選擇鍵



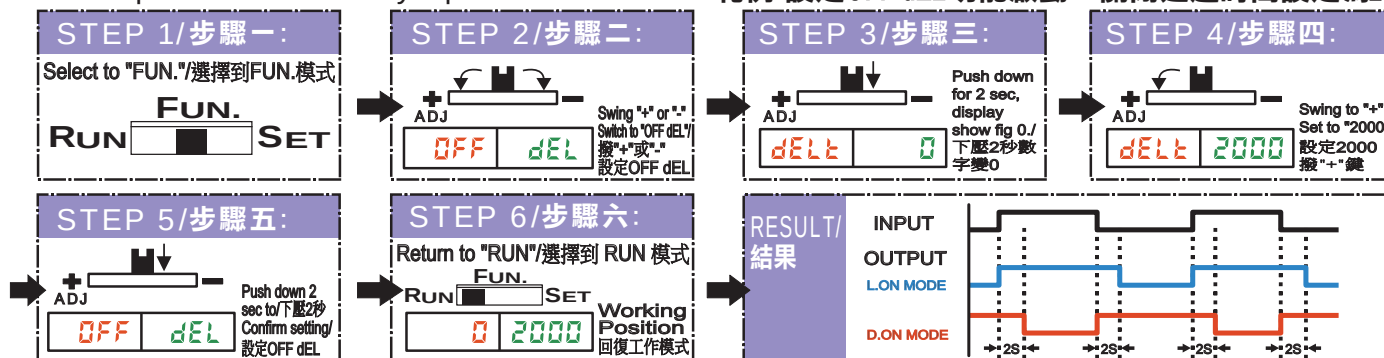
Adjust Switch / Push
Down Confirm Button
調整/選擇/確定/鍵

MODE/ 模式選擇

SETTING/ 設定選項



Example: Set off delay operate on 2 sec./範例:設定OFF dEL功能啟動，關閉延遲時間設定為2秒



◆ Diffuse model Setting / 反射式光纖調整

1. Set to L.on position. / 請將L.on/D.on指撥鍵，撥至L.on。



2. Select to "SET". / 功能選擇鍵撥至SET。



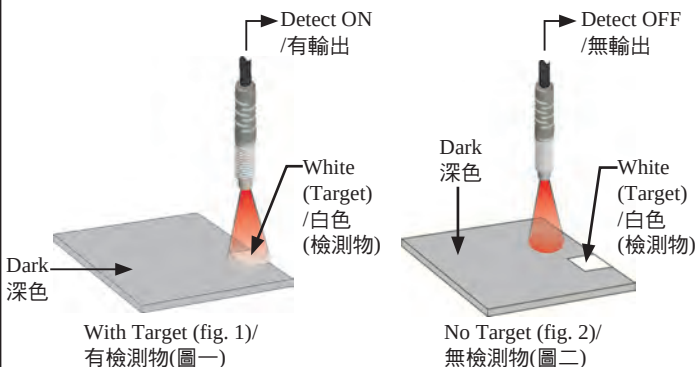
3. With Target, Push down "ADJ" 2sec, Auto-Teaching done after blinking stopped. (Fig. 1) / 光纖在有檢測物的情況下按 ADJ 兩秒(閃爍後完成教導)(圖一)。



4. Finished setting, Return to "RUN". / 完成校對後，功能選擇鍵撥至 Run。



5. If need opposite operating detection, change to D.on position. / 調整完畢後，如需反向動作，請做L.on 或 D.on 切換。



◆ Through-Beam model Setting / 對照式光纖調整：

1. Set to D.on position. / 請將L.on/D.on指撥鍵，撥至D.on。



2. Select to "SET". / 功能選擇鍵撥至SET。



3. No Target, Push down "ADJ" 2sec, Auto-Teaching done after blinking stopped. (Fig. 3) / 光纖在有檢測物的情況下按 ADJ 兩秒(閃爍後完成教導)(圖三)。



4. Finished setting, Return to "RUN". / 完成校對後，功能選擇鍵撥至 Run。



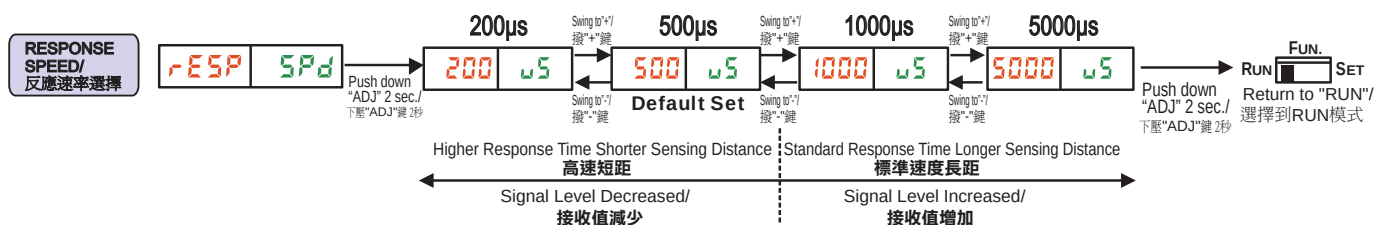
5. If need opposite operating detection, change to D.on position. / 調整完畢後，如需反向動作，請做L.on 或 D.on 切換。



◆ Response Time & Sensing Distance / 反應速率與距離：

※Refer to working area, set to correct response time & sensing distance.

※請依現場環境，做適當的距離與速率調整。



◆ Failure/教導失敗：

• Failure/教導失敗原因：

Light emission is too weak or too much./ 光源不足或光源過強。



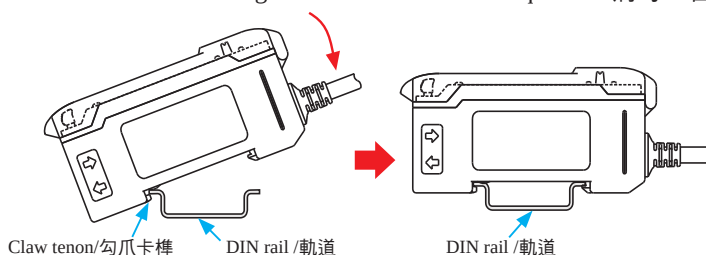
• Solution/教導失敗解決方案：

1. Set to proper Response Time & Sensing Distance./ 請選擇適當的反應速率與距離調整。
2. Choose proper models of RIKO Fiber sensors./ 請挑選合適的檢測光纖。

◆ Fiber amplifier mounting/detaching operation: / 光纖放大器軌道安裝/卸下：

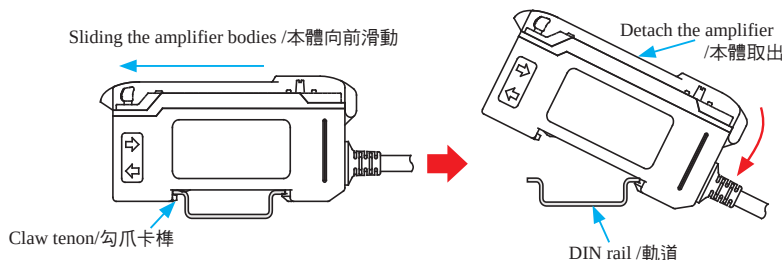
1. Mounting/安裝

* To mount each amplifier to the attached mounting bracket or DIN rail in sequence./ 將每一台依續安裝至軌道上。



2. Detaching/卸下

* To detach the amplifiers in sequence by sliding the amplifier bodies. Don't detach two amplifiers at a time./ 滑動本體，將依續將各台卸下。



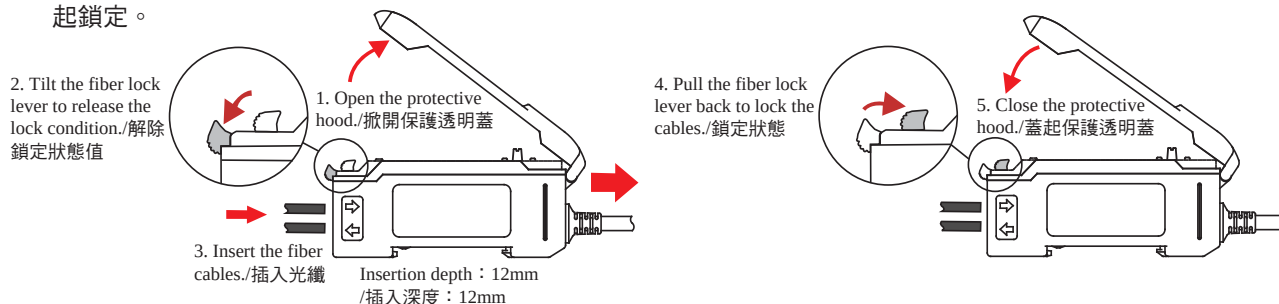
◆ Precautions for correct use : / 正確的使用方法：

- * Be sure to mount amplifiers to a DIN rail and use end units on both sides when more than two units are connected. Note the ambient temperature when using in a sealed machine box./ 當使用超過2個放大器時須使用鋁軌組裝在一起，在封閉機箱中注意操作溫度變化在以固定器固定兩側。
- * Be sure to turn off the power before wiring finished./ 在配線完成前必須確認處於斷電狀態。
- * Don't operate the amplifier in the same conduit as power cord or high voltage wire. Use separate conduit to avoid noise immunity and malfunction./ 放大器運作時不可被電源線或較高電壓線覆蓋到，須均慮到包含有雜訊或交流雜訊，避免誤動作。
- * Check the power cord to make sure the power supply matches the rated voltage./ 檢查電源線以匹配固定電壓。
- * Connect the ground terminal to the ground when used with a switch./ 使用市面販售開關需將接地端接地。
- * Don't use it outdoors or at a place where outside light can irradiate the receiver directly./ 不要在戶外或外來光直接照射接收。

◆ Fiber cables fixing operation / 光纖安裝方式：

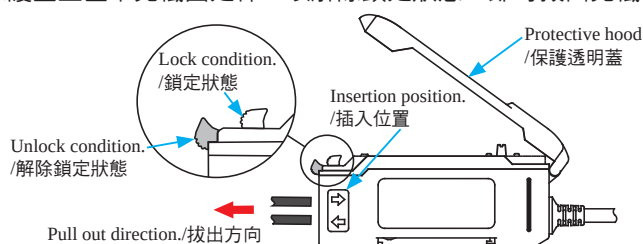
1. Insert the fiber cables / 插入光纖

* Open the protective hood and tilt the fiber lock lever to release the lock condition. Referring to the side seal of insertion position, fully insert the fiber cables into the mounting holes until the limit. Pull the fiber lock lever back to lock the cables.
/ 開啟保護蓋並先壓下光纖固定桿以解除鎖定狀態，依照光纖放大器側面的插入位置記號插入光纖，再將光纖固定桿扳起鎖定。



2. Pull out the fiber cables / 拔出光纖

* Open the protective hood and tilt the fiber lock lever to release the lock condition. Pull the fiber cables straight out from the mounting holes. / 開啟保護蓋並壓下光纖固定桿，以解除鎖定狀態，即可拔出光纖。



1. To protect the fiber cables from incorrect operation, **be sure to tilt the fiber lock lever to release the lock condition before pulling out the fiber cables.** / 為了維護光纖，請在更換時，**確定光纖固定桿為解除鎖定，再將光纖拔出。**
2. Pull up the protective hood forcefully may damage the fixing pin of the hood (**not exceed 180 degrees**).
/ 用力向上扳開**保護透明蓋超過180°可能損壞外殼蓋後的固定鎖。**

◆ Characteristic / 特點：

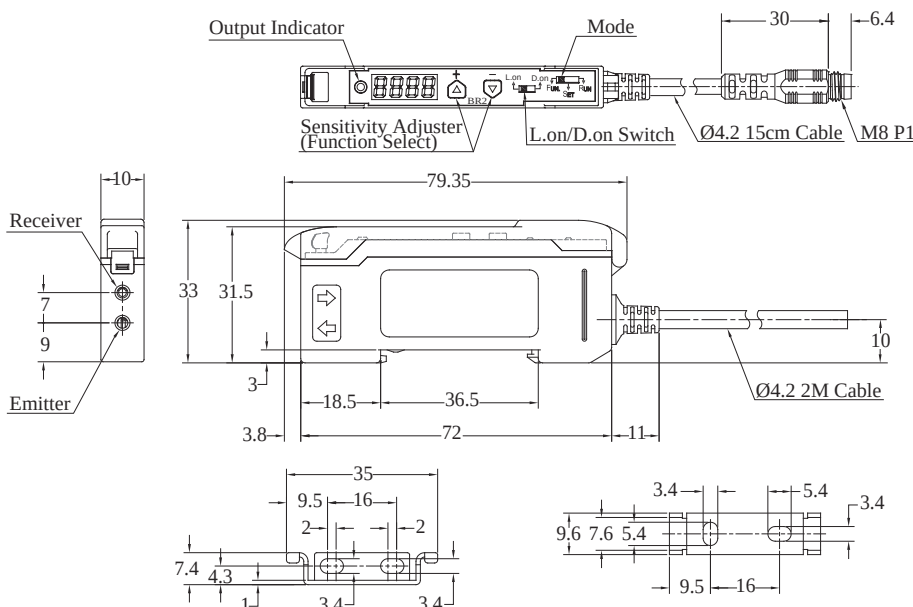
- Press 2sec. Automatic sensitivity setting.
/ 按住2秒以上，自動設定感度。
- Signal pulse H/L : General distance/ long distance.
/ 二種功率(H/L)：一般距離/長距離 可調整。
- 3 light-sources : Red light/ Blue light/ Green light.
/ 三種發光源(紅,藍,綠)，可應用許多產業。
- NP model : NPN+PNP L.on/D.on 4-in-1 outputs.
/ 新型NP電路：NPN/PNP All in one. °



◆ Specifications / 規格表：

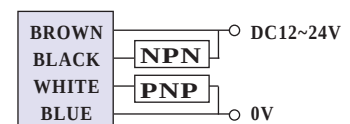
Model / 型號	Pre-wired ϕ 4.2	BR2-N	BR2-P	BR2-NP	BR2-11NP	BR2-22NP
	M8 pigtailed type	BR2-NB	BR2-PB	BR2-NPB	BR2-11NPB	BR2-22NPB
Emitting light / 發光源		Red LED 660nm			Blue LED 470nm	Green LED 530nm
Operating voltage / 工作電壓		DC12 to 24 $\pm$ 10%				
Current Consumption / 消耗電流		45mA Max.				
Load current / 負載電流		100mA Max. at DC 24V				
Output type / 輸出模式		NPN L.on / D.on	PNP L.on / D.on	NPN L.on / D.on PNP L.on / D.on		
Protection circuit / 保護電路		Reversed polarity protection, over-current protection				
Response time / 反應時間		on 0.5 ms, off 0.5ms				
Indicators / 指示燈		Output indicator : Red LED				
Sensitivity adjustment/靈敏度功能		3 Digitals 000-999				
Insulation resistance / 隔離阻抗		20M Ω min. (DC500V)				
Voltage withstandabiligy / 絕緣耐壓		AC500V 60Hz for 60 Sec.				
Operating temperature/工作溫度		- 10 $^{\circ}$ C $\sim$ + 60 $^{\circ}$ C				
Ambient humidity / 工作溼度		35% $\sim$ 85% RH				
Protection degree / 防水等級		IP50				
Material / 外觀材質		ABS				
Wiring method / 出線方式	BR2-□	N/P : Pre-wired ϕ 4.2 x 2 M / 3-wires NP : Pre-wired ϕ 4.2 x 2 M/ 4-wires				
	BR2-□B	M8 pigtailed type / M8 接頭15cm電線式				
Weight / 重量	BR2-□	Approx.65 g				
	BR2-□B	Approx.25 g				

◆ Dimensions / 尺寸圖：(unit:mm)



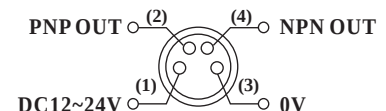
◆ Wiring diagrams / 接線圖：

NP Output



※ NPN & PNP SYNC. OUT

NPB Output



(1)BROWN (3)BLUE
(2)WHITE (4)BLACK

※ NPN & PNP SYNC. OUT

◆ Manual / 使用說明:

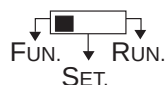
Output Indicator/輸出指示燈

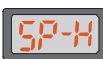
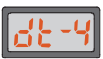
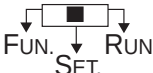
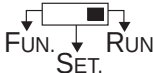
Mode Switch/功能選擇鍵

Sensitivity Adjuster (Function Select)
/敏感度調整L.on/D.on Switch
L.on/D.on選擇鍵

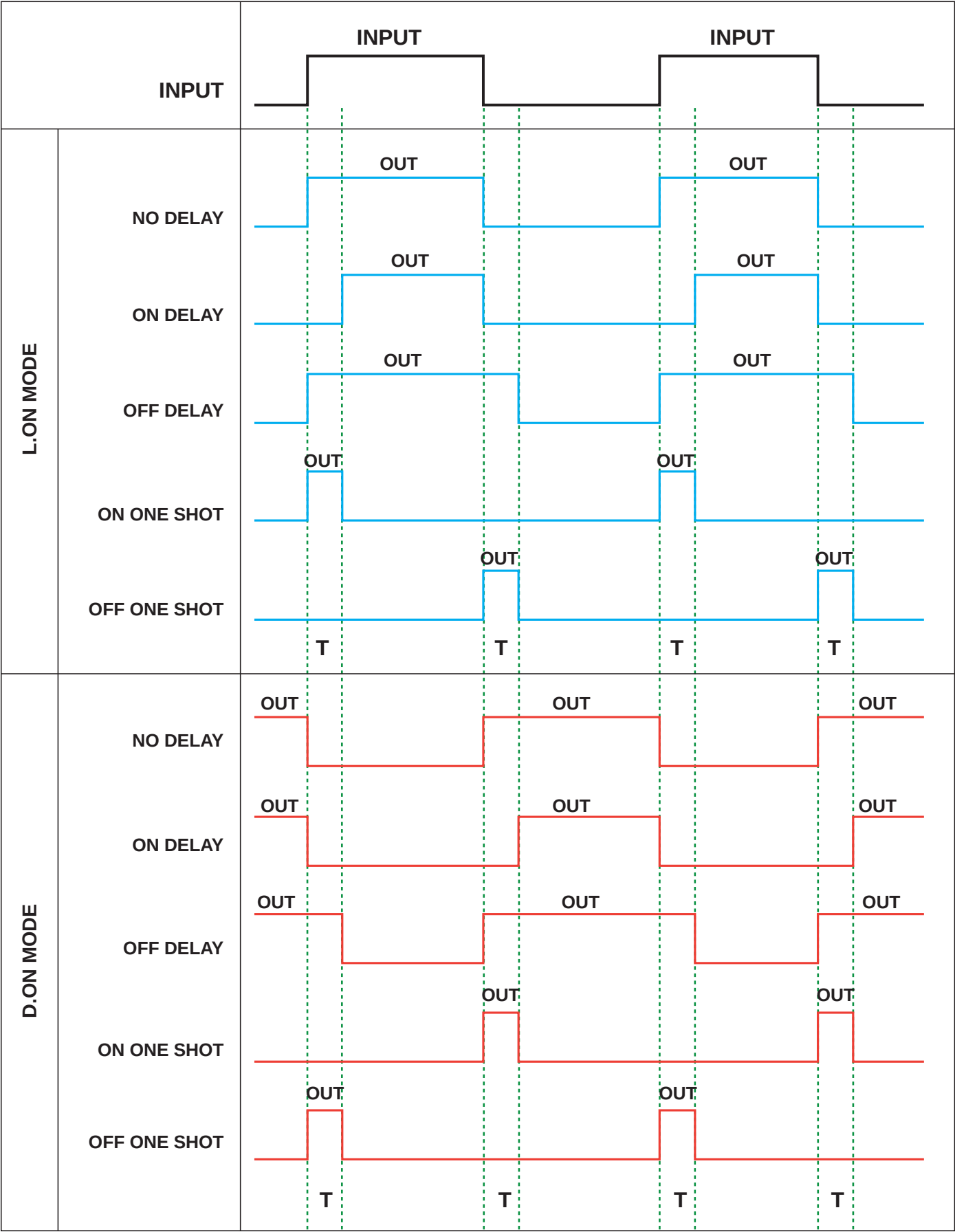
功能配置：可設定所有的功能

如果在設定的時候，您可以利用簡單的選項來使用所有的功能

Please select FUN./
選擇到FUN.模式Mode Switch/
模式選擇鍵Function Switch/
功能設定鍵

Mode Switch/模式選擇鍵		設定選項			
 signal pulse/ 感測距離	  standard/ 標準距離	 long pulse/ 加長距離			
	  50% power/ 一半功率	 standard/ 標準功率			
	  no delay/ 無延遲	 on delay/ 開啓延遲	 off delay/ 關閉延遲		
	 on one shot/ 上微分觸發	 off one shot/ 下微分觸發			
  delay time/ 延遲秒數設定	  2ms	 20ms	 50ms	 100ms	
	 500ms	 1s	 5s	 10s	
  inverted display/ 面板正、反向調整	  obverse/ 視窗正向	 reverse/ 視窗反向			
Please select SET./ 選擇到SET.模式					
					
Please select   to adjust sensing distance./ 選擇上下調整鍵   設定感應數值					
Please select RUN./ 選擇到RUN.模式					
					
Operating mode/ 開始工作模式					
Example: To make BR2 on-delay 5 s, when it is in operating situation. / 範例: 設定時間通電延遲5秒					
Step1/步驟一: Please select FUN./ 選擇到 FUN. 模式	Step2/步驟二: Minus Button/ 模式選擇鍵	Step3/步驟三: Plus Button/ 功能設定鍵	Step4/步驟四: Minus Button/ 模式選擇鍵	Step5/步驟五: Plus Button/ 功能設定鍵	
	 delay/ 時間延遲設定	 on delay/ 開啓延遲	 delay time/ 延遲秒數設定	 5s /5秒	

◆ Operation timing chart / 時序圖：



燈號與輸出同步
DELAY TIME : 2ms ; 20ms ; 50ms ; 100ms ; 500ms
DELAY TIME : 1S ; 5S ; 10S

◆ Side mounting of amplifier / 放大器固定之組裝：

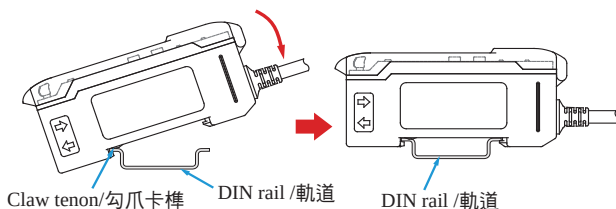
* Attached mounting bracket. Fixing it up by 2pcs M3 screws. The torque must be 0.8Nm or less.
/內附托架，並使用M3螺絲穿過固定孔旋緊，但扭力不可超過0.8Nm。



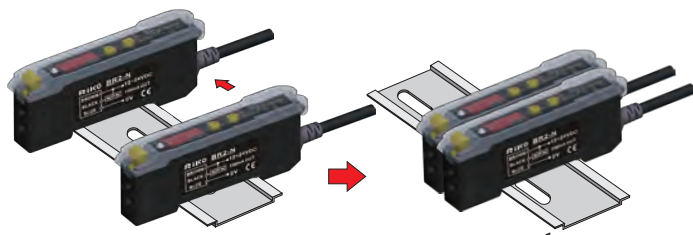
◆ Fiber amplifier mounting/detaching operation / 光纖放大器安裝方式：

1. Mounting / 安裝

(1) To mount each amplifier to the attached mounting bracket or DIN rail in sequence. /將每一台依序裝至軌道上。

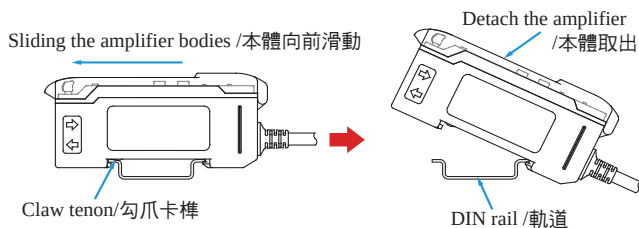


(2) To connect two amplifiers close together by sliding the amplifier bodies. /滑動本體，依序將放大器密和即可。



2. Detaching / 卸下

To detach the amplifiers in sequence by sliding the amplifier bodies. Don't detach two amplifiers at a time. /滑動本體，依序將各台卸下。



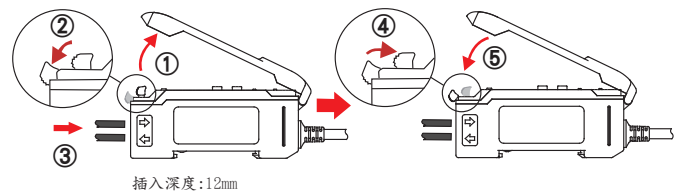
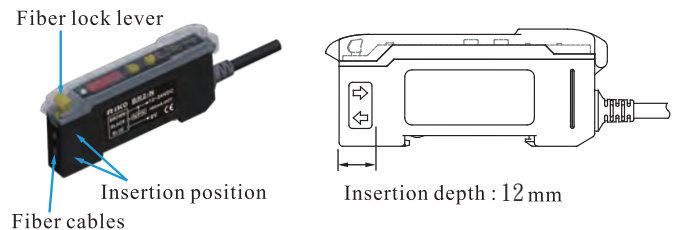
Be sure to switch off the power supply when mounting or detaching the amplifier.

/當您要安裝或卸下光纖放大器時，請先確認電源已關閉。

◆ Fiber cables fixing operation / 光纖安裝方式：

1. Insert the fiber cables / 插入光纖

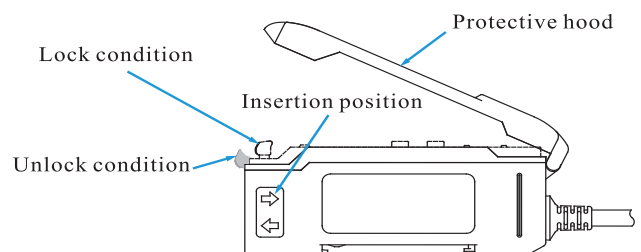
Open the protective hood and tilt the fiber lock lever to release the lock condition. Referring to the side seal of insertion position, fully insert the fiber cables into the mounting holes until the limit. Pull the fiber lock lever back to lock the cables. /開啟保護蓋並先壓下光纖固定桿，以解除鎖定狀態，依照光纖放大器側面插入位置記號插入光纖，再將光纖固定桿扳起鎖定。



- ① Open the protective hood./ 掀開保護透明蓋。
- ② Tilt the fiber lock lever to release the lock condition./ 解除鎖定狀態。
- ③ Insert the fiber cables./ 插入光纖。
- ④ Pull the fiber lock lever back to lock the cables./ 鎖定狀態。
- ⑤ Close the protective hood./ 蓋起保護透明蓋。

2. Pull out the fiber cables / 拔出光纖

Open the protective hood and tilt the fiber lock lever to release the lock condition. Pull the fiber cables straight out from the mounting holes. /開啟保護蓋並光纖固定桿，以解除鎖定狀態，即可拔出光纖。



1. To protect the fiber cables from incorrect operation, be sure to tilt the fiber lock lever to release the lock condition before pulling out the fiber cables.

/為了維護光纖，請在更換時，確定光纖固定桿為解除鎖定後，再將光纖拔出。

2. Pull up the protective hood forcefully may damage the fixing pin of the hood (not exceed 180 degrees).

/用力向上扳開保護透明蓋超過180°，可能損壞外殼蓋後的固定鎖。

◆ Characteristic / 特點：

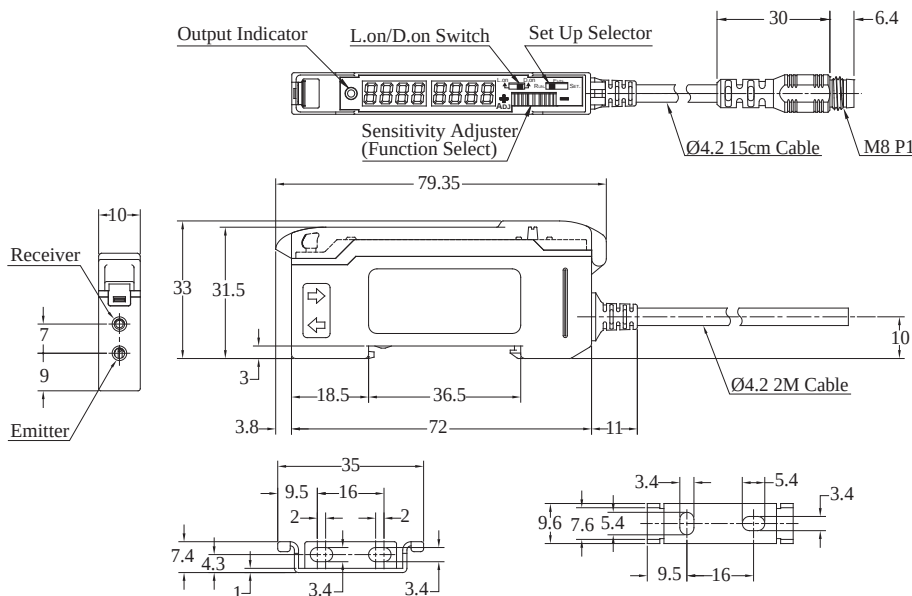
- Easy to install. / 設定方便，容易上手。
- Numeric displays, interactive prompts. / 雙數顯字型面板，且運算快。
- Applications focus on many industries, such as semiconductor assembly, handling technology and packing. / 此產品可應用在許多產業中，包含半導體、裝卸作業和包裝產業等。
- Depends on the mounting direction, the digital display of BR3 can be inverted. / BR3的雙數顯字面板，可依您裝上的方向，而作反轉調整。
- Response time selectable: (200、500、1000、5000) μ s. / 4段速度選擇: (200、500、1000、5000) μ s。



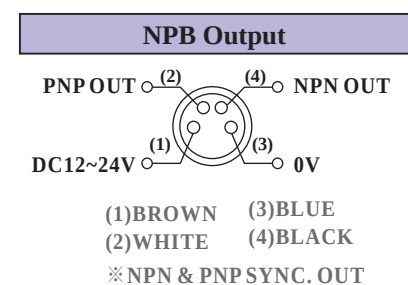
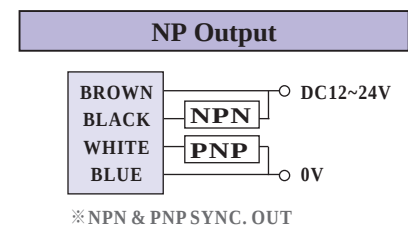
◆ Specifications / 規格表：

Model / 型號	Pre-wired ϕ 4.2	BR3-NP
	M8 pigtailed type	BR3-NPB
Emitting light / 發光源		Red LED 660nm
Operating voltage / 工作電壓		DC12 to 24 $\pm$ 10%
Current Consumption / 消耗電流		45mA Max.
Load current / 負載電流		100mA Max at DC 24V
Output type / 輸出模式		NPN L.on / D.on PNP L.on / D.on
Protection circuit / 保護電路		Reversed polarity protection, over-current protection
Response time / 反應時間		on: 200 μ s, off: 200 μ s MAX (200、500、1000、5000) μ s
Indicators / 指示燈		Output indicator : Red LED
Sensitivity adjustment/靈敏度功能		4 Digits 0000-8000
Insulation resistance / 隔離阻抗		20M Ω min. (DC500V)
Voltage withstandability / 絕緣耐壓		AC500V 60Hz for 60 Sec.
Operating temperature/工作溫度		- 10 $^{\circ}$ C $\sim$ + 60 $^{\circ}$ C
Ambient humidity / 工作溼度		35% $\sim$ 85% RH
Protection degree / 防水等級		IP50
Material / 外觀材質		ABS
Wiring method / 出線方式	BR3-NP	Pre-wired ϕ 4.2 x 2M / 4-wires
	BR3-NPB	M8 pigtailed type / M8 接頭15cm電線式
Weight / 重量	BR3-NP	Approx.65 g
	BR3-NPB	Approx.30 g

◆ Dimensions / 尺寸圖：(unit:mm)



◆ Wiring diagrams / 接線圖：



Fiber Sensor

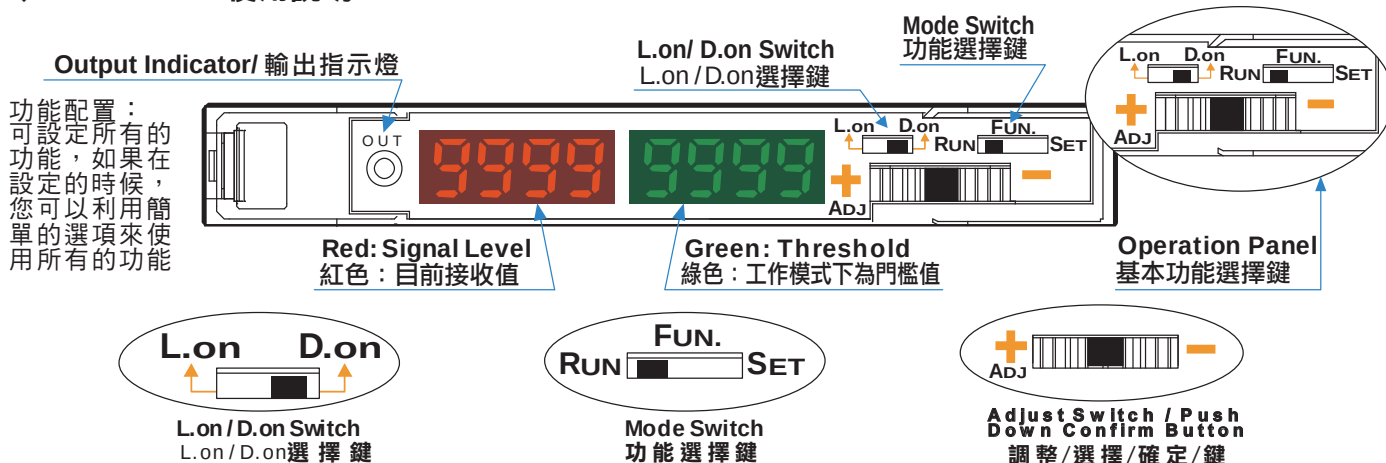
BR1
/BR2
/BR3PR
/PTFR
/FT

Glass Fiber

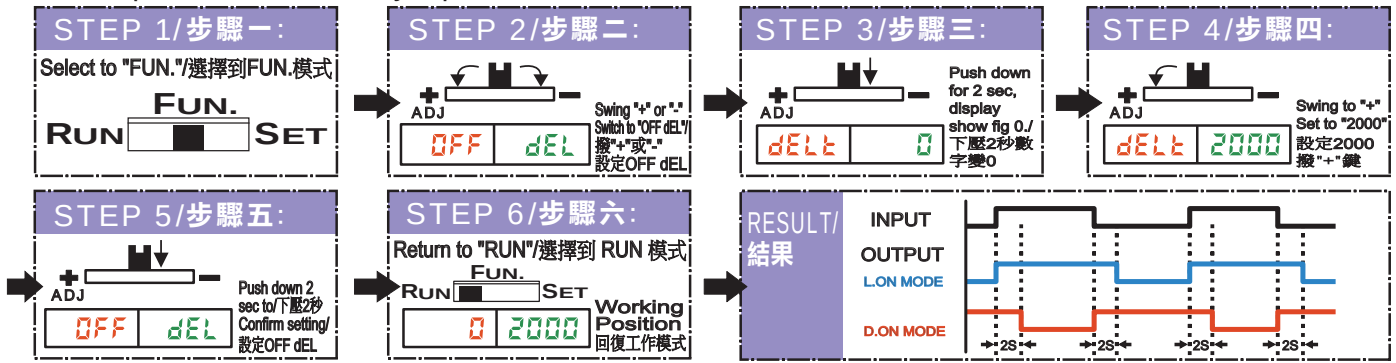
Light Guide

Silica Fiber

Acc.



Example: Set off delay operate on 2 sec./範例:設定OFF dEL功能啟動，關閉延遲時間設定為2秒



◆ Diffuse model Setting / 反射式光纖調整

1. Set to L.on position. / 請將L.on/D.on指撥鍵，撥至L.on。



2. Select to "SET". / 功能選擇鍵撥至SET。



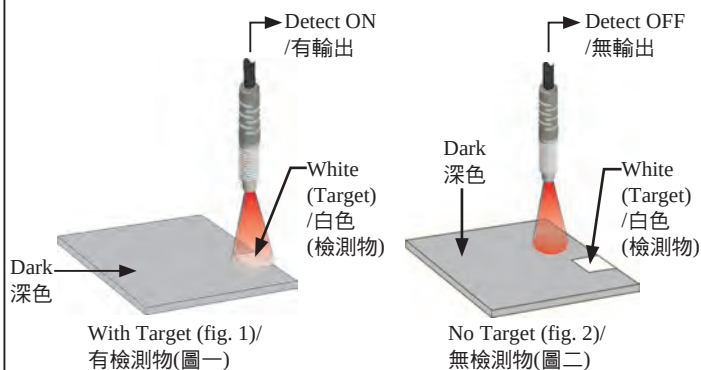
3. With Target, Push down "ADJ" 2sec, Auto-Teaching done after blinking stopped. (Fig. 1) / 光纖在有檢測物的情況下按 ADJ 兩秒(閃爍後完成教導)(圖一)。



4. Finished setting, Return to "RUN". / 完成校對後，功能選擇鍵撥至 Run。



5. If need opposite operating detection, change to D.on position. / 調整完畢後，如需反向動作，請做L.on 或 D.on 切換。



◆ Through-Beam model Setting / 對照式光纖調整：

1. Set to D.on position. / 請將L.on/D.on指撥鍵，撥至D.on。



2. Select to "SET". / 功能選擇鍵撥至SET。



3. No Target, Push down "ADJ" 2sec, Auto-Teaching done after blinking stopped. (Fig. 3) / 光纖在有檢測物的情況下按 ADJ 兩秒(閃爍後完成教導)(圖三)。



4. Finished setting, Return to "RUN". / 完成校對後，功能選擇鍵撥至 Run。



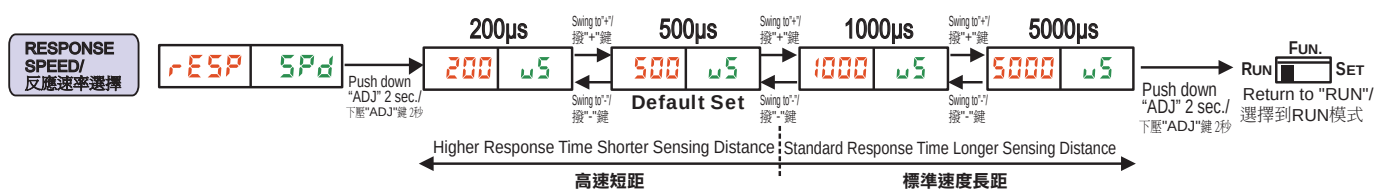
5. If need opposite operating detection, change to D.on position. / 調整完畢後，如需反向動作，請做L.on 或 D.on 切換。



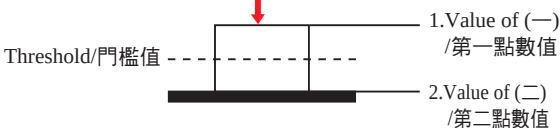
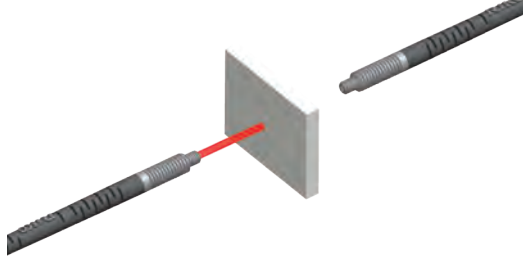
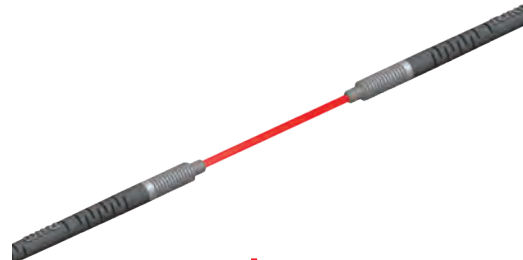
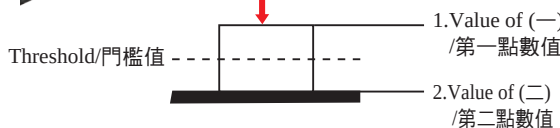
◆ Response Time & Sensing Distance / 反應速率與距離：

※Refer to working area, set to correct response time & sensing distance.

※請依現場環境，做適當的距離與速率調整。



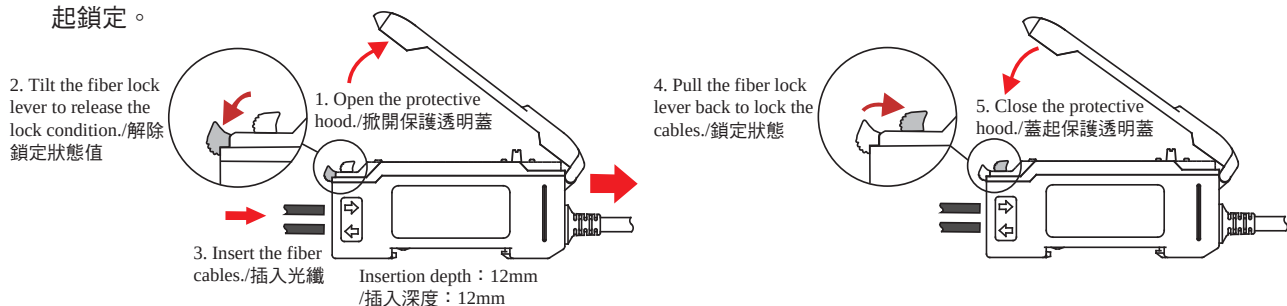
◆ Example of 2-point Teaching / 2點教導範例：

Diffuse model / 反射式	Through-Beam model / 對照式
Setting threshold according to targets and environments in any condition: /在任何狀況下，依被測物及環境精確的調整門檻值條件： (一)：Setting with target./第一步：在被測物上教導設定。  (二)：Remove target and set up again./第二步：移走被測物後再教導設定一次。   Threshold/門檻值 --- 1.Value of (一) /第一點數值 --- 2.Value of (二) /第二點數值 Threshold appears between (一) and (二)./精確的門檻值會被定義在第一點和第二點之間。	Setting threshold according to targets and environments in any condition: /在任何狀況下，依被測物及環境精確的調整門檻值條件： (一)：Setting with target./第一步：在被測物上教導設定。  (二)：Remove target and set up again./第二步：移走被測物後再教導設定一次。   Threshold/門檻值 --- 1.Value of (一) /第一點數值 --- 2.Value of (二) /第二點數值 Threshold appears between (一) and (二)./精確的門檻值會被定義在第一點和第二點之間。

◆ Fiber cables fixing operation / 光纖安裝方式：

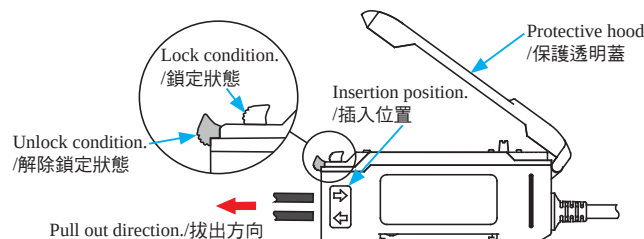
1. Insert the fiber cables / 插入光纖

* Open the protective hood and tilt the fiber lock lever to release the lock condition. Referring to the side seal of insertion position, fully insert the fiber cables into the mounting holes until the limit. Pull the fiber lock lever back to lock the cables.
/ 開啟保護蓋並先壓下光纖固定桿以解除鎖定狀態，依照光纖放大器側面的插入位置記號插入光纖，再將光纖固定桿扳起鎖定。



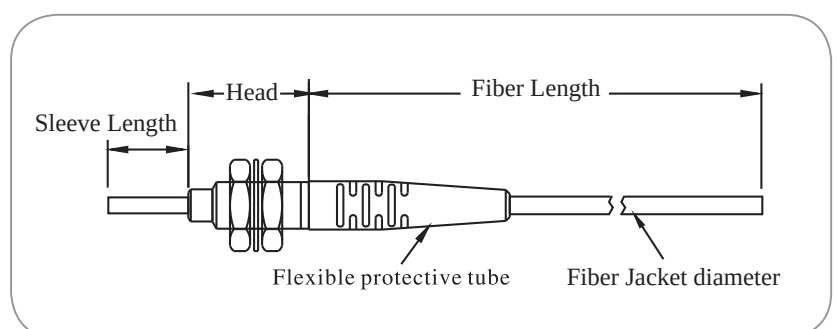
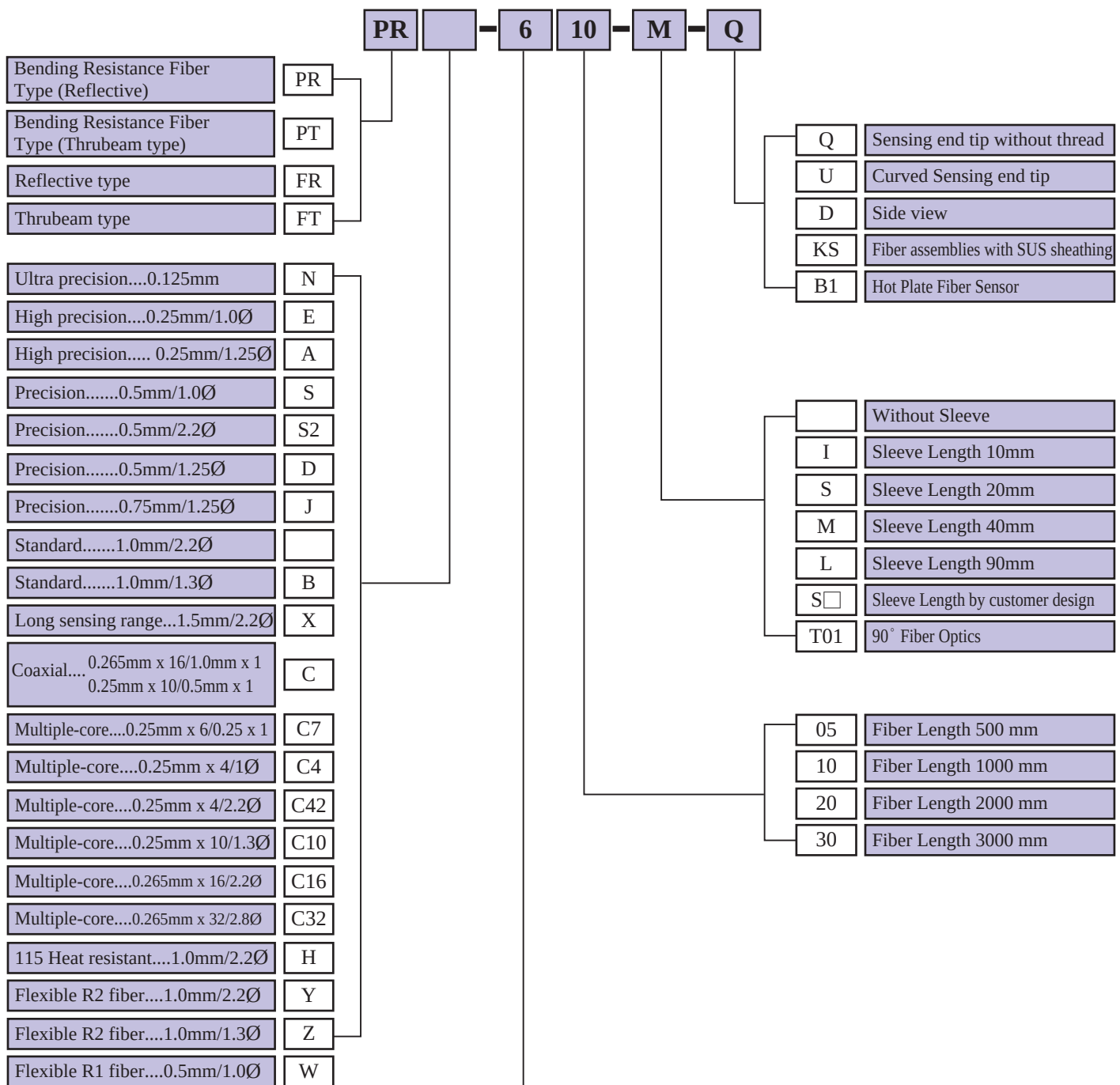
2. Pull out the fiber cables / 拔出光纖

* Open the protective hood and tilt the fiber lock lever to release the lock condition. Pull the fiber cables straight out from the mounting holes. / 開啟保護蓋並壓下光纖固定桿，以解除鎖定狀態，即可拔出光纖。



1. To protect the fiber cables from incorrect operation, **be sure to tilt the fiber lock lever to release the lock condition before pulling out the fiber cables.** / 為了維護光纖，請在更換時，**確定光纖固定桿為解除鎖定，再將光纖拔出。**
2. Pull up the protective hood forcefully may damage the fixing pin of the hood (**not exceed 180 degrees**).
/ 用力向上扳開**保護透明蓋超過180°可能損壞外殼蓋後的固定銷。**

◆Order Information :



FZ1-KP2/KP2B/NPI

BR2(L999)

Features	Shape	Detecting Distance (mm)	*FZ1-N/ KP2 *BR2(L999)	Smallest detectable object(metal wire)	Minimum bend radius	Weight(g)	Model
Fiber Sensor	 M6		80 160	Ø0.2	R25	43	PR-610
	 M4					40	FRB-410
	 Ø3					40	FRB-310-Q
Photo / Area Photo / Ultrasonic Sensor	 M6		120 240	Ø0.5	R40	43	FRX-610
	 M6					40	PRC-610
	 M4					35	PRC-410
Inductive / Capacitive Proximity Sensor	 M3		30 60	Ø0.05	R15	33	PRC-310
	 Ø3					33	PRC-310-Q
	 Ø1.5					30	FRC7-110-Q20
Others	 Ø1.5		7 14	Ø0.05	R15	30	PRC4-110
	 Ø5					40	FRH-510
	 M4					40	FRZ-410
Others	 Ø3		70 140	Ø0.2	R2	40	FRZ-310-Q
	 M4					40	FRW-410
	 Square					40	FRW-11
Others	 M6		70 140	Ø0.2	R2	35	PRY-320-T01
	 M4					45	PRY-610
	 M3					33	FRE-410
Others	 Ø2		5 10	Ø0.05	R10	35	FRA-410
	 M3					33	FRE-310
	 Ø2					33	FRE-310Q
Others	 M4		25 50	Ø0.1	R15	35	FRA-310
	 M3					33	FRE-210
	 Ø2					33	FRS-410
Others	 M4		60 120	Ø0.05	R15	33	PRD-410
	 M3					33	FRS-310
	 Ø2					35	PRD-310
Others	 10x10		25 50	Ø1.0	R5	40	PRS-210
	 15x15					40	FRJ-410
	 25 x 19					40	FRJ-310
Others	 38 x 19		70 140	Ø1.0	R5	60	FR-10ML
	 58 x 23					45	FR-15MLD
	 58 x 23					36	PR-20ML
Others	 58 x 23		70 140	Ø2.0	R5	40	FR-30ML
	 58 x 23					40	FR-50ML
	 58 x 23					40	FR-50ML

FZ1-KP2/KP2B/NPI

BR2(L999)

Features	Shape	Detecting Distance (mm)	*FZ1-N/ KP2 *BR2(L999)	Smallest detectable object(metal wire)	Minimum bend radius	Weight(g)	Model
	M6		500 1000	Ø0.5	R25	52	FT-610
	M4					45	PT-410
	M3					45	PT-310
	M4					35	FTB-410
	M3					35	FTB-310
	Ø2					35	FTB-210
	M4	250 400	700 1400	Ø0.2	R15	40	FTJ-410
	M4					42	FTX-410
	M3	30 60		Ø0.03	R10	35	FTA-310
	Ø2					33	FTA-210
	Ø1.5					32	FTE-110
	M6	300 600		Ø0.5	R2	47	FTY-610
	M4					45	PTY-410
	M3					40	PTY-310
	M4			Ø0.5	R2	40	FTZ-410
	M3					40	FTZ-310
	M4	80 160		Ø0.05	R1	35	FTW-410
	Square					40	FTW2-11
	M6	250 500		Ø0.5	R2	40	FTY-67TZ
	M4					42	FTY-77TZ
	Ø4.75	80 160		Ø0.05	R1	50	FTW2-475D
	M4	130 260		Ø0.05	R15	35	FTS-410
	M3					35	PTS2-310
	M3					35	PTD-310
	Ø2					33	PTS-210
	Ø2					33	PTD-210
	Ø1.5	100 200		Ø0.1	R5	30	PTC4-110
	Ø2					33	PTC4-210
	10x10	400 800		Ø0.5	R5	35	FT-10ML
	15x15					55	FT-15MLD
	25x19	500 1000		Ø1.0	R60	95	PT-20ML
	38x19	300 600		Ø1.0	R60	62	FT-30ML
	58x23	300 600		Ø2.0	R60	65	FT-50ML

Fiber Sensor

Photo / Area Photo / Ultrasonic Sensor

Inductive / Capacitive Proximity Sensor

Others

PT/PR TYPE

High quality, bending resistance fiber optic sensor

Patent NO. : M368808 M380485

Protection against excessive bending /高彎曲保護

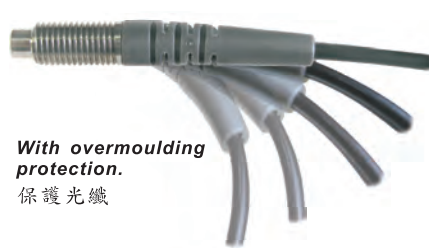
Special material for bending resistance (patent) /特殊耐彎材質(自有專利)

Special material for bending resistance : better curvature and protection from breakage of fiber in case of smaller bending radius in operation.

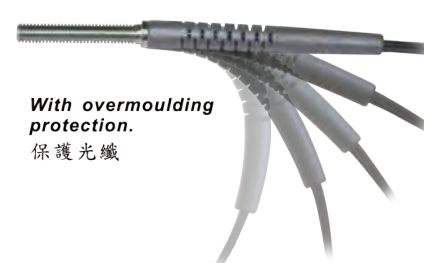
/特殊耐彎材質，繞曲度優，保護性佳，讓您在操作時，不會因為R角過小，造成光纖的斷裂。



Traditional types



M6 Types



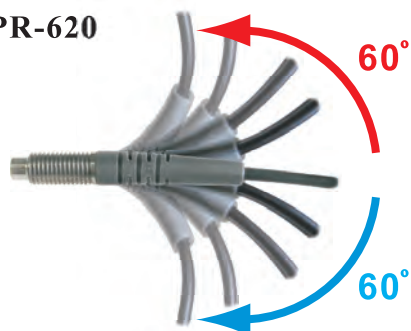
M3/M4 Types

Swinging tests /搖擺測試

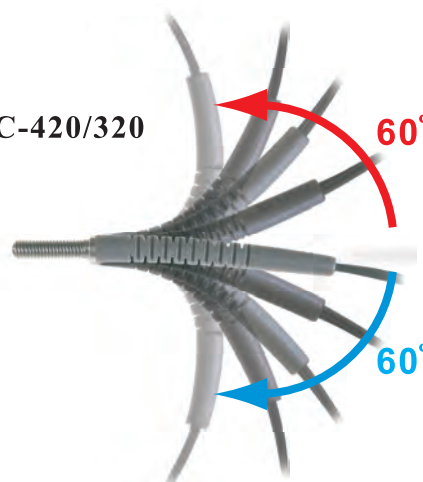
Swings of PR620:1000 and PRC-320/420 are up to 30000. It will efficiently protect the fiber and extend its service life.

/PR-620搖擺次數可達1萬次，PRC-320/420搖擺次數更能夠達到3萬次，因此能有效的保護光纖，使光纖的壽命更長。

PR-620



PRC-420/320



Standard of test : swinging from left to right total 10cm, 120 degree, speed : 12 seconds per swing.
測試標準:左右來回5公分，角度60(正負共120度)左右搖擺、速度來回12秒。

High tensile strength (8kg Max.) /高抗拉力(8kg以下)

Tensile strength : PR-620 can resist with tensile force of 8 kg that is three times more stronger than traditional type fiber. It will keep fiber far from careless damage in operation.

/PR-620可承受8kg的拉力，比一般的機型強上數倍，讓在使用時，不會因不小心，而造成光纖的損傷。



PR-620
Tensile strength : 8kg
可承受8kg的拉力



PRC-420/320
Tensile strength : 7kg
可承受7kg的拉力

Notice: above two illustrations merely to show experiment scenario of PR-620 and PRC-420/320, other type of fiber optics will be under other consideration.

/ 請注意: 上示兩圖僅僅表示PR-620和PRC-420/320抗拉力實驗結果，其他尺寸光纖管的抗拉程度，需要另做實驗呈現。

High quality /高品質

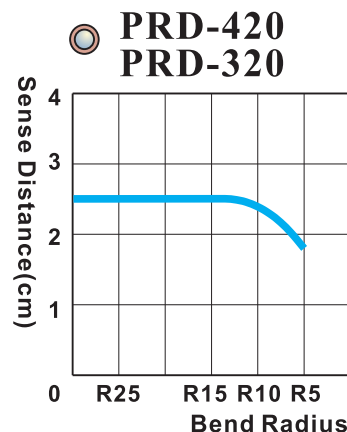
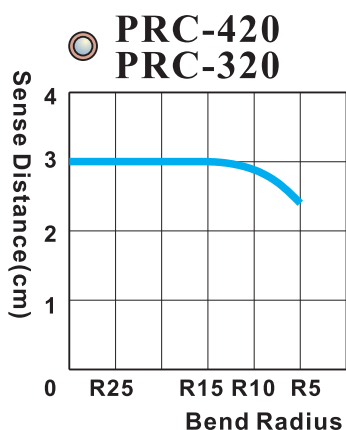
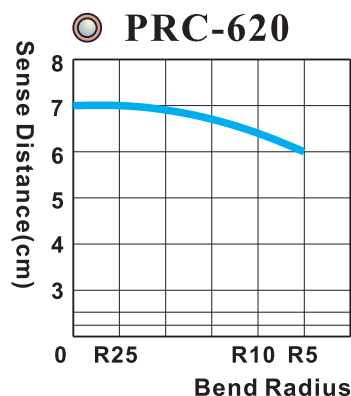
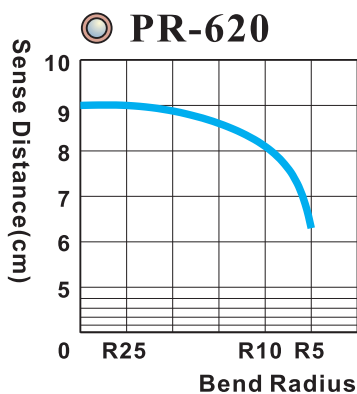
1. Stainless steel fiber head(Shorter Model) /高品質不鏽鋼接頭

光纖頭使用不鏽鋼材質，耐用度高。



2. High quality fiber /高品質光纖

Superior fiber material from Japan. Lower attenuation. /使用日本進口光纖，光纖在彎折時，光耗損率更低。



Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
Fiber Sensor FZ1 BR1 /BR2 /BR3 PR /PT FR /FT Glass Fiber Light Guide Silica Fiber Acc.	PR-620-B1 Free cut		*Fiber Type : Standard *Sensing distance(BR2/L999) : 180mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	PR-620 Free cut		*Fiber Type : Standard *Sensing distance(BR2/L999) : 180mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	PR-620-I Free cut		*Fiber Type : Standard *Sensing distance(BR2/L999) : 180mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	PR-620-M		*Fiber Type : Standard *Sensing distance(BR2/L999) : 180mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	PRC-620 Free cut		*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 140mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0x1/ Ø0.265x15
	PRC-620-I Free cut		*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 140mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0x1/ Ø0.265x15

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
M6	PRJ2-620-B1 Free cut		*Fiber Type : Precision *Sensing distance(BR2/L999) : 100mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø0.75
	PRS2-620-B1 Free cut		*Fiber Type : Precision *Sensing distance(BR2/L999) : 50mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R15 *Fiber diameter : OD=Ø2.2 ID=Ø0.5
	PRY-620 Free cut		*Fiber Type : Flexible *Sensing distance(BR2/L999) : 140mm *Operate temperature : -40℃~+70℃ *Minimum bending radius : R2 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
M4	PRA-420 Free cut		*Fiber Type : Precision *Sensing distance(BR2/L999) : 10mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R10 *Fiber diameter : OD=Ø1.25 ID=Ø0.25
	PRC-420 Free cut		*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 60mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5x1/ Ø0.25x10
	PRC-420-I Free cut		*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 60mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5x1/ Ø0.25x10
	PRC-420-M		*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 60mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5x1/ Ø0.25x10

Fiber Sensor

FZ1

BR1
/BR2
/BR3

PR
/PT

FR
/FT

Glass
Fiber

Light
Guide

Silica
Fiber

Acc.

反射型 (Reflective)

Type	型號 / Model	尺寸 / Dimensions	規格 / Datasheet	
反射型 (Reflective)	PRC-420-9 Free cut	Ø0.5 fiber optic core x 1 Ø0.25 fiber optic core x 10 M2.6 P0.45 M4 P0.7 Head Diameter Toothed lock washer Ø8.3 Width Across Flats 8mm Thickness 2.3mm Flexible protective tube Ø4 2000 35 13 1 Ø1.25x2 25.7 10.8 Ø2.2	*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 60mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5x1/ Ø0.25x10	
	PRD-420-B1 Free cut	Ø0.5 fiber optic core x 2 0.8 3 18.7 35 1.5 Ø1.25x2 25.7 10.8 Ø2.2 M2.6 P0.45 M4 P0.7 Head Diameter Toothed lock washer Ø8.3 Width Across Flats 8mm Thickness 2.3mm Flexible protective tube Ø4 2000	*Fiber Type : Precision *Sensing distance(BR2/L999) : 50mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5	
	PRD-420 Free cut	Ø0.5 fiber optic core x 2 3 18.7 35 1 Ø1.25x2 25.7 10.8 Ø2.2 M2.6 P0.45 M4 P0.7 Head Diameter Toothed lock washer Ø8.3 Width Across Flats 8mm Thickness 2.3mm Flexible protective tube Ø4 2000	*Fiber Type : Precision *Sensing distance(BR2/L999) : 50mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5	
	PRD-420-I Free cut	Ø0.5 fiber optic core x 2 10 3 18.7 35 1 Ø1.25x2 25.7 10.8 Ø2.2 M2.6 P0.45 M4 P0.7 Head Diameter Toothed lock washer Ø8.3 Width Across Flats 8mm Thickness 2.3mm Flexible protective tube Ø4 2000 Ø1.47 SUS 304 PRD-420-I PRD-420-S PRD-420-M PRD-420-L PRD-420-S□ (by customer design)	*Fiber Type : Precision *Sensing distance(BR2/L999) : 50mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5	
	PRD-420-M			
	PRD-420-9 Free cut	Ø0.5 fiber optic core x 2 13 35 1 Ø1.25x2 25.7 10.8 Ø2.2 M2.6 P0.45 M4 P0.7 Head Diameter Toothed lock washer Ø8.3 Width Across Flats 8mm Thickness 2.3mm Flexible protective tube Ø4 2000	*Fiber Type : Precision *Sensing distance(BR2/L999) : 50mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5	
PRA-320 Free cut	Ø0.25 fiber optic core x 2 0.5 18 1 35 Ø1.25x2 25.7 10.8 Ø2.2 M3 P0.5 Head Diameter Toothed lock washer Ø6.4 Width Across Flats 5mm Thickness 2.2mm Flexible protective tube Ø4 2000	*Fiber Type : High Precision *Sensing distance(BR2/L999) : 10mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R10 *Fiber diameter : OD=Ø1.25 ID=Ø0.25		

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
反 射 型 (R e f l e c t i v e)	PRC-320 Free cut		*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 60mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5x1/ Ø0.25x10
	PRC-320-I Free cut		*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 60mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5x1/ Ø0.25x10
	PRC-320-M		*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 60mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5x1/ Ø0.25x10
	PRC-320-9 Free cut		*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 60mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5x1/ Ø0.25x10
	PRD-320-B1 Free cut		*Fiber Type : Precision *Sensing distance(BR2/L999) : 50mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5
	PRD-320 Free cut		*Fiber Type : Precision *Sensing distance(BR2/L999) : 50mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5
	PRD-320-I Free cut		*Fiber Type : Precision *Sensing distance(BR2/L999) : 50mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5
	PRD-320-M		*Fiber Type : Precision *Sensing distance(BR2/L999) : 50mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5

Fiber Sensor

FZ1

BR1
/BR2
/BR3

PR
/PT

FR
/FT

Glass
Fiber

Light
Guide

Silica
Fiber

Acc.

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
Fiber Sensor FZ1 BR1 /BR2 /BR3 PR /PT FR /FT Glass Fiber Light Guide Silica Fiber Acc.	M3	Ø0.5 fiber optic core x 2 10.5 35 1 Ø1.25x2 10.8 25.7 Ø2.2 Flexible protective tube Riko Ø2 M3 P0.5 Head Diameter Toothed lock washer Ø6.4 Width Across Flats 5mm Thickness 2.2mm	*Fiber Type : Precision *Sensing distance(BR2/L999) : 50mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5
	PRC-320-Q Free cut	Ø0.5 fiber optic core x 1 15 35 1 Ø1.25x2 10.8 14.9 Ø2.2 Flexible protective tube Riko Ø3 Ø0.25 fiber optic core x 10	*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 60mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5x1/ Ø0.25x10
	PRC-320-IQ Free cut	Ø0.5 fiber optic core x 1 10 15 35 1 Ø1.25x2 10.8 14.9 Ø2.2 Flexible protective tube Riko Ø3 Ø0.25 fiber optic core x 10 Ø1.47 SUS304	*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 60mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5x1/ Ø0.25x10
	PRC-320-MQ	10 20 40 90 Ø2.2 Flexible protective tube Riko PRC-320-IQ PRC-320-SQ PRC-320-MQ PRC-320-LQ PRC-320-S□Q (by customer design)	*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 60mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5x1/ Ø0.25x10
	PRD-320-Q Free cut	Ø0.5 fiber optic core x 2 15 35 1 Ø1.25x2 10.8 14.9 Ø2.2 Flexible protective tube Riko Ø3	*Fiber Type : Precision *Sensing distance(BR2/L999) : 50mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5
	PRD-320-IQ Free cut	Ø0.5 fiber optic core x 2 10 15 35 1 Ø1.25x2 10.8 14.9 Ø2.2 Flexible protective tube Riko Ø3 Ø1.47 SUS304	*Fiber Type : Precision *Sensing distance(BR2/L999) : 50mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
反射型 (Reflective)	PRE-220 Free cut		*Fiber Type : High Precision *Sensing distance(BR2/L999) : 10mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R10 *Fiber diameter : OD=Ø1.0 ID=Ø0.25
	PRS-220 Free cut		*Fiber Type : Precision *Sensing distance(BR2/L999) : 50mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.0 ID=Ø0.5
	PRC4-120 Free cut		*Fiber Type : Multiple Core *Sensing distance(BR2/L999) : 14mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.0 ID=Ø0.25x4
	PRC7-120 Free cut		*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 40mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.25x7
集光型 (Thrubeam)	PT-420-B1 Free cut		*Fiber Type : Standard *Sensing distance(BR2/L999) : 1000mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	PT-420 Free cut		*Fiber Type : Standard *Sensing distance(BR2/L999) : 1000mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	PTD-420-B1 Free cut		*Fiber Type : Precision *Sensing distance(BR2/L999) : 260mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5

Fiber Sensor

FZ1

BR1
/BR2
/BR3

PR
/PT

FR
/FT

Glass
Fiber

Light
Guide

Silica
Fiber

Acc.

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
Fiber Sensor FZ1 BR1 /BR2 /BR3 PR /PT FR /FT Glass Fiber Light Guide Silica Fiber Acc.	PTD-420 Free cut		*Fiber Type : Precision *Sensing distance(BR2/L999) : 260mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5
	PTS2-420 Free cut		*Fiber Type : Precision *Sensing distance(BR2/L999) : 260mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø2.2 ID=Ø0.5
	PTY-420 Free cut		*Fiber Type : Flexible *Sensing distance(BR2/L999) : 600mm *Operate temperature : -40°C~+70°C *Minimum bending radius : R2 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
新製品 (Thru beam)	PT-320-B1 Free cut		*Fiber Type : Standard *Sensing distance(BR2/L999) : 1000mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	PT-320 Free cut		*Fiber Type : Standard *Sensing distance(BR2/L999) : 1000mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	PTD-320 Free cut		*Fiber Type : Precision *Sensing distance(BR2/L999) : 260mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5
	PTD-310-I Free cut		*Fiber Type : Precision *Sensing distance(BR2/L999) : 260mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
M3	PTS2-320 Free cut		*Fiber Type : Precision *Sensing distance(BR2/L999) : 260mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø2.2 ID=Ø0.5
	PTY-320 Free cut		*Fiber Type : Flexible *Sensing distance(BR2/L999) : 600mm *Operate temperature : -40°C~+70°C *Minimum bending radius : R2 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
Ø3	PT-320-Q Free cut		*Fiber Type : Standard *Sensing distance(BR2/L999) : 1000mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	PT-320-IQ Free cut		*Fiber Type : Standard *Sensing distance(BR2/L999) : 1000mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	PT-320-MQ		
	PTD-320-Q Free cut		*Fiber Type : Precision *Sensing distance(BR2/L999) : 260mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5
	PTD-320-IQ Free cut		*Fiber Type : Precision *Sensing distance(BR2/L999) : 260mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5
	PTD-320-MQ		

禁照型 (Thru beam)

Fiber Sensor

FZ1

BR1
/BR2
/BR3

PR
/PT

FR
/FT

Glass
Fiber

Light
Guide

Silica
Fiber

Acc.

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
Fiber Sensor FZ1 BR1 /BR2 /BR3 PR /PT FR /FT Glass Fiber Light Guide Silica Fiber Acc.	PTA-220 Free cut	Ø0.25 fiber optic core x 1 Flexible protective tube	*Fiber Type : High Precision *Sensing distance(BR2/L999) : 60mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R10 *Fiber diameter : OD=Ø1.25 ID=Ø0.25
	PTC4-220 Free cut	Ø0.25 fiber optic core x 4 Flexible protective tube	*Fiber Type : Multiple Core *Sensing distance(BR2/L999) : 200mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.0 ID=Ø0.25x4
	PTD-220 Free cut	Ø0.5 fiber optic core x 1 Flexible protective tube	*Fiber Type : Precision *Sensing distance(BR2/L999) : 260mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5
	PTE-220 Free cut	Ø0.25 fiber optic core x 1 Flexible protective tube	*Fiber Type : High Precision *Sensing distance(BR2/L999) : 60mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R10 *Fiber diameter : OD=Ø1.0 ID=Ø0.25
	PTS-220 Free cut	Ø0.5 fiber optic core x 1 Flexible protective tube	*Fiber Type : Precision *Sensing distance(BR2/L999) : 260mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.0 ID=Ø0.5
	PTC4-120 Free cut	Ø0.25 fiber optic core x 4 Flexible protective tube	*Fiber Type : Multiple Core *Sensing distance(BR2/L999) : 200mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.0 ID=Ø0.25x4

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
透射型 (Thrubeam)	PTD-120 Free cut		*Fiber Type : Precision *Sensing distance(BR2/L999) : 260mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5
	PTS-120 Free cut		*Fiber Type : Precision *Sensing distance(BR2/L999) : 260mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.0 ID=Ø0.5
反射型 (Reflective)	PR-620-T01 Free cut		*Fiber Type : Standard *Sensing distance(BR2/L999) : 60mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	PRS2-620-T01 Free cut		*Fiber Type : Precision *Sensing distance(BR2/L999) : 50mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R15 *Fiber diameter : OD=Ø2.2 ID=Ø0.5
	PRY-620-T01 Free cut		*Fiber Type : Flexible *Sensing distance(BR2/L999) : 140mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R2 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	PRA-420-T01 Free cut		*Fiber Type : High Precision *Sensing distance(BR2/L999) : 10mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R10 *Fiber diameter : OD=Ø1.25 ID=Ø0.25

Fiber Sensor

FZ1

BR1
/BR2
/BR3

PR
/PT

FR
/FT

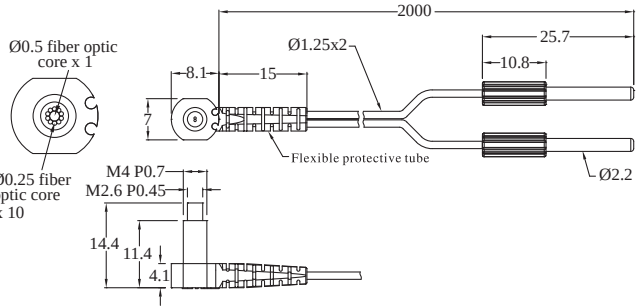
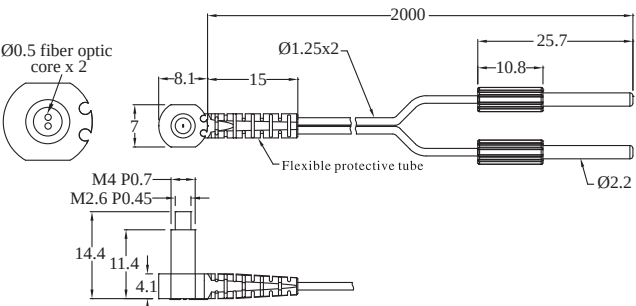
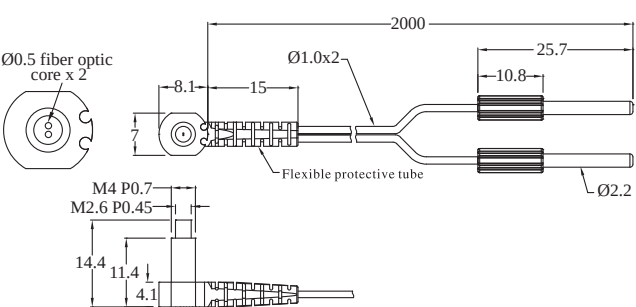
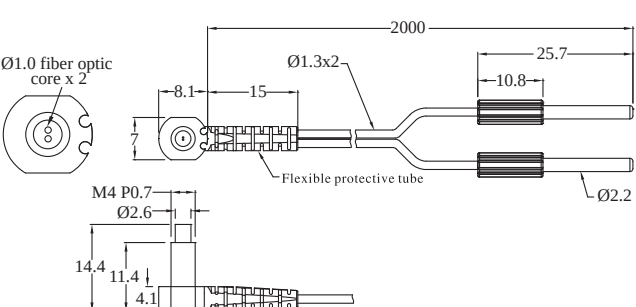
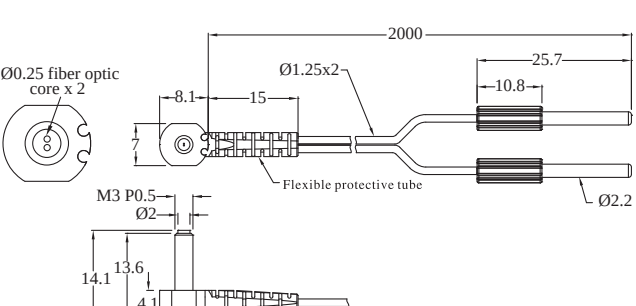
Glass
Fiber

Light
Guide

Silica
Fiber

Acc.

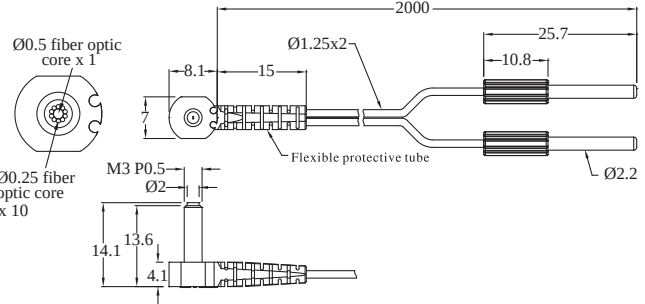
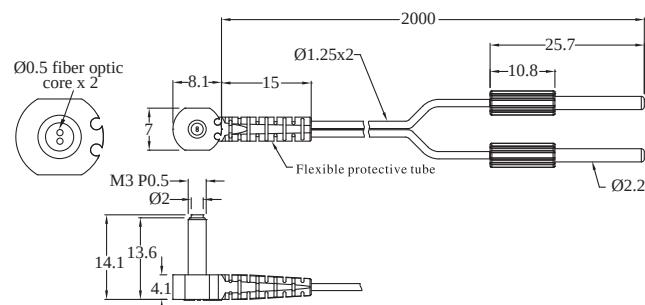
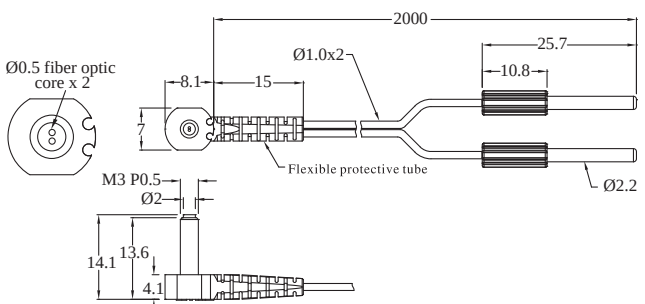
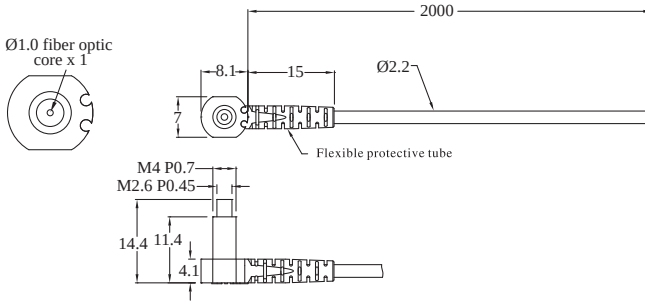
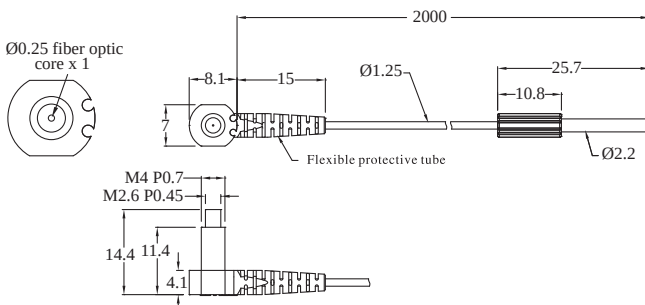
Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
Fiber Sensor FZ1 BR1 /BR2 /BR3 PR /PT FR /FT Glass Fiber Light Guide Silica Fiber Acc.	PRC-420-T01 Free cut 		*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 60mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5x1/ Ø0.25x10
	PRD-420-T01 Free cut 		*Fiber Type : Precision *Sensing distance(BR2/L999) : 25mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5
	PRW-420-T01 Free cut 		*Fiber Type : Flexible *Sensing distance(BR2/L999) : 40mm *Operate temperature : -40℃~+70℃ *Minimum bending radius : R1 *Fiber diameter : OD=Ø1.0 ID=Ø0.5
	PRZ-420-T01 Free cut 		*Fiber Type : Flexible *Sensing distance(BR2/L999) : 140mm *Operate temperature : -40℃~+70℃ *Minimum bending radius : R2 *Fiber diameter : OD=Ø1.3 ID=Ø1.0
	PRA-320-T01 Free cut 		*Fiber Type : High Precision *Sensing distance(BR2/L999) : 10mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R5 *Fiber diameter : OD=Ø1.25 ID=Ø0.25

反射型 (Reflective)

90°

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
反射型 (Reflective)	PRC-320-T01 Free cut 		*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 60mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5x1/ Ø0.25x10
	PRD-320-T01 Free cut 		*Fiber Type : Precision *Sensing distance(BR2/L999) : 25mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5
	PRW-320-T01 Free cut 		*Fiber Type : Flexible *Sensing distance(BR2/L999) : 40mm *Operate temperature : -40℃~+70℃ *Minimum bending radius : R1 *Fiber diameter : OD=Ø1.0 ID=Ø0.5
集光型 (Thru-beam)	PT-420-T01 Free cut 		*Fiber Type : Standard *Sensing distance(BR2/L999) : 400mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	PTA-420-T01 Free cut 		*Fiber Type : High Precision *Sensing distance(BR2/L999) : 60mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R5 *Fiber diameter : OD=Ø1.25 ID=Ø0.25

Fiber Sensor

FZ1

BR1
/BR2
/BR3

PR
/PT

FR
/FT

Glass
Fiber

Light
Guide

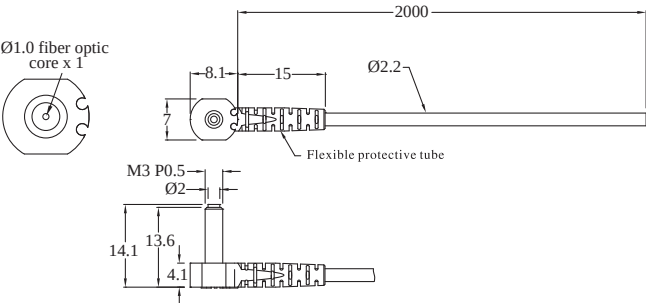
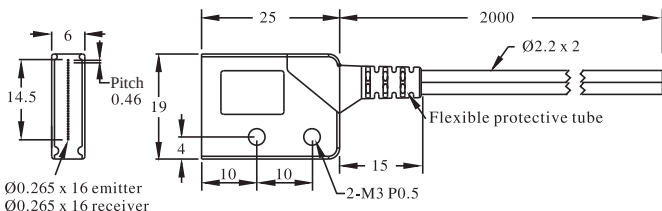
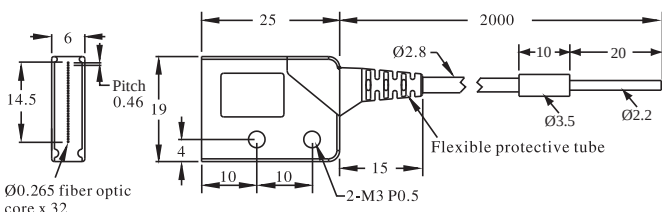
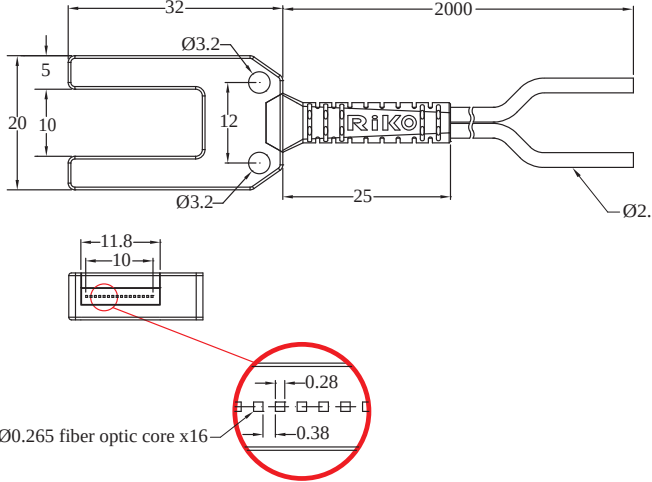
Silica
Fiber

Acc.

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
Fiber Sensor FZ1 BR1 /BR2 /BR3 PR /PT FR /FT Glass Fiber Light Guide Silica Fiber Acc.	PTD-420-T01 Free cut		*Fiber Type : Precision *Sensing distance(BR2/L999) : 200mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R10 *Fiber diameter : OD=Ø1.25 ID=Ø0.5
	PTY-420-T01 Free cut		*Fiber Type : Flexible *Sensing distance(BR2/L999) : 600mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R2 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	PT-320-T01 Free cut		*Fiber Type : Standard *Sensing distance(BR2/L999) : 400mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	PTA-320-T01 Free cut		*Fiber Type : High Precision *Sensing distance(BR2/L999) : 60mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R10 *Fiber diameter : OD=Ø1.25 ID=Ø0.25
	PTD-320-T01 Free cut		*Fiber Type : Precision *Sensing distance(BR2/L999) : 200mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
對照型 (Thrubeam)	PTY-320-T01 Free cut 		*Fiber Type : Flexible *Sensing distance(BR2/L999) : 600mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R2 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	PR-20ML-20 Free cut 		*Fiber Type : Multiple Core *Sensing distance(BR2/L999) : 140mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R5 *Fiber diameter : OD=Ø2.2 ID=Ø0.265x16/ Ø0.265x16
對照型 (Thrubeam)	PT-20ML-20 		*Fiber Type : Multiple Core *Sensing distance(BR2/L999) : 1000mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R5 *Fiber diameter : OD=Ø2.8 ID=Ø0.265x32
	PTC-SU10-20 Free cut 		*Fiber Type : High Precision *Sensing distance(BR2/L999) : 10mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R5 *Fiber diameter : OD=Ø2.2 ID=Ø0.265x16

Fiber Sensor

FZ1

BR1
/BR2
/BR3

PR
/PT

FR
/FT

Glass
Fiber

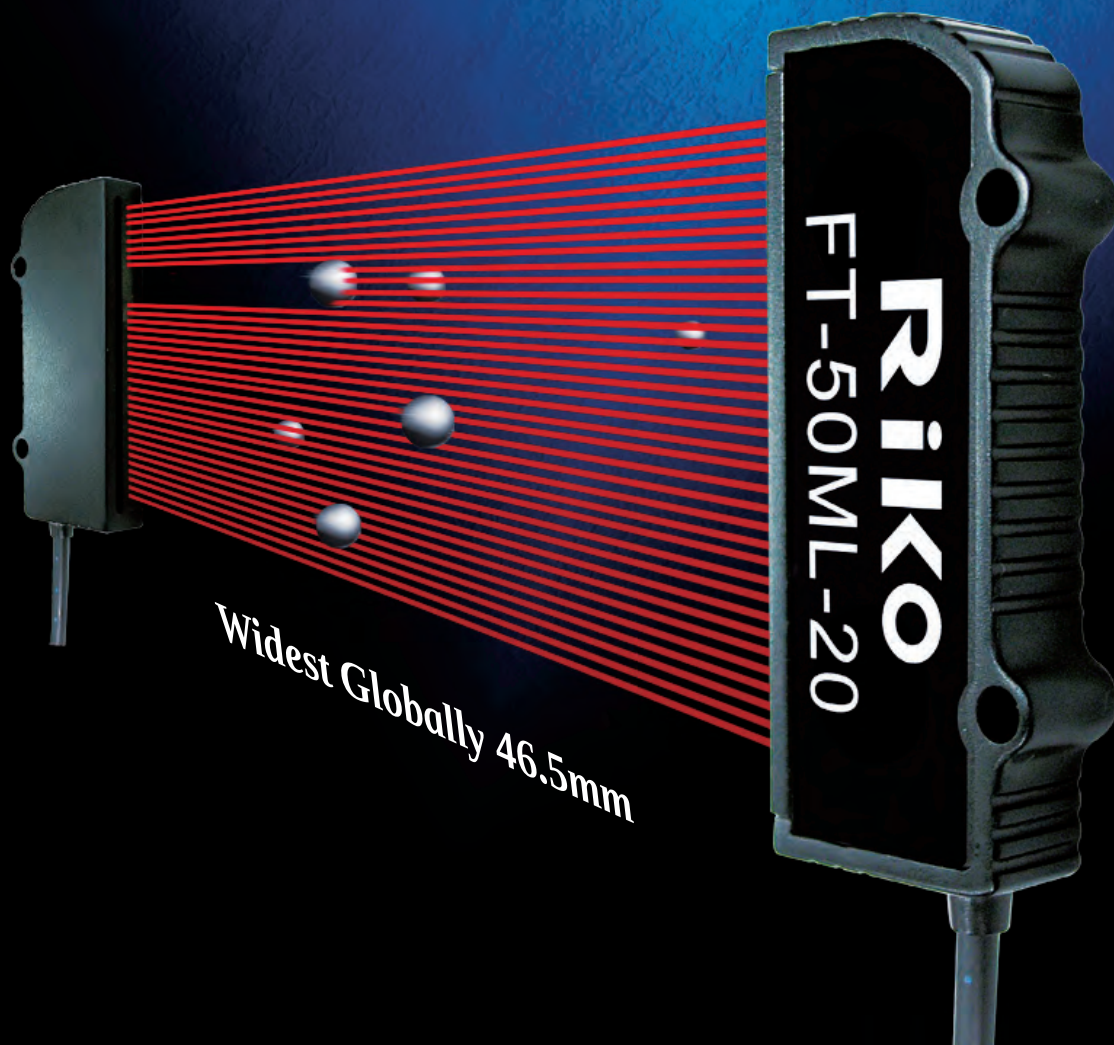
Light
Guide

Silica
Fiber

Acc.

FR/FT TYPE

Plastic Fiber Optics



Fiber customized for special dimension

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
反射型 (Reflective)	FR-620-F Free cut		*Fiber Type : Standard *Sensing distance(BR2/L999) : 180mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	FR-620-M-H33 Free cut		*Fiber Type : Standard *Sensing distance(BR2/L999) : 180mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	FR-620-KS5 Free cut		*Fiber Type : Standard *Sensing distance(BR2/L999) : 180mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.
	FRX-620 Free cut		*Fiber Type : Long Sensing Range *Sensing distance(BR2/L999) : 240mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R40 *Fiber diameter : OD=Ø2.2 ID=Ø1.5
	FR-520 Free cut		*Fiber Type : Standard *Sensing distance(BR2/L999) : 180mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
Ø5	FRC-520 Free cut		*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 140mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0x1/ Ø0.265x15

※ : M6 : Toothed Lock Washer Ø11
Width Across Flats 10mm, Thickness 2.5mm

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
M4	FRB-420 Free cut		*Fiber Type : Standard *Sensing distance(BR2/L999) : 160mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø1.3 ID=Ø1.0
	FRC-420-84BC Free cut		*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 60mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5x1/ Ø0.25x10
M3	FRC-310-35FA Free cut		*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 60mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5x1/ Ø0.25x10
	FRC-310-35FZ Free cut		*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 60mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5x1/ Ø0.25x10
	FRC4-310 Free cut		*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 14mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.0 ID=Ø0.25x4
Ø3	FRB-320-Q Free cut		*Fiber Type : Standard *Sensing distance(BR2/L999) : 160mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø1.3 ID=Ø1.0
Ø2	FRC-210-22X Free cut		*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 60mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø2.2 ID=Ø0.5x1/ Ø0.25x9

※ : M4 : Toothed Lock Washer Ø8.3
Width Across Flats 8mm, Thickness 2.3mm

※ : M3 : Toothed Lock Washer Ø6.4
Width Across Flats 5mm, Thickness 2.2mm

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
Ø1.5	FRC7-110-Q20		*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 40mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R5 *Fiber diameter : OD=Ø1.25 ID=Ø0.25x7
	FRC4-110 Free cut		*Fiber Type : Multiple Core *Sensing distance(BR2/L999) : 14mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R5 *Fiber diameter : OD=Ø1.0 ID=Ø0.25x4
	FRC4-110-H10 Free cut		*Fiber Type : Multiple Core *Sensing distance(BR2/L999) : 14mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.0 ID=Ø0.25x4
反射型 (Reflective) 特殊型 (Other Type)	FRC7-305-24X		*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 10mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R5 *Fiber diameter : ID=Ø0.175x7
	FRD-310-SQD Free cut Side view fiber		*Fiber Type : Precision *Sensing distance(BR2/L999) : 20mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5
	FR-FU40-20 Free cut		*Fiber Type : Reflective *Sensing distance(BR2/L999) : 480mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	FR-10ML-20 Free cut Array Fiber		*Fiber Type : Multiple Core *Sensing distance(BR2/L999) : 50mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R5 *Fiber diameter : OD=Ø1.25 ID=Ø0.25x9/ Ø0.25x9

Fiber Sensor

PR /PT

FR /FT

Glass Fiber

Light Guide

Silica Fiber

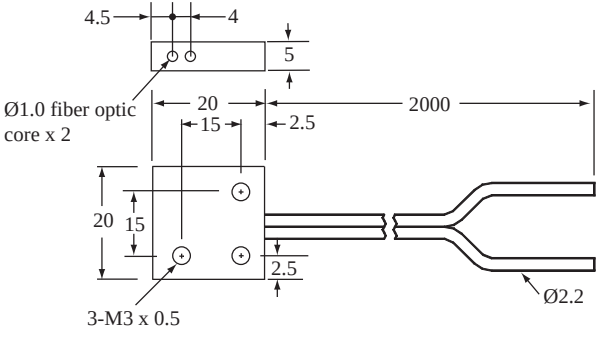
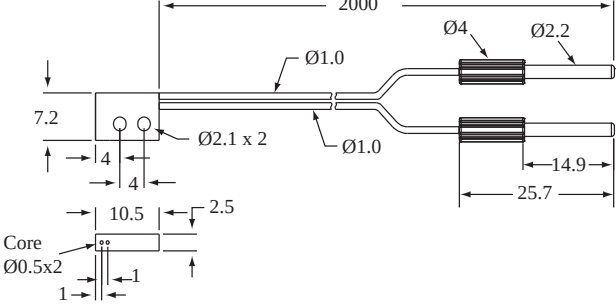
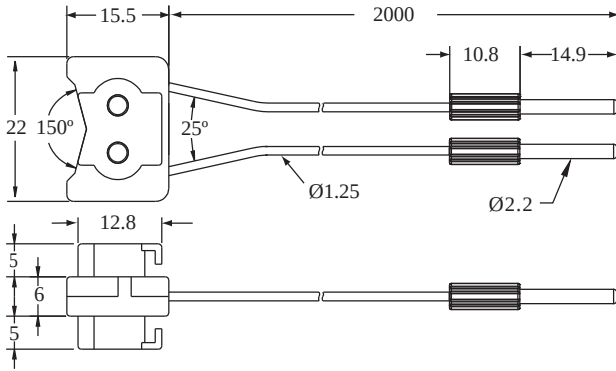
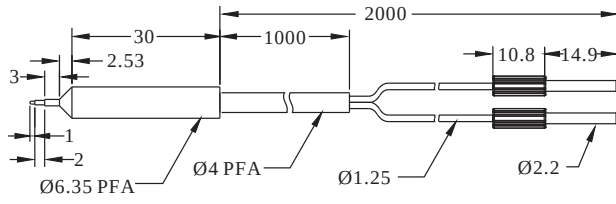
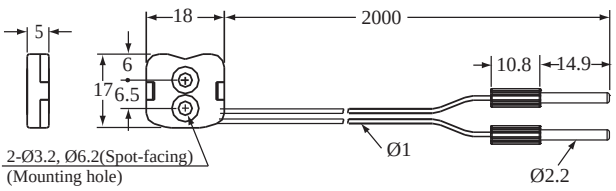
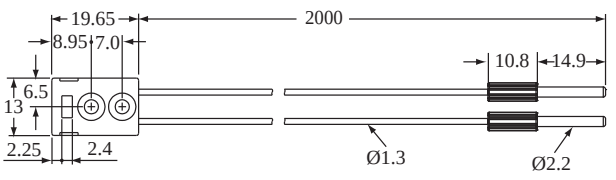
Acc.

Specifications / 規格表

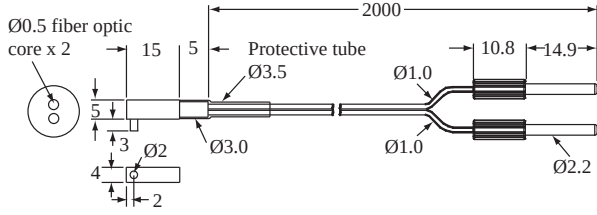
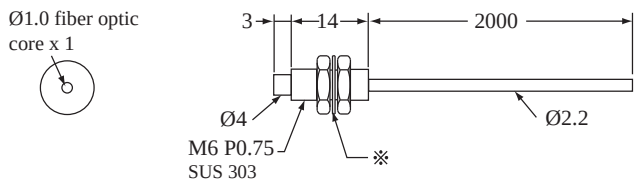
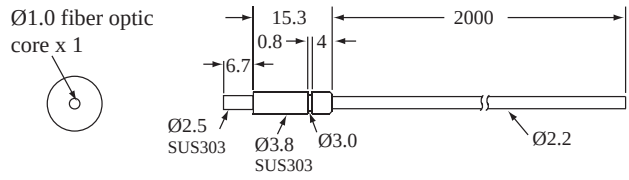
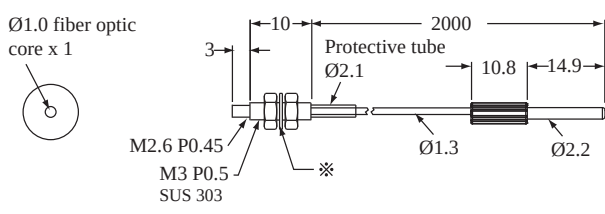
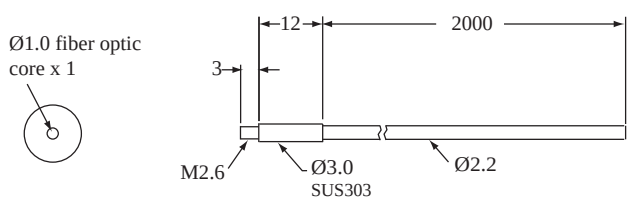
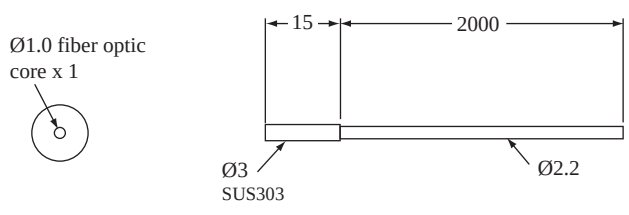
Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
Fiber Sensor PR /PT FR /FT Glass Fiber Light Guide Silica Fiber Acc.	FR-15MLD-20 Free cut Array Fiber Side view fiber		*Fiber Type : Multiple Core *Sensing distance(BR2/L999) : 40mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R5 *Fiber diameter : OD=Ø1.25 ID=Ø0.25x9/ Ø0.25x9
	FR-20ML-20 Free cut Array Fiber		*Fiber Type : Multiple Core *Sensing distance(BR2/L999) : 140mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R5 *Fiber diameter : OD=Ø2.2 ID=Ø0.265x16/ Ø0.265x16
	FR-20MLS-20 Free cut Array Fiber		*Fiber Type : Multiple Core *Sensing distance(BR2/L999) : 120mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R5 *Fiber diameter : OD=Ø2.2 ID=Ø0.265x16/ Ø0.265x16
	FR-30ML-20 Free cut Array Fiber Side view fiber		*Fiber Type : Multiple Core *Sensing distance(BR2/L999) : 140mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R5 *Fiber diameter : OD=Ø2.2 ID=Ø0.265x16/ Ø0.265x16
	FR-50ML-20 Free cut Array Fiber Side view fiber		*Fiber Type : Multiple Core *Sensing distance(BR2/L999) : 140mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R5 *Fiber diameter : OD=Ø2.2 ID=Ø0.265x16/ Ø0.265x16

 特殊型 (Other Type)
 反射型 (Reflective)

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
反射型 (Reflective) 特殊型 (Other Type)	FRY-20MLSD-20 Free cut Side view fiber 		*Fiber Type : Flexible *Sensing distance(BR2/L999) : 140mm *Operate temperature : -40℃~+70℃ *Minimum bending radius : R2 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	FRW-FU47-20 Free cut Side view fiber 		*Fiber Type : Flexible *Sensing distance(BR2/L999) : 1-16mm *Operate temperature : -40℃~+70℃ *Minimum bending radius : R1 *Fiber diameter : OD=Ø1.0 ID=Ø0.5
	FRD-FU901-20 Free cut 		*Fiber Type : Precision *Operate temperature : -55℃~+70℃ *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5
	FRJ-9310-20 Free cut 		*Material : Polyfluoroalkoxy (PFA) *Fiber Type : Precision *Operate temperature : -55℃~+70℃ *Minimum bending radius : R15/R40 *Fiber diameter : OD=Ø1.25 ID=Ø0.75
	FRW-K10-20 Free cut 		*Fiber Type : Flexible *Sensing distance(BR2/L999) : 5-10mm *Operate temperature : -40℃~+70℃ *Minimum bending radius : R1 *Fiber diameter : OD=Ø1.0 ID=Ø0.5
	FRB-38V-20 Free cut 		*Fiber Type : Standard *Sensing distance(BR2/L999) : 1-6mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R25 *Fiber diameter : OD=Ø1.3 ID=Ø1.0

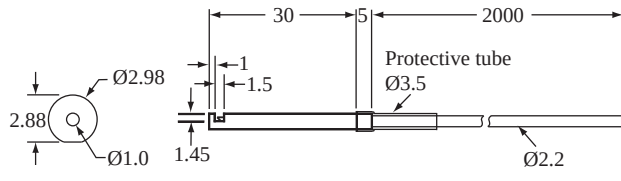
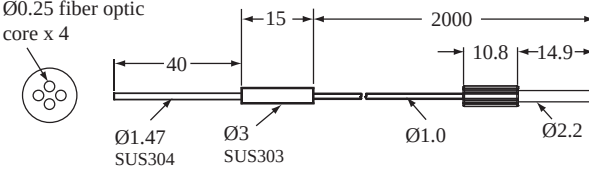
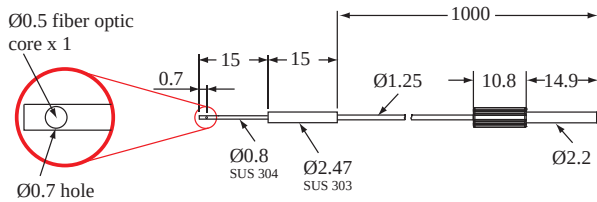
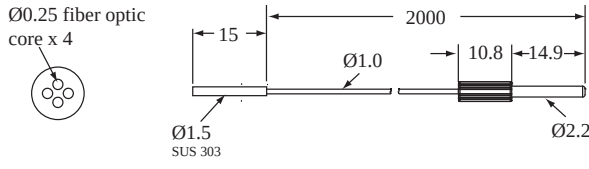
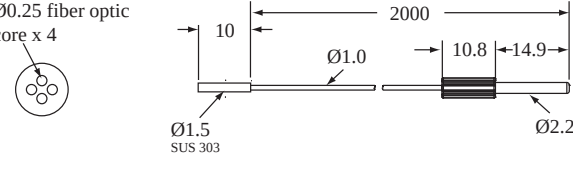
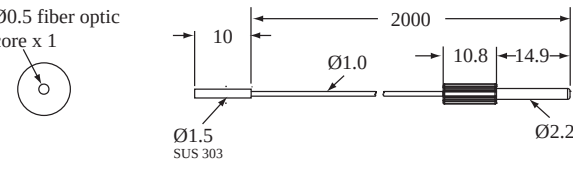
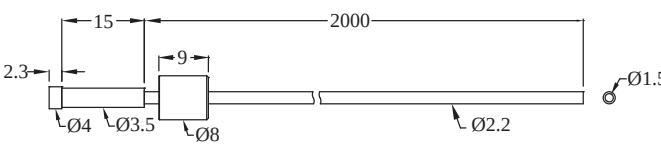
Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
反射型 (Reflective) 特殊型 (Other Type)	FRW-11-20 Free cut	 Ø0.5 fiber optic core x 2 Protective tube Ø3.5 2000 15 5 10.8 14.9 Ø3.0 Ø1.0 Ø1.0 Ø2.2 5 3 4 2	*Fiber Type : Flexible *Sensing distance(BR2/L999) : 40mm *Operate temperature : -40°C~+70°C *Minimum bending radius : R1 *Fiber diameter : OD=Ø1.0 ID=Ø0.5
標準型 (Thrubeam)	M6 FT-620 Free cut	 Ø1.0 fiber optic core x 1 3 14 2000 Ø4 Ø2.2 M6 P0.75 SUS 303	*Fiber Type : Standard *Sensing distance(BR2/L999) : 1000mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	Ø4 FTY-420-38G Free cut	 Ø1.0 fiber optic core x 1 15.3 0.8 4 2000 Ø2.5 Ø3.8 Ø3.0 Ø2.2 SUS303 SUS303	*Fiber Type : Standard *Sensing distance(BR2/L999) : 1000mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	M3 FTB-320-T80 Free cut	 Ø1.0 fiber optic core x 1 3 10 2000 Protective tube Ø2.1 10.8 14.9 M2.6 P0.45 M3 P0.5 SUS 303 Ø1.3 Ø2.2	*Fiber Type : Standard *Sensing distance(BR2/L999) : 800mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø1.3 ID=Ø1.0
	Ø3 FT-320-T004 Free cut	 Ø1.0 fiber optic core x 1 3 12 2000 M2.6 Ø3.0 Ø2.2 SUS303	*Fiber Type : Precision *Sensing distance(BR2/L999) : 1000mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	Ø3 FT-320-Q Free cut	 Ø1.0 fiber optic core x 1 15 2000 Ø3 Ø2.2 SUS303	*Fiber Type : Standard *Sensing distance(BR2/L999) : 1000mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0

※ : M6 : Toothed Lock Washer Ø11
Width Across Flats 10mm, Thickness 2.5mm

※ : M3 : Toothed Lock Washer Ø6.4
Width Across Flats 5mm, Thickness 2.2mm

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
Ø3	FT-320-D-T14L Free cut Side view fiber 		*Fiber Type : Standard *Sensing distance(BR2/L999) : 800mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	FTC4-320-MQ Free cut 		*Fiber Type : Multiple Core *Sensing distance(BR2/L999) : 200mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.0 ID=Ø0.25x4
	FTD-210-32 Free cut Side view fiber 		*Fiber Type : Precision *Sensing distance(BR2/L999) : 160mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.25 ID=Ø0.5
特照型 (Thrubeam) Ø1.5	FTC4-120 Free cut 		*Fiber Type : Multiple Core *Sensing distance(BR2/L999) : 200mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.0 ID=Ø0.25x4
	FTC4-120-59(H10) Free cut 		*Fiber Type : Multiple Core *Sensing distance(BR2/L999) : 200mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.0 ID=Ø0.25x4
	FTS-120-H10 Free cut 		*Fiber Type : Precision *Sensing distance(BR2/L999) : 260mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R15 *Fiber diameter : OD=Ø1.0 ID=Ø0.5
	FTX-20-U03 Free cut 		*Fiber Type : Long Sensing Distance *Operate temperature : -55℃~+70℃ *Minimum bending radius : R40 *Fiber diameter : OD=Ø2.2 ID=Ø1.5

Fiber Sensor

PR /PT

FR /FT

Glass Fiber

Light Guide

Silica Fiber

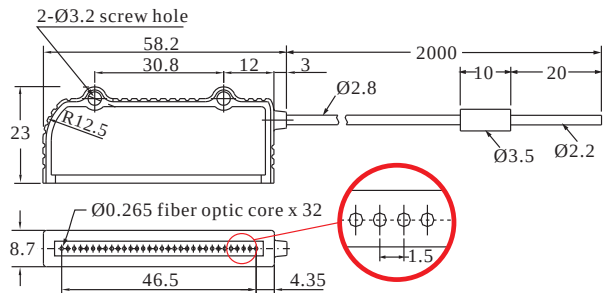
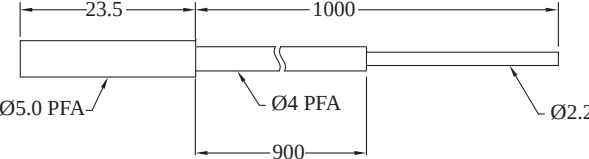
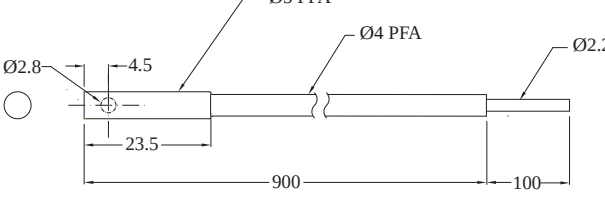
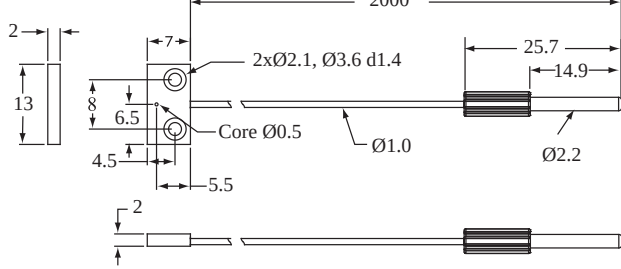
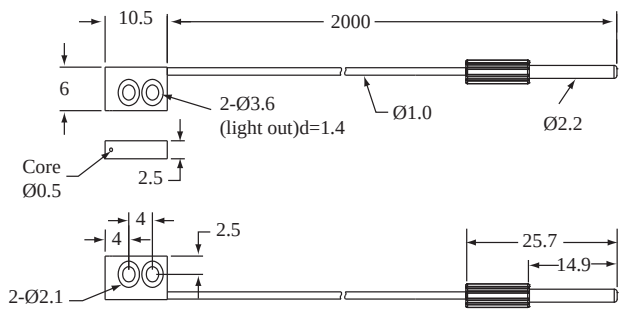
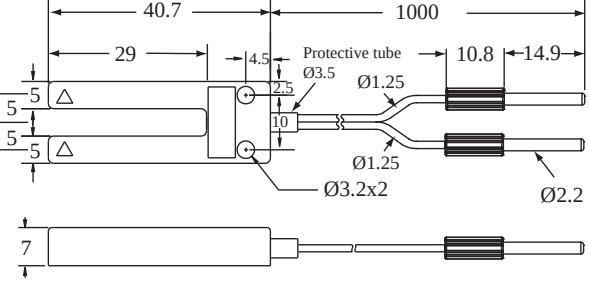
Acc.

Specifications / 規格表

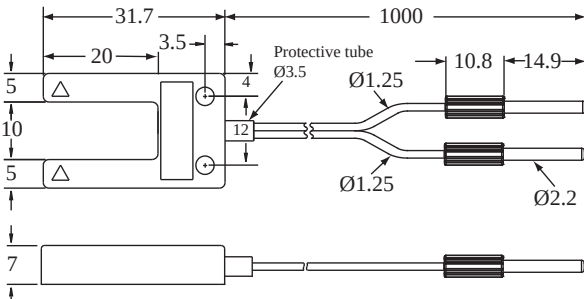
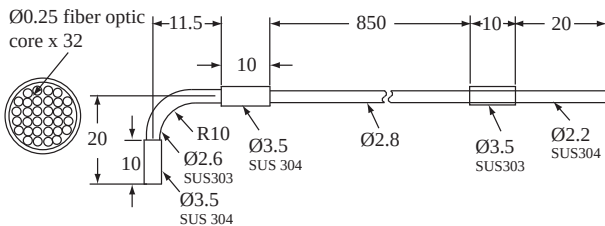
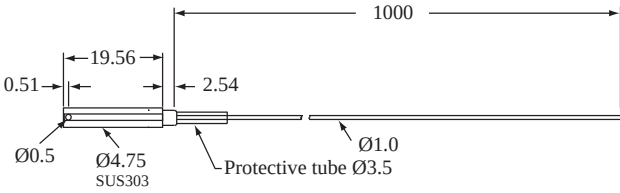
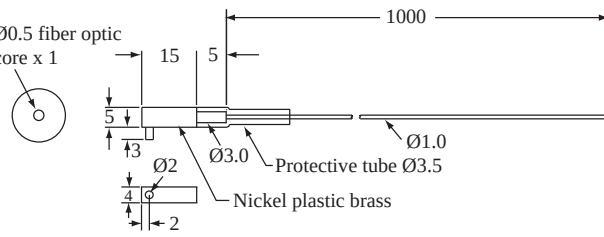
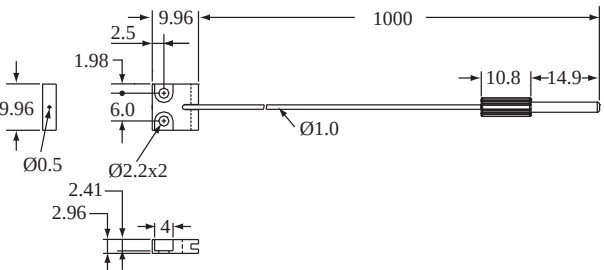
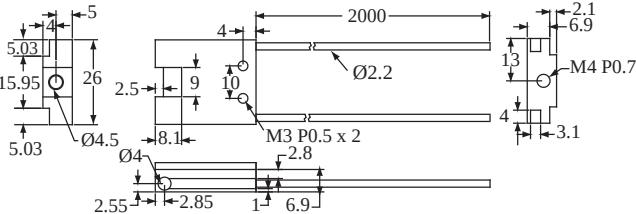
Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
Fiber Sensor PR /PT FR /FT Glass Fiber Light Guide Silica Fiber Acc.	FTX-35D-20 Free cut Side view fiber		*Fiber Type : Long Sensing Distance *Sensing distance(BR2/L999) : 1000mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R40 *Fiber diameter : OD=Ø2.2 ID=Ø1.5
	FT-10ML-10 Free cut		*Fiber Type : Multiple Core *Sensing distance(BR2/L999) : 1000mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R5 *Fiber diameter : OD=Ø2.2 ID=Ø0.265x16
	FT-10MLD-20 Free cut Array Fiber Side view fiber		*Fiber Type : Multiple Core *Sensing distance(BR2/L999) : 300mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R5 *Fiber diameter : OD=Ø2.2 ID=Ø0.265x16
	FT-15MLD-10 Free cut Array Fiber Side view fiber		*Fiber Type : Multiple Core *Sensing distance(BR2/L999) : 800mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R5 *Fiber diameter : OD=Ø2.2 ID=Ø0.265x16
	FT-20ML-10 Array Fiber		*Fiber Type : Multiple Core *Sensing distance(BR2/L999) : 1000mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R60 *Fiber diameter : OD=Ø2.8 ID=Ø0.265x32
	FT-30ML-20 Array Fiber Side view fiber		*Fiber Type : Multiple Core *Sensing distance(BR2/L999) : 600mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R60 *Fiber diameter : OD=Ø2.8 ID=Ø0.265x32

 特殊型 (Other Type)
 参照型 (Thru beam)

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
特殊型 (Other Type) 参照型 (Thrubeam)	FT-50ML-20 Array Fiber <u>Side view fiber</u> 	 2-Ø3.2 screw hole 58.2 30.8 12 3 2000 10 20 Ø2.8 Ø3.5 Ø2.2 R12.5 23 8.7 46.5 4.35 Ø0.265 fiber optic core x 32 1.5	*Fiber Type : Multiple Core *Sensing distance(BR2/L999) : 600mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R60 *Fiber diameter : OD=Ø2.8 ID=Ø0.265x32
	FT-9209-10L Free cut 	 23.5 1000 900 Ø5.0 PFA Ø4 PFA Ø2.2	*Material : Polyfluoroalkoxy (PFA) *Fiber Type : Standard *Sensing distance(BR2/L999) : 200mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R60 *Fiber diameter : OD=Ø5 ID=Ø1
	FTX-9609-10 Free cut <u>Side view fiber</u> 	 Ø5 PFA Ø4 PFA Ø2.2 Ø2.8 4.5 23.5 900 100	*Material : Polyfluoroalkoxy (PFA) *Fiber Type : Long Sensing Distance *Sensing distance(BR2/L999) : 200mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R60 *Fiber diameter : OD=Ø5 ID=Ø1.5
	FTW-FU53-20 Free cut <u>Side view fiber</u> 	 2 13 7 2000 25.7 14.9 2xØ2.1, Ø3.6 d1.4 Core Ø0.5 Ø1.0 Ø2.2 4.5 5.5 2	*Fiber Type : Flexible *Sensing distance(BR2/L999) : 80mm *Operate temperature : -40°C~+70°C *Minimum bending radius : R1 *Fiber diameter : OD=Ø1.0 ID=Ø0.5
	FTW-FU57-20 Free cut <u>Side view fiber</u> 	 10.5 2000 25.7 14.9 2-Ø3.6 (light out)d=1.4 Ø1.0 Ø2.2 Core Ø0.5 2.5 4 2.5 2-Ø2.1	*Fiber Type : Flexible *Sensing distance(BR2/L999) : 90mm *Operate temperature : -40°C~+70°C *Minimum bending radius : R1 *Fiber diameter : OD=Ø1.0 ID=Ø0.5
	FTA-SU05-10 Free cut 	 40.7 29 4.5 Protective tube Ø3.5 Ø1.25 10.8 14.9 Ø1.25 Ø3.2x2 Ø2.2 7	*Fiber Type : High Precision *Sensing distance(BR2/L999) : 5mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R10 *Fiber diameter : OD=Ø1.25 ID=Ø0.25

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
Fiber Sensor PR /PT FR /FT Glass Fiber Light Guide Silica Fiber Acc.	FTA-SU10-10 Free cut 		*Fiber Type : High Precision *Sensing distance(BR2/L999) : 10mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R5 *Fiber diameter : OD=Ø1.25 ID=Ø0.25
	FTC32-12 		*Fiber Type : Coaxial *Sensing distance(BR2/L999) : 1500mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R60 *Fiber diameter : OD=Ø2.8 ID=Ø0.25x32
	FTW-475D-10 Free cut Side view fiber 		*Fiber Type : Flexible *Sensing distance(BR2/L999) : 160mm *Operate temperature : -55°C~+70°C *Minimum bending radius : R1 *Fiber diameter : OD=Ø1.0 ID=Ø0.5
	FTW-11-10 Free cut 		*Fiber Type : Flexible *Sensing distance(BR2/L999) : 160mm *Operate temperature : -40°C~+70°C *Minimum bending radius : R1 *Fiber diameter : OD=Ø1.0 ID=Ø0.5
	FTW-10ML-10 Free cut 		*Fiber Type : Flexible *Sensing distance(BR2/L999) : 160mm *Operate temperature : -40°C~+70°C *Minimum bending radius : R1 *Fiber diameter : OD=Ø1.0 ID=Ø0.5
	FTY-U09-20 Free cut 		*Fiber Type : Flexible *Sensing distance(BR2/L999) : 9mm *Operate temperature : -40°C~+70°C *Minimum bending radius : R2 *Fiber diameter : OD=Ø2.2 ID=Ø1.0

 特殊型 (Other Type)
 兼照型 (Thrubeam)

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
反射型 (Reflective)	FRC-305-21X		*Fiber Type : Ultra Precision *Sensing distance(BR2/L999) : 25mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R5 *Fiber diameter : OD=Ø1.25 I D=Ø0.25x1/ Ø0.125x10
	FRN7-305		*Fiber Type : Ultra Precision *Sensing distance(BR2/L999) : 15mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R5 *Fiber diameter : OD=Ø1.25 I D=Ø0.125x7
	FRN4-110-S3 Free cut		*Fiber Type : Ultra Precision *Sensing distance(BR2/L999) : 10mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R5 *Fiber diameter : OD=Ø1.25 I D=Ø0.125x4
精密型 (Ultra-Precision Type)	FTN-305-S5Q		*Fiber Type : Ultra Precision *Sensing distance(BR2/L999) : 15mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R5 *Fiber diameter : OD=Ø2.2 I D=Ø0.125
	FTN-310-S51Q		*Fiber Type : Ultra Precision *Sensing distance(BR2/L999) : 15mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R5 *Fiber diameter : OD=Ø2.2 I D=Ø0.125
	FTN-205-S5		*Fiber Type : Ultra Precision *Sensing distance(BR2/L999) : 15mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R5 *Fiber diameter : OD=Ø1.25 I D=Ø0.125
	FTN-210-H10		*Fiber Type : Ultra Precision *Sensing distance(BR2/L999) : 15mm *Operate temperature : -55℃~+70℃ *Minimum bending radius : R5 *Fiber diameter : OD=Ø1.25 I D=Ø0.125

※ : M3 : Toothed Lock Washer Ø6.4
Width Across Flats 5mm, Thickness 2.2mm

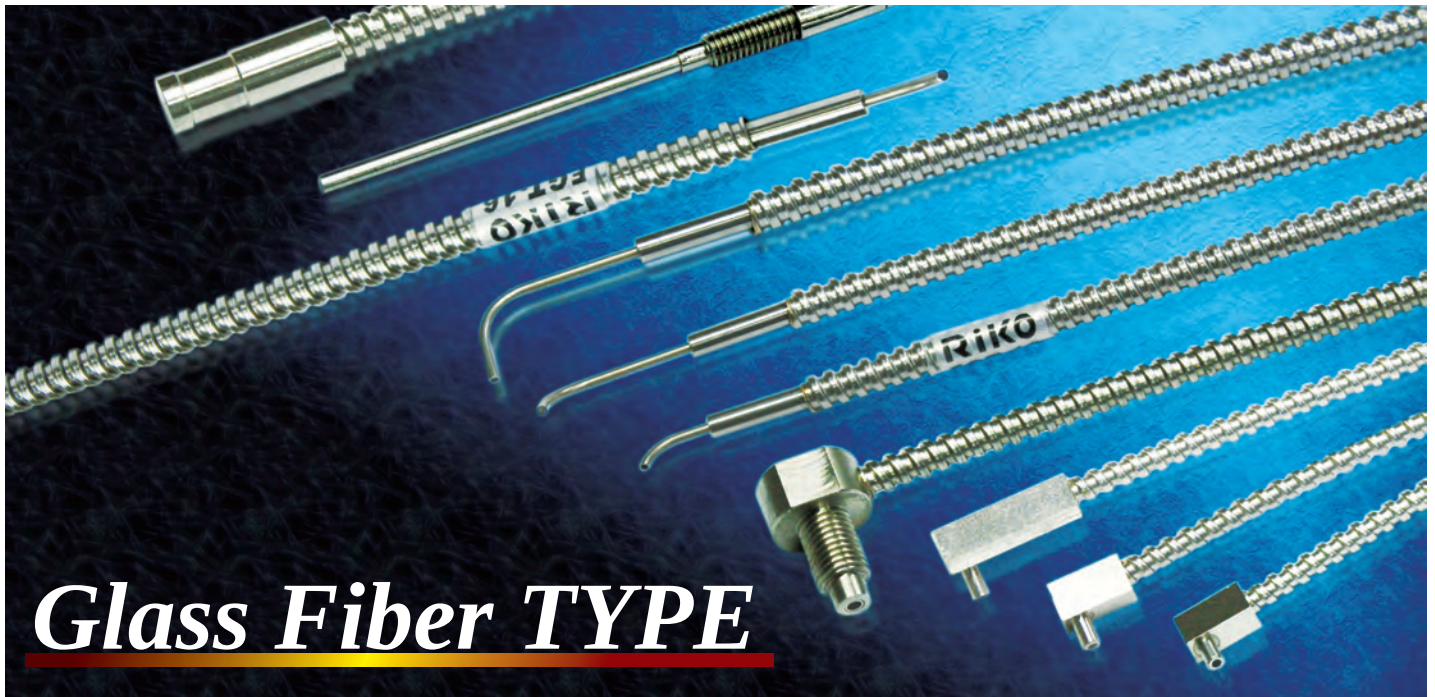
Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
Fiber Sensor PR /PT FR /FT Glass Fiber Light Guide Silica Fiber Acc. 反射型 (Reflective) 耐熱型 (Heat-Resistant Type) 挿照型 (Thrubeam)	FRH-620 Free cut		*Fiber Type : Heat Resistant *Sensing distance(BR2/L999) : 160mm *Operate temperature : -55°C~+105°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	FRH-520 Free cut		*Fiber Type : Heat Resistant *Sensing distance(BR2/L999) : 150mm *Operate temperature : -55°C~+105°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	FRH-38H-20 Free cut		*Fiber Type : Heat Resistant *Sensing distance(BR2/L999) : 5-18mm *Operate temperature : -55°C~+105°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	FTH-420-F1 Free cut		*Fiber Type : Heat Resistant *Sensing distance(BR2/L999) : 1200mm *Operate temperature : -55°C~+105°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	FTH-320 Free cut		*Fiber Type : Heat Resistant *Sensing distance(BR2/L999) : 800mm *Operate temperature : -55°C~+105°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0
	FTH-320-D Free cut Side view fiber		*Fiber Type : Heat Resistant *Sensing distance(BR2/L999) : 800mm *Operate temperature : -55°C~+105°C *Minimum bending radius : R25 *Fiber diameter : OD=Ø2.2 ID=Ø1.0

※ : M6 ; Toothed Lock Washer Ø11
 Width Across Flats 10mm, Thickness 2.5mm

※ : M4 ; Toothed Lock Washer Ø8.3
 Width Across Flats 8mm, Thickness 2.3mm

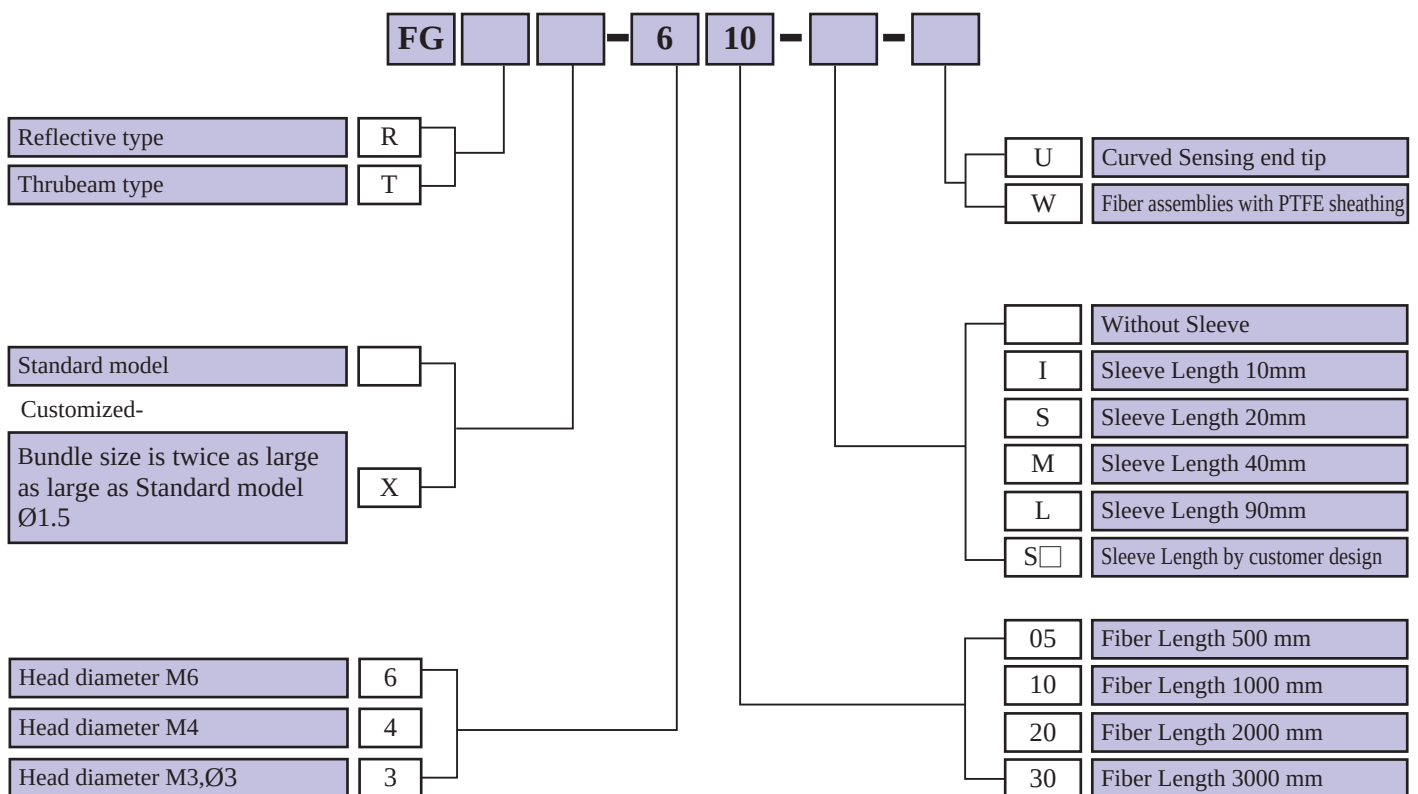
※ : M3 ; Toothed Lock Washer Ø6.4
 Width Across Flats 5mm, Thickness 2.2mm



Glass Fiber TYPE

Fiber customized for special dimension

◆Order Information :



Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
反射型 (Reflective)	FGR-310(R)		*Wavelength : 380nm~1300nm *Individual fiber diameter : $53 \mu\text{m} \pm 4 \mu\text{m}$ *Sensing distance(BR2/L999) : 160mm *Operate temperature : -40°C~+250°C *Minimum bending radius : R23
	FGR-410(R)		*Wavelength : 380nm~1300nm *Individual fiber diameter : $53 \mu\text{m} \pm 4 \mu\text{m}$ *Sensing distance(BR2/L999) : 160mm *Operate temperature : -40°C~+250°C *Minimum bending radius : R23
	FGR-410-M(R)		
	FGR-415-MU(R)		*Wavelength : 380nm~1300nm *Individual fiber diameter : $53 \mu\text{m} \pm 4 \mu\text{m}$ *Sensing distance(BR2/L999) : 160mm *Operate temperature : -40°C~+250°C *Minimum bending radius : R23
	FGR-610(R)		*Wavelength : 380nm~1300nm *Individual fiber diameter : $53 \mu\text{m} \pm 4 \mu\text{m}$ *Sensing distance(BR2/L999) : 160mm *Operate temperature : -40°C~+250°C *Minimum bending radius : R23
	FGR-610-M(R)		
	FGR-630-SU(R)		*Wavelength : 380nm~1300nm *Individual fiber diameter : $53 \mu\text{m} \pm 4 \mu\text{m}$ *Sensing distance(BR2/L999) : 160mm *Operate temperature : -40°C~+250°C *Minimum bending radius : R23

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
反射型 (Reflective)	FGR4-0606-10	Black anodized Aluminum Ø5.6 stainless steel protective tube Ø5.6 stainless steel protective tube	*Wavelength : 380nm~1300nm *Individual fiber diameter : $53\mu\text{m} \pm 4\mu\text{m}$ *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R19
	FGR3-BT23SM900	2 Jam nuts included 5/16-24 SUS303 Ø7.0 stainless steel protective tube Ø5.6 stainless steel protective tube	*Wavelength : 380nm~1300nm *Individual fiber diameter : $53\mu\text{m} \pm 4\mu\text{m}$ *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R24
	FGRC-610(R)	Ø1.8 receiver Borosilicate fiber bundle Ø6.5 SUS 303 Toothed Lock Washer Ø11 Width Across Flats 10mm Thickness 2.5mm Ø2.9 stainless steel protective tube Material : PP	*Wavelength : 380nm~1300nm *Individual fiber diameter : $53\mu\text{m} \pm 4\mu\text{m}$ *Sensing distance(BR2/L999) : 120mm *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R23
	FGR-38K-20(R)	Ø2.9 stainless steel protective tube Material : PP	*Wavelength : 380nm~1300nm *Individual fiber diameter : $53\mu\text{m} \pm 4\mu\text{m}$ *Sensing distance(BR2/L999) : 2~15mm *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R23
	FGR-67TG-20(R)	Ø3.8 stainless steel protective tube Ø2.9 stainless steel protective tube Material : PP	*Wavelength : 380nm~1300nm *Individual fiber diameter : $53\mu\text{m} \pm 4\mu\text{m}$ *Sensing distance(BR2/L999) : 160mm *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R24
	FGT-310(R)	Ø2.9 stainless steel protective tube Material : PP	*Wavelength : 380nm~1300nm *Individual fiber diameter : $53\mu\text{m} \pm 4\mu\text{m}$ *Sensing distance(BR2/L999) : 720mm *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R23
透照型 (Thrubeam)	FGT-410(R)	Ø2.9 stainless steel protective tube Material : PP	*Wavelength : 380nm~1300nm *Individual fiber diameter : $53\mu\text{m} \pm 4\mu\text{m}$ *Sensing distance(BR2/L999) : 720mm *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R23

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
特照型 (Thru beam)	FGTX-410(R)	$\varnothing 1.5$ 25.7 12.7 10 1000 10 15 $\varnothing 1.5$ 4.3 M2.6 M4 P0.7 SUS303 Toothed Lock Washer $\varnothing 8.3$ Width Across Flats 8mm Thickness 2.3mm $\varnothing 4.3$ $\varnothing 3.8$ stainless steel protective tube $\varnothing 4.6$ $\varnothing 2.2$ Material : PP (by customer design) 10 20 40 90 FGTX-410-I FGTX-410-S FGTX-410-M FGTX-410-L	*Wavelength : 380nm~1300nm *Individual fiber diameter : $53\mu\text{m} \pm 4\mu\text{m}$ *Sensing distance(BR2/L999) : 1000mm *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R23
	FGTX-410-M(R)		
	FGTX-410MU(R)	$\varnothing 2.0$ SUS304 15 3 10 1000 10 15 $\varnothing 1.5$ 4.3 R10 $\varnothing 2.6$ M4 P0.7 SUS303 Toothed Lock Washer $\varnothing 8.3$ Width Across Flats 8mm Thickness 2.3mm $\varnothing 4.3$ $\varnothing 3.8$ stainless steel protective tube $\varnothing 4.6$ $\varnothing 2.2$ Material : PP	*Wavelength : 380nm~1300nm *Individual fiber diameter : $53\mu\text{m} \pm 4\mu\text{m}$ *Sensing distance(BR2/L999) : 1000mm *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R23
	FGTX-420-U01	$\varnothing 1.5$ 3 10 2000 15 2.3 $\varnothing 1.5$ M2.6P0.45 M4P0.7 SUS303 Toothed Lock Washer $\varnothing 8.3$ Width Across Flats 8mm Thickness 2.3mm $\varnothing 4.3$ $\varnothing 2.6$(KS1.8N) $\varnothing 8$ $\varnothing 4$ $\varnothing 3.5$ 7.4 M5P0.8	*Wavelength : 380nm~1300nm *Individual fiber diameter : $53\mu\text{m} \pm 4\mu\text{m}$ *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R23
	FGTX-610(R)	$\varnothing 1.5$ 3 14 1000 10 15 $\varnothing 1.5$ 4.3 $\varnothing 4.0$ M6 P0.75 SUS303 Toothed Lock Washer $\varnothing 11$ Width Across Flats 10mm Thickness 2.5mm $\varnothing 3.8$ stainless steel protective tube $\varnothing 4.6$ $\varnothing 2.2$ Material : PP	*Wavelength : 380nm~1300nm *Individual fiber diameter : $53\mu\text{m} \pm 4\mu\text{m}$ *Sensing distance(BR2/L999) : 1000mm *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R23
	FGTX-403U	R20 35 300 20 4 2 $\varnothing 1.5$ $\varnothing 4.6$ SUS304 $\varnothing 2.9$ stainless steel protective tube Toothed Lock Washer $\varnothing 8.3$ Width Across Flats 8mm Thickness 2.3mm M4 P0.7 SUS303 $\varnothing 10$ Nickel plated brass M8 $\varnothing 3.5$ $\varnothing 6.1$ $\varnothing 2.2$ SUS304 $\varnothing 3.6$ $\varnothing 3.6$ Nickel plated brass	*Wavelength : 380nm~1300nm *Individual fiber diameter : $53\mu\text{m} \pm 4\mu\text{m}$ *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R23

Fiber Sensor

FZ1

BR1
/BR2
/BR3PR
/PTFR
/FTGlass
FiberLight
GuideSilica
Fiber

Acc.

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
特照型 (Thru beam) Fiber Sensor FZ1 BR1 /BR2 /BR3 PR /PT FR /FT Glass Fiber Light Guide Silica Fiber Acc.	FGTX-406-U01		*Wavelength : 380nm~1300nm *Individual fiber diameter : $53\mu\text{m} \pm 4\mu\text{m}$ *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R23
	FGT-11-10(R)		*Wavelength : 380nm~1300nm *Individual fiber diameter : $53\mu\text{m} \pm 4\mu\text{m}$ *Sensing distance(BR2/L999) : 1000mm *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R23
	FGT-12		*Wavelength : 380nm~1300nm *Individual fiber diameter : $53\mu\text{m} \pm 4\mu\text{m}$ *Sensing distance(BR2/L999) : 1000mm *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R23
	FGT-13		*Wavelength : 380nm~1300nm *Individual fiber diameter : $53\mu\text{m} \pm 4\mu\text{m}$ *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R23
	FGT16		*Wavelength : 380nm~1300nm *Individual fiber diameter : $53\mu\text{m} \pm 4\mu\text{m}$ *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R18
	FGT-4747-10		*Wavelength : 380nm~1300nm *Individual fiber diameter : $53\mu\text{m} \pm 4\mu\text{m}$ *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R19

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
特照型 (Thru beam)	FGT-475D		*Wavelength : 380nm~1300nm *Individual fiber diameter : $53\mu\text{m} \pm 4\mu\text{m}$ *Sensing distance(BR2/L999) : 100mm *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R23
	FGT-475DW-10		*Wavelength : 380nm~1300nm *Individual fiber diameter : $53\mu\text{m} \pm 4\mu\text{m}$ *Sensing distance(BR2/L999) : 100mm *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R10
	FGT2-LM32-45-10		*Wavelength : 380nm~1300nm *Individual fiber diameter : $53\mu\text{m} \pm 4\mu\text{m}$ *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R18
	FGT3-IT23SM900		*Wavelength : 380nm~1300nm *Individual fiber diameter : $53\mu\text{m} \pm 4\mu\text{m}$ *Sensing distance(BR2/L999) : 160mm *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R19
	FGT-0606-20 One fiber only		*Wavelength : 380nm~1300nm *Individual fiber diameter : $53\mu\text{m} \pm 4\mu\text{m}$ *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R25
	FGT3-0505-10 One fiber only		*Wavelength : 380nm~1300nm *Individual fiber diameter : $53\mu\text{m} \pm 4\mu\text{m}$ *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R20

Fiber Sensor

FZ1

BR1
/BR2
/BR3

PR
/PT

FR
/FT

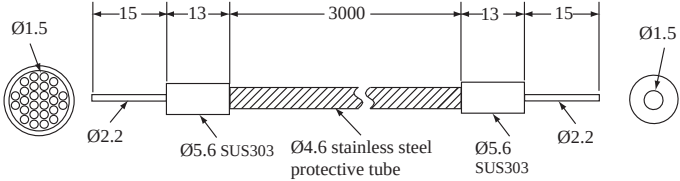
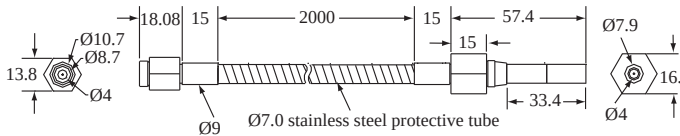
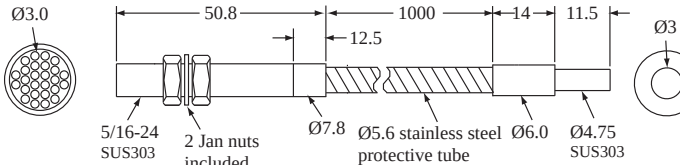
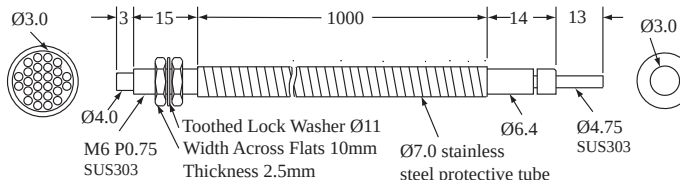
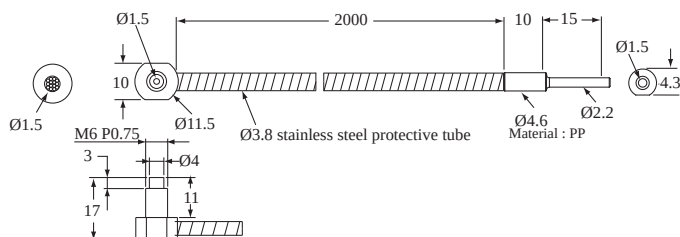
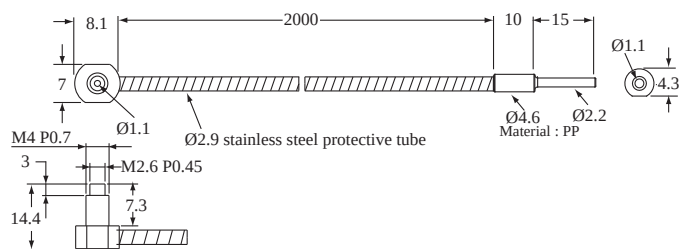
Glass
Fiber

Light
Guide

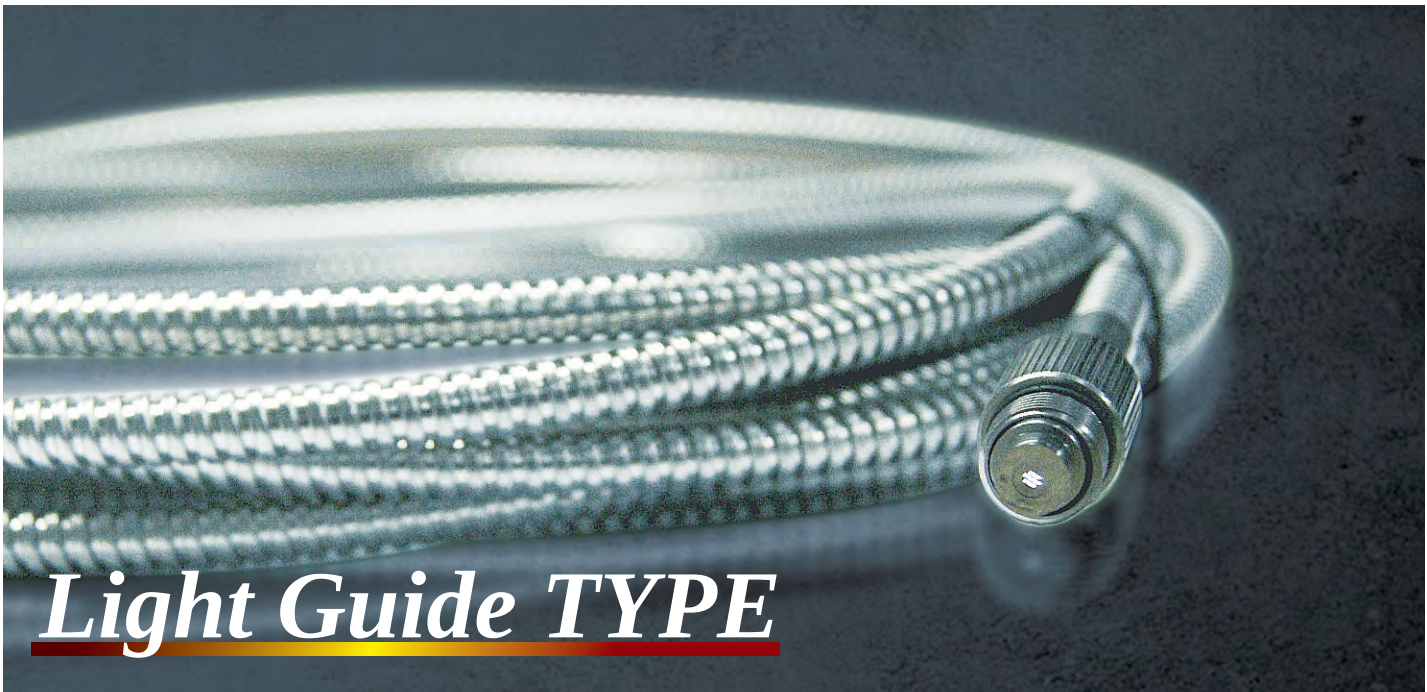
Silica
Fiber

Acc.

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
Fiber Sensor FZ1 BR1 /BR2 /BR3 PR /PT FR /FT Glass Fiber Light Guide Silica Fiber Acc.	FGTX-5656-30 One fiber only		*Wavelength : 380nm~1300nm *Individual fiber diameter : $53 \mu\text{m} \pm 4 \mu\text{m}$ *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R20
	FGT4-08M12-20 One fiber only		*Wavelength : 380nm~1300nm *Individual fiber diameter : $53 \mu\text{m} \pm 4 \mu\text{m}$ *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R24
	FGT-4708-10		*Wavelength : 380nm~1300nm *Individual fiber diameter : $53 \mu\text{m} \pm 4 \mu\text{m}$ *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R23
	FGT-4706-10		*Wavelength : 380nm~1300nm *Individual fiber diameter : $70 \mu\text{m} \pm 4 \mu\text{m}$ *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R24
	FGTX-67TG-20(R)		*Wavelength : 380nm~1300nm *Individual fiber diameter : $50 \mu\text{m} \pm 4 \mu\text{m}$ *Sensing distance(BR2/L999) : 1000mm *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R24
	FGT-77TG-20(R)		*Wavelength : 380nm~1300nm *Individual fiber diameter : $50 \mu\text{m} \pm 4 \mu\text{m}$ *Sensing distance(BR2/L999) : 500mm *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R24

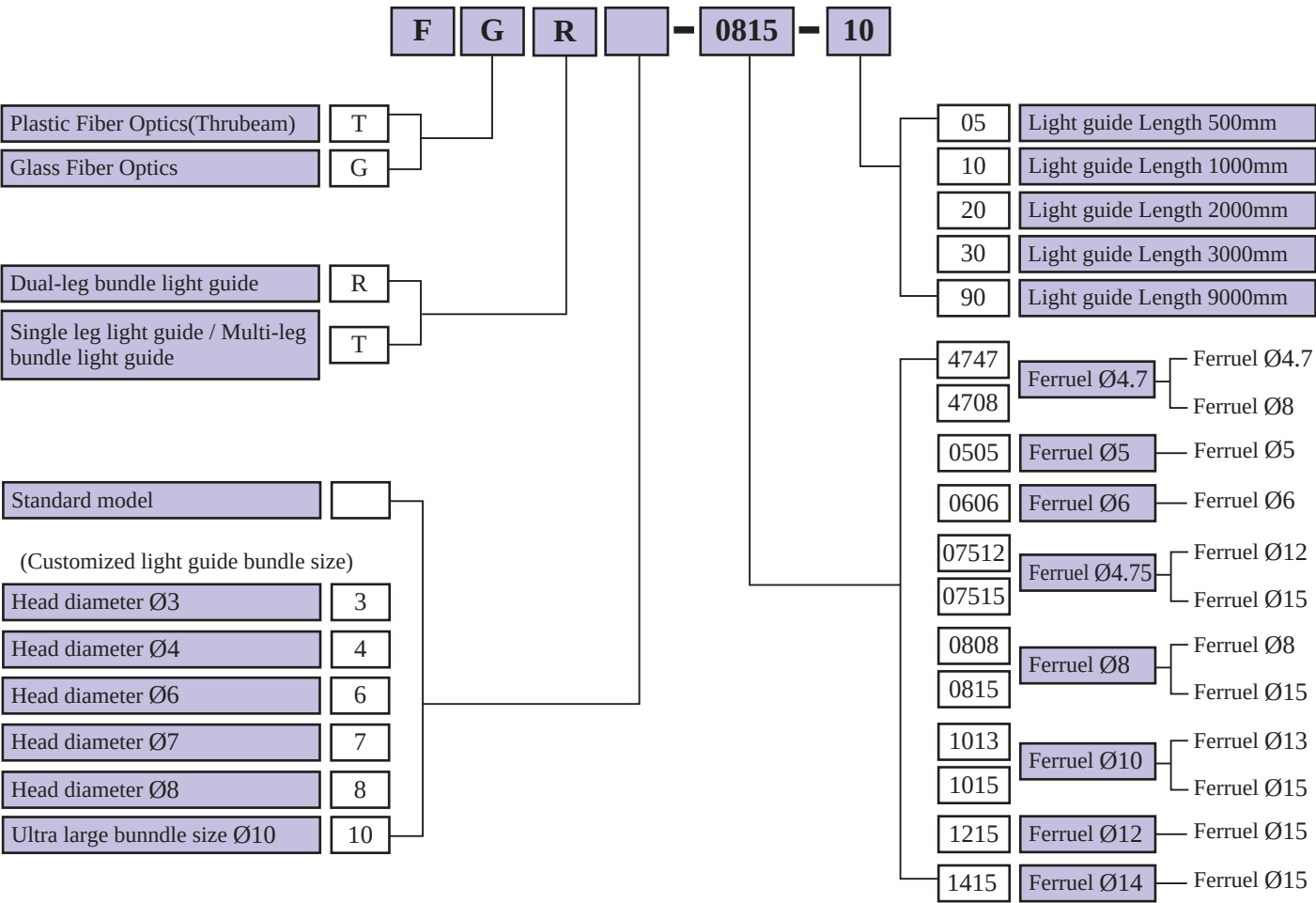
封入型 (Tube type)



Light Guide TYPE

Fiber customized for special dimension

◆Order Information :



Fiber Sensor

Photo / Area Photo / Ultrasonic Sensor

Inductive / Capacitive Proximity Sensor

Others

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
塑膠光導管 (Plastic Fiber Light Guide) 對照型 (Thrubeam)	FT-8515-30		*Operate temperature : -55°C ~ +70°C *Minimum bending radius : R40
	FT-3430IKS		*Operate temperature : -55°C ~ +70°C *Minimum bending radius : R50
玻璃光導管 (Glass Fiber Light Guide) 反射型 (Reflective)	FGR-0815-10		*Wavelength : 380nm~1300nm *Individual fiber diameter : 100 μm ± 4 μm *Operate temperature : -40°C ~ +250°C *Minimum bending radius : R30
	FGR-0815-10-H20		*Wavelength : 380nm~1300nm *Individual fiber diameter : 100 μm ± 4 μm *Operate temperature : -40°C ~ +250°C *Minimum bending radius : R30
	FGR-1215-10-H31		*Wavelength : 380nm~1300nm *Individual fiber diameter : 100 μm ± 4 μm *Operate temperature : -40°C ~ +250°C *Minimum bending radius : R30
	FGR10-211-25		*Wavelength : 380nm~1300nm *Individual fiber diameter : 50 μm ± 4 μm *Operate temperature : -40°C ~ +250°C *Minimum bending radius : R23
	FGR-1016-10		*Wavelength : 380nm~1300nm *Individual fiber diameter : 100 μm ± 4 μm *Operate temperature : -40°C ~ +250°C *Minimum bending radius : R23

Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
玻璃光導管 (Glass Fiber Light Guide)	FGT-0815-10		*Wavelength : 380nm~1300nm *Individual fiber diameter : $100\mu\text{m} \pm 4\mu\text{m}$ *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R30
	FGT-0808-10		*Wavelength : 380nm~1300nm *Individual fiber diameter : $100\mu\text{m} \pm 4\mu\text{m}$ *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R30
	FGT-0815-20-H21		*Wavelength : 380nm~1300nm *Individual fiber diameter : $100\mu\text{m} \pm 4\mu\text{m}$ *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R30
	FGT10-1415-30		*Wavelength : 380nm~1300nm *Individual fiber diameter : $100\mu\text{m} \pm 4\mu\text{m}$ *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R31
	FGT-1016-20		*Wavelength : 380nm~1300nm *Individual fiber diameter : $100\mu\text{m} \pm 4\mu\text{m}$ *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R30
	FGT-1015-10-H21		*Wavelength : 380nm~1300nm *Individual fiber diameter : $100\mu\text{m} \pm 4\mu\text{m}$ *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R30
	FGT7-0815-10		*Wavelength : 380nm~1300nm *Individual fiber diameter : $50\mu\text{m} \pm 4\mu\text{m}$ *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R30
	FGT-1215-10		*Wavelength : 380nm~1300nm *Individual fiber diameter : $100\mu\text{m} \pm 4\mu\text{m}$ *Operate temperature : $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$ *Minimum bending radius : R30

Fiber Sensor

FZ1

BR1
/BR2
/BR3

PR
/PT

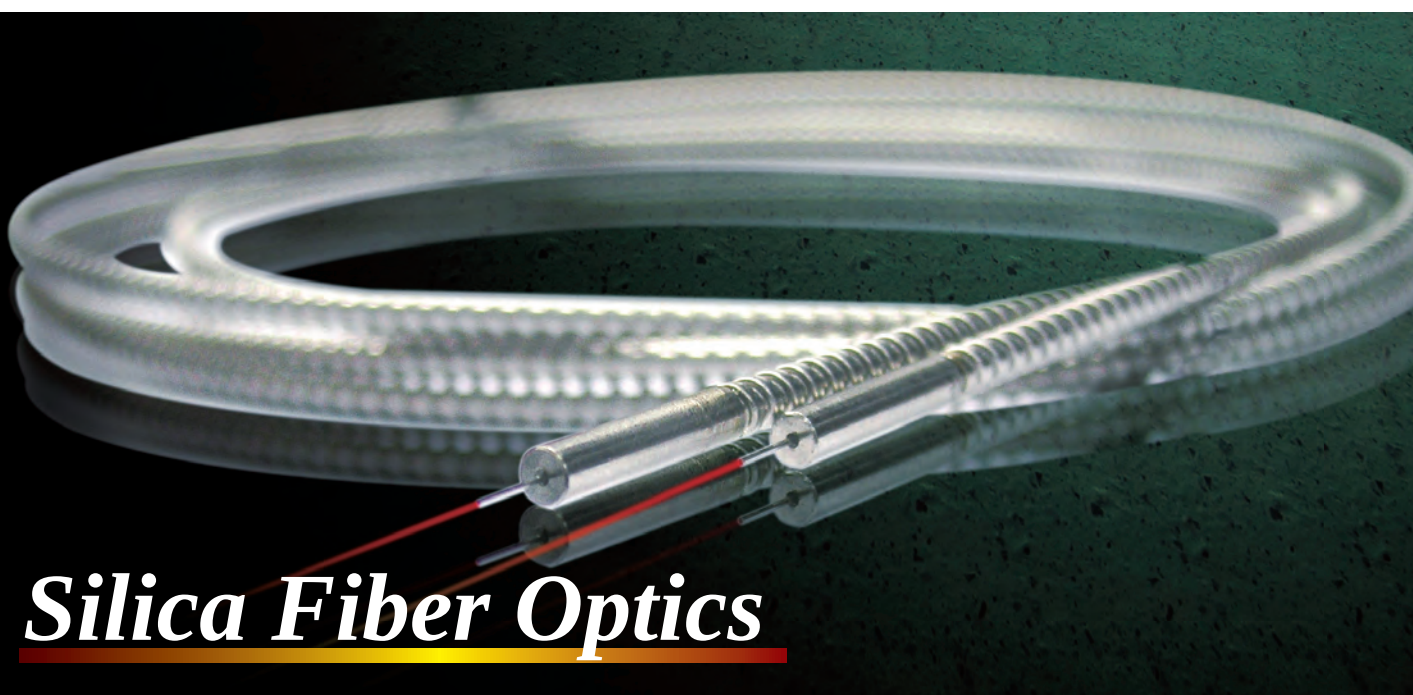
FR
/FT

Glass
Fiber

Light
Guide

Silica
Fiber

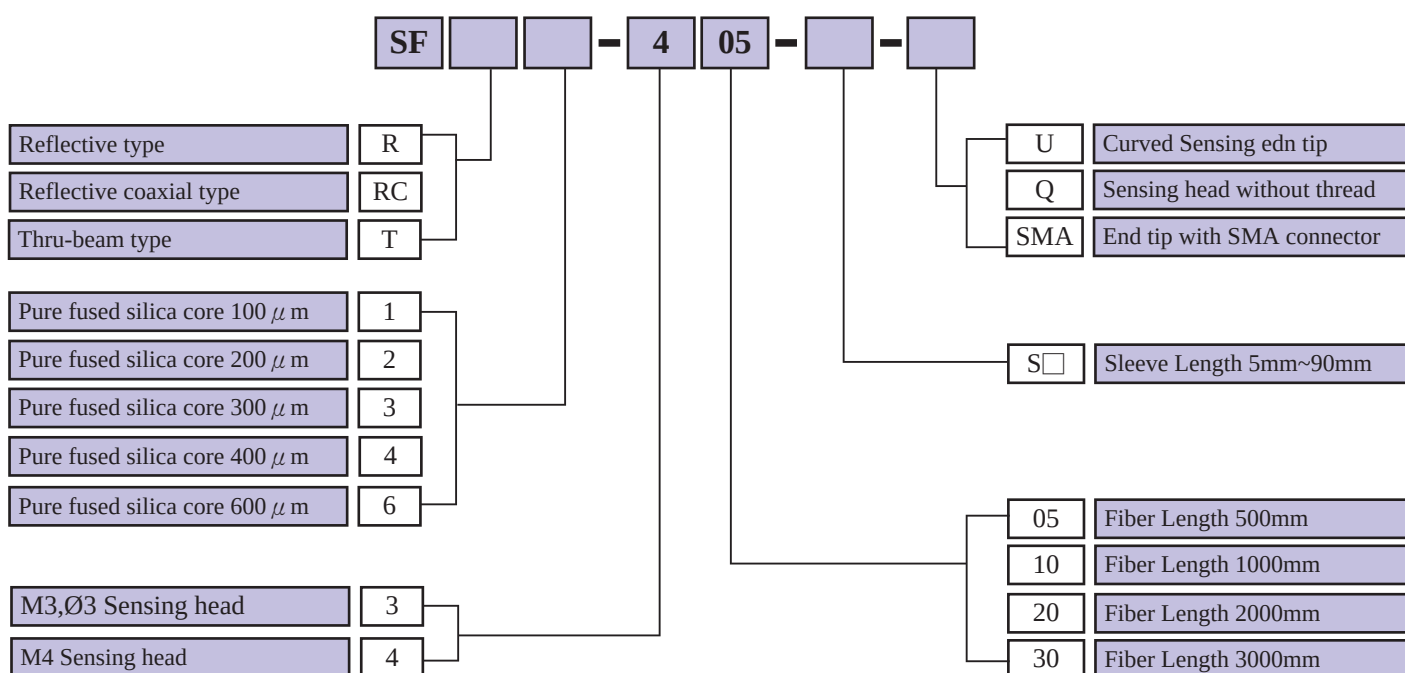
Acc.



Silica Fiber Optics

Fiber customized for special dimension

◆Order Information :



Specifications / 規格表

Type	型號/ Model	尺寸/ Dimensions	規格/ Datasheet
反射型 (Reflective)	SFRC-310-MU		*Wavelength : 180nm~1100nm *Individual fiber diameter : 100 µm / 400 µm *Number of fibers : 66/1 *Operate temperature : -40°C~+250°C *Active area diameter : Ø1.2
	SFRC-305-21X		*Wavelength : 180nm~1100nm *Individual fiber diameter : 100 µm / 400 µm *Number of fibers : 14/1 *Operate temperature : -40°C~+250°C *Active area diameter : Ø0.7
對照型 (Thru beam)	SFT1-310-S51Q		*Wavelength : 220nm~700nm *Individual fiber diameter : 100 µm *Number of fibers : 1 *Operate temperature : -40°C~+70°C
	SFT1-310-S5Q		*Wavelength : 220nm~700nm *Individual fiber diameter : 100 µm *Number of fibers : 1 *Operate temperature : -40°C~+70°C
	SFT2-30-SMA		*Wavelength : 220nm~700nm *Individual fiber diameter : 200 µm *Number of fibers : 1 *Operate temperature : -40°C~+70°C
	SFT3-28-SMA		*Wavelength : 220nm~700nm *Individual fiber diameter : 300 µm *Number of fibers : 1 *Operate temperature : -40°C~+70°C
	SFT4-320-SMA		*Wavelength : 220nm~700nm *Individual fiber diameter : 400 µm *Number of fibers : 1 *Operate temperature : -40°C~+250°C
	SFT1-20-SMA		*Wavelength : 220nm~700nm *Individual fiber diameter : 100 µm *Number of fibers : 1 *Operate temperature : -40°C~+70°C

Fiber Sensor

FZ1

BR1
/BR2
/BR3

PR
/PT

FR
/FT

Glass
Fiber

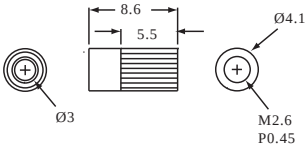
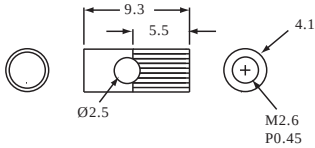
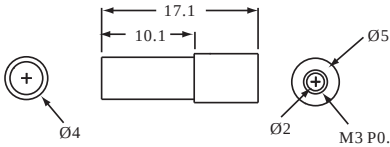
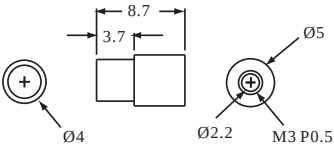
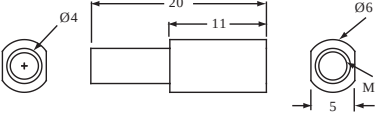
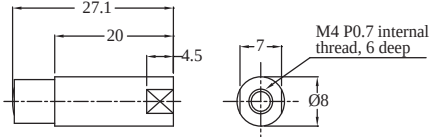
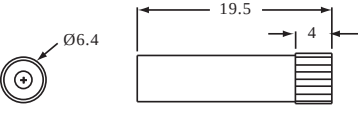
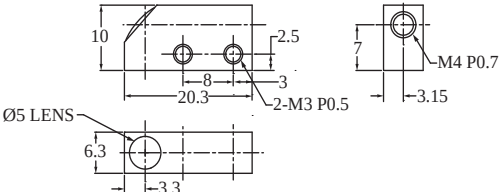
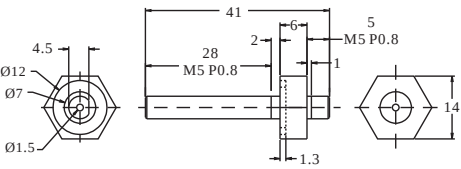
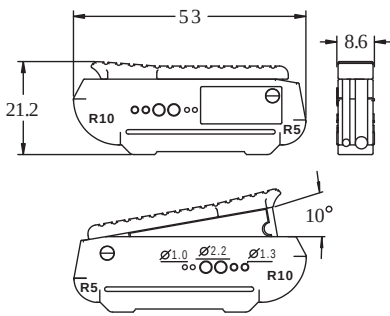
Light
Guide

Silica
Fiber

Acc.

Accessories / 配件

LENS / 聚焦鏡

Product	Dimensions	Product	Dimensions
FL-M02 	 PT fiber type Scanning distance is increased 4 times if this FL-M02 unit is attached to the light emitter and receiver of a thru - scan fiber unit.	FLS-M02 	 PT-410 unit can be changed to aside view type by attaching this unit to the light emitter or receiver of fiber unit.
FL-M03 	 Light converges to a spot diameter of 0.5mm if this unit is attached to a fiber unit at a distance of 8mm.	FL-M03-1 	 Light converges to a spot diameter of 2mm if this unit is attached to a fiber unit at a distance of 8mm.
FL-M04 	 Light converges to a spot diameter of 0.7mm if this unit is attached to a fiber unit at a distance of 10mm.	FL-M04-1 	 Light converges to a spot diameter of 0.7 to 2.0 mm if this unit is attached to a fiber unit at a distance of 18.5 to 43 mm.
FL-M06 	 FTX-410 Scanning distance is increased 8 times if this unit is attached to the light emitter and receiver of a thru - scan fiber unit.	FLS-M04 	 Light converges to a spot diameter of 0.5 to 3.0 mm if this unit is attached to a fiber unit at a distance of 13 to 30 mm.
Heat resistant adapter / 高溫轉接頭		Fiber Cutter / 光纖切刀	
FTG015-05041 	 - Suitable for High Temperature and Vacuum Environment Operating Temperature: -40°C ~ 250°C. - Effective against Air under Vacuum Sensing. - Connected to a Plastic Fiber Sensor Applied in High Temperature Environment.	C5321 	

Handwriting practice lines consisting of 20 horizontal dotted lines.

- Fiber Sensor
- FZ1
- BR1 /BR2 /BR3
- PR /PT
- FR /FT
- Glass Fiber
- Light Guide
- Silica Fiber
- Acc.

Photo / Area photo / Ultrasonic Sensor



Long Sensing Range Photo Sensor
/長距離檢測方型光電開關

R5JM

095

R3JK

096

Superior Waterproof T-style Photo Sensor
/高防水性T型光電開關

PTQ18

099

Tubular Photo Sensor
/圓管型光電開關

PMF

101

RMF

102

MMF

105

Miniature Photo Sensor
/光電開關

PK3

107

PK5

111

PM6

112

U-shape Photo Sensor
/U型光電開關

SU

113

SU15

114

SU07

116

SU30

118

Micro Photo Sensor
/小型光電開關

SPR

121

RX

122

Area Photo Sensor
/一般使用區域光幕

OAP

126

ASP

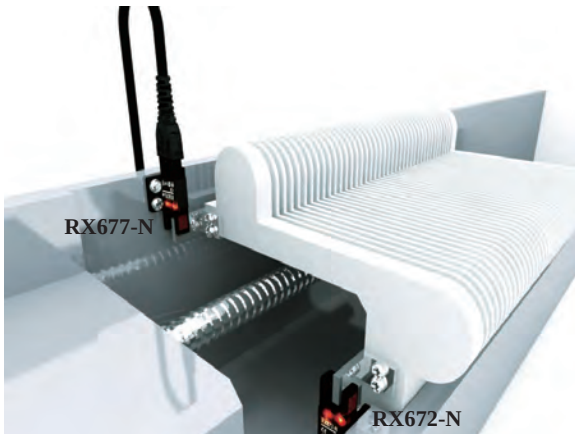
134

Ultrasonic Amplifier
/超音波開關

RU18

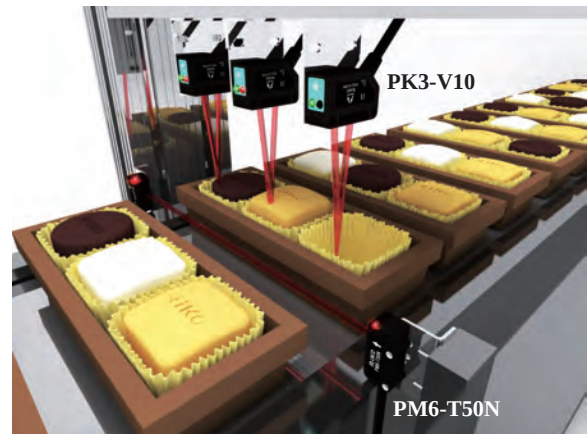
143

P0001 Page 122 / Page 123



Detecting postions of rails.
檢測滑軌位置

P0002 Page 109 / Page 112



Detecting chocalate presence and passing.
檢測巧克力通過及有無

P0003 Page 111

Ultra slim body(3.5x15x19mm) / 體積薄



Detecting presence of cap.
檢測有無瓶蓋

P0004 Page 111

Ultra slim body(3.5x15x19mm) / 體積薄



Detecting presence of cap.
檢測有無瓶蓋

P0005 Page 143



To detect the mirror surface object.
鏡面物體檢測

P0006 Page 143



To detect the level of tank.
檢測桶槽料位

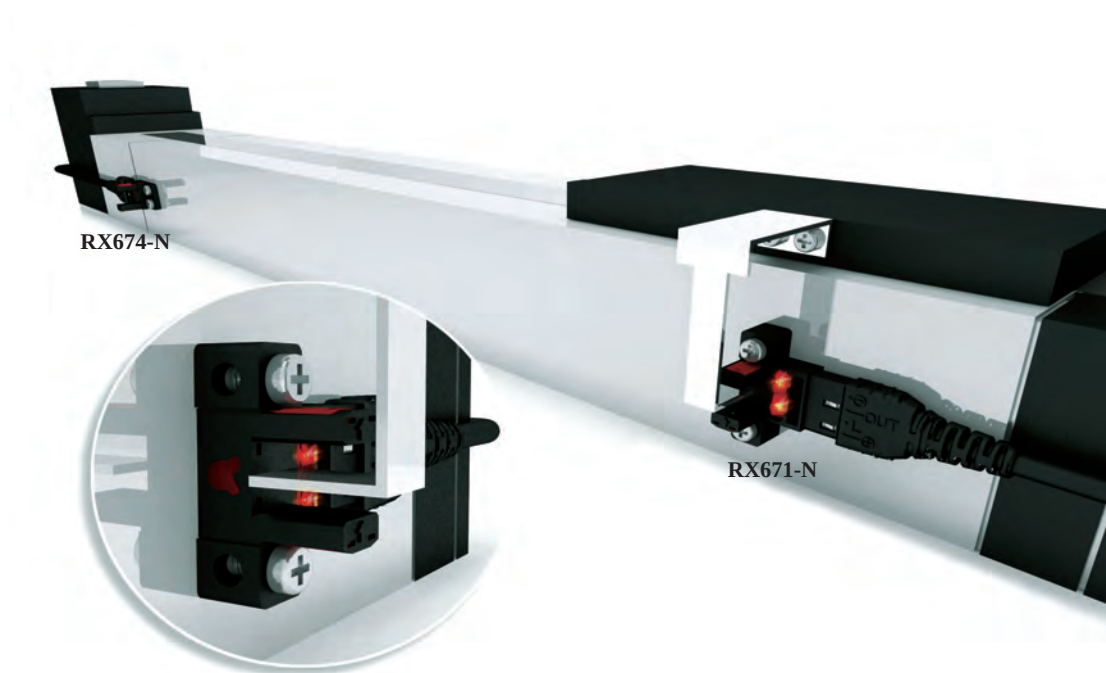
Fiber Sensor

Photo / Area Photo / Ultrasonic Sensor

Inductive / Capacitive Proximity Sensor

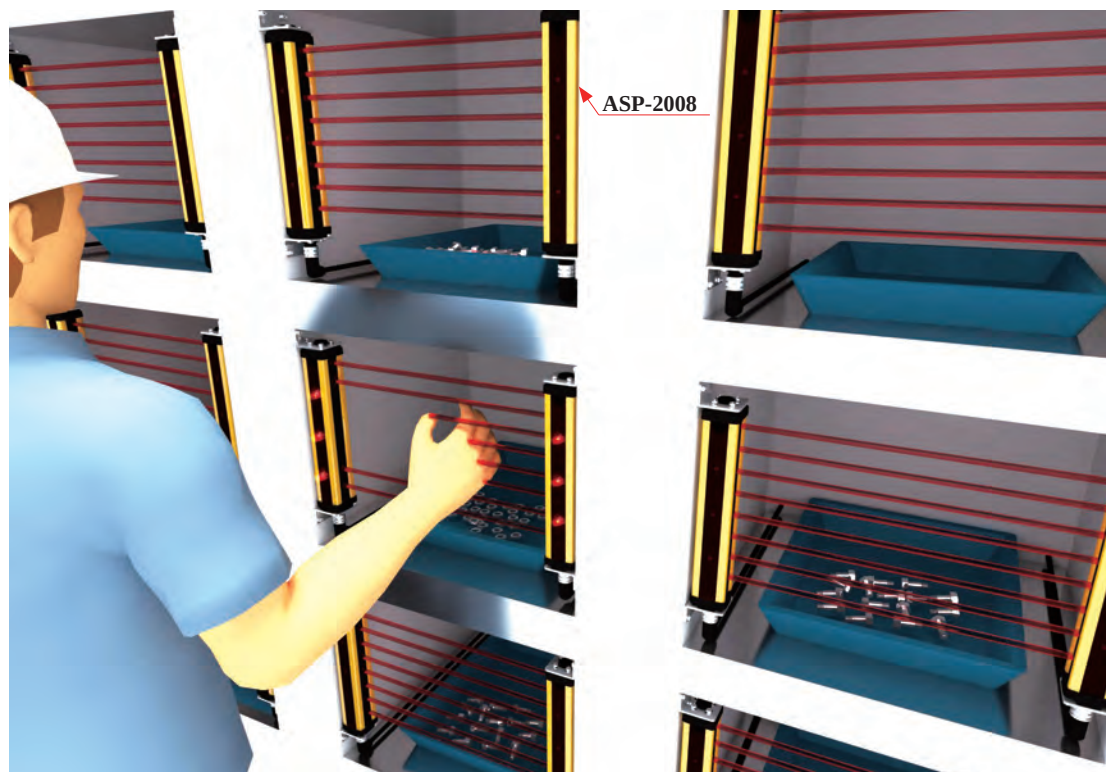
Others

P0007 Page 122 / Page 123



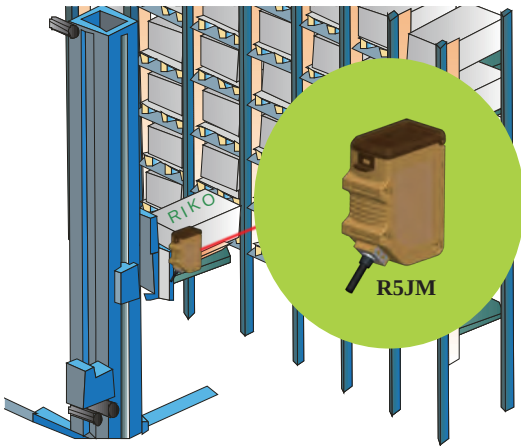
Detecting positions of rails.
檢測滑軌位置

P0008 Page 137



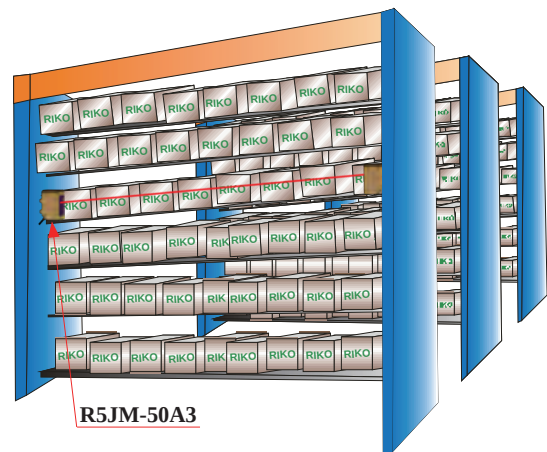
To confirm removed parts.
確認零件取出

P0009 Page 095



Detecting if the total boxes on the stacks.
檢測物品是否完全入架

P0010 Page 095



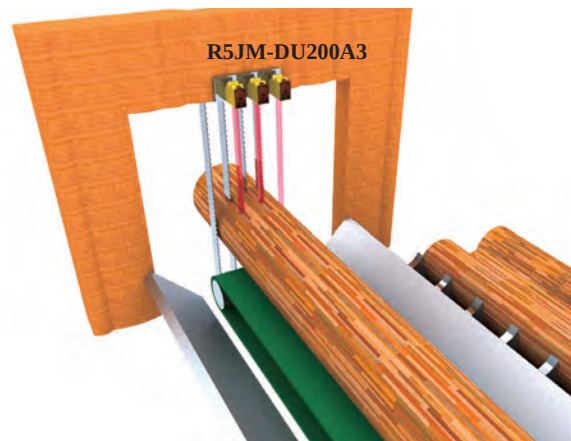
Detecting automatic storage & retrieval system.
自動倉儲檢測

P0011 Page 095



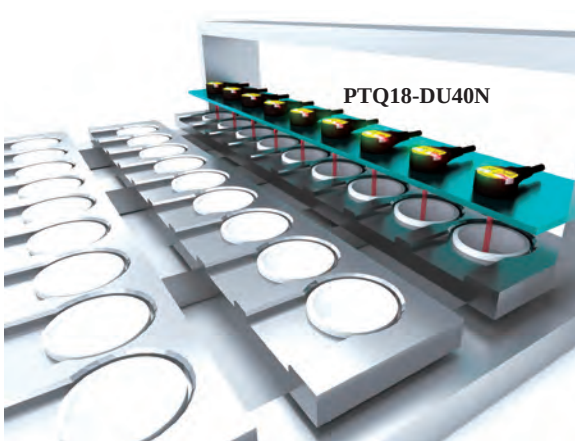
Detecting if the car drive out of garage.
車庫車輛進出確認

P0012 Page 095



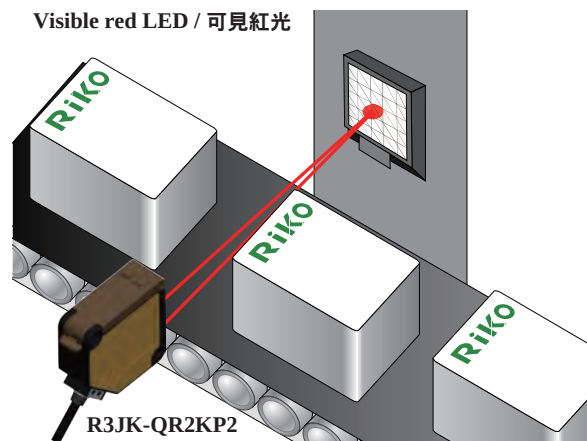
Detecting lumbering.
伐木檢測

P0013 Page 099



Detecting presence of box.
檢測有無盒子

P0014 Page 097



Detecting box passing.
檢測紙盒通過

Fiber Sensor

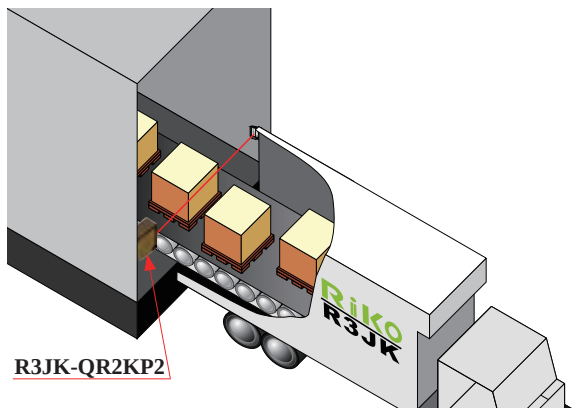
Photo / Area Photo / Ultrasonic Sensor

Inductive / Capacitive Proximity Sensor

Others

P0015 Page 097

Visible red LED / 可見紅光



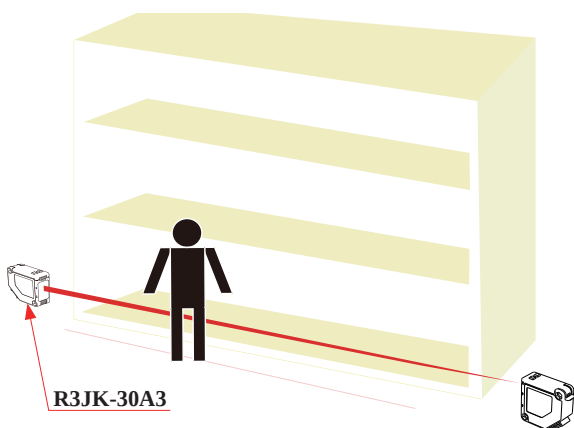
Detecting cargo delivery in/out.
檢測貨物進出

P0016 Page 099



Detecting full level of materials.
滿料檢知

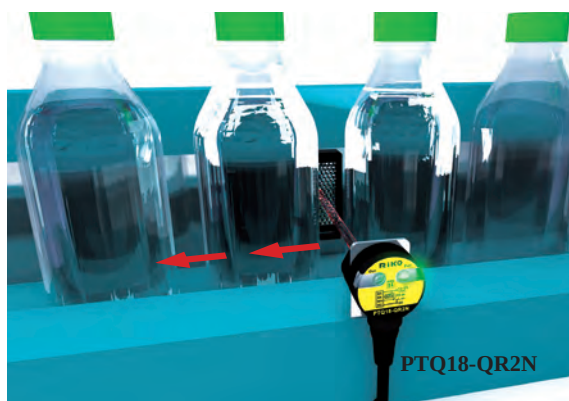
P0017 Page 096



Detecting people entrance.
人員進入檢測

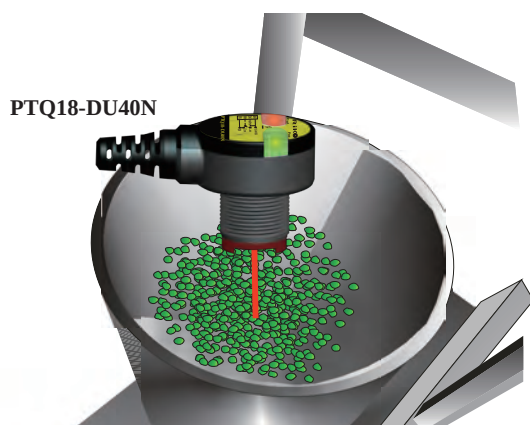
P0018 Page 100

Visible red LED / 可見紅光



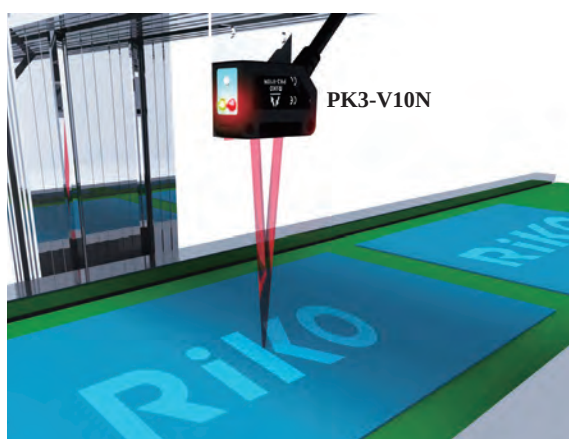
Counting clear bottles moving on a high-speed conveyor.
檢測高速行進的瓶子

P0019 Page 099



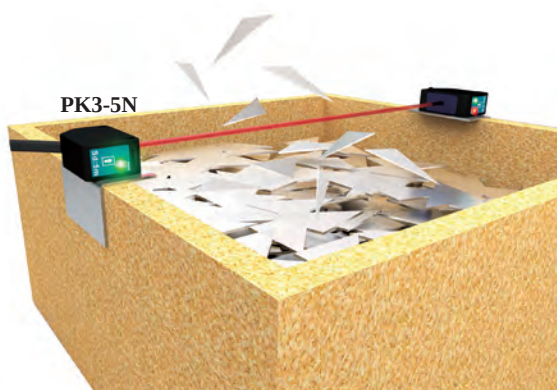
Controlling the position of object.
料位控制

P0020 Page 109



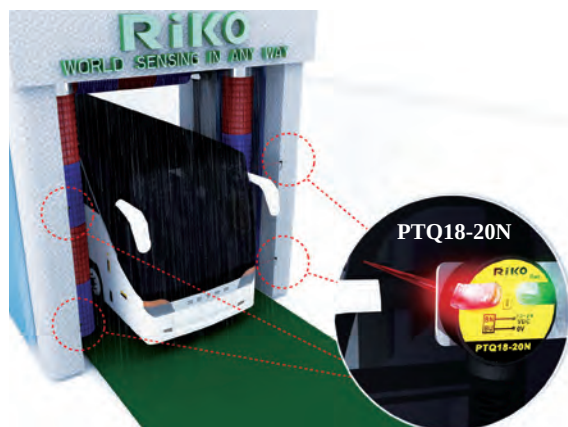
Detecting the planks.
板材檢測

P0021 Page 107



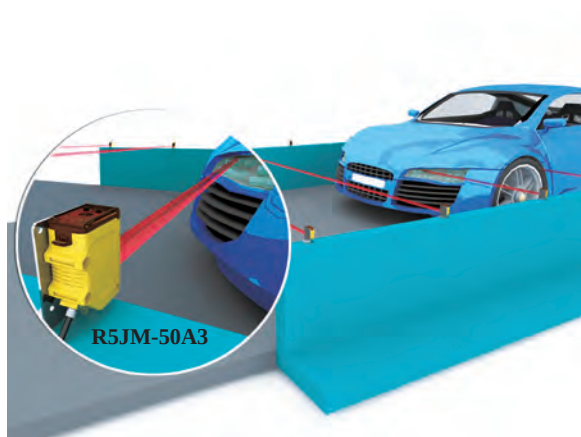
Detecting full level of materials.
滿料檢知

P0022 Page 099



Detecting the position of cars.
洗車設備定位檢測

P0023 Page 095



Detecting position in conveyer.
輸送設備定位檢測

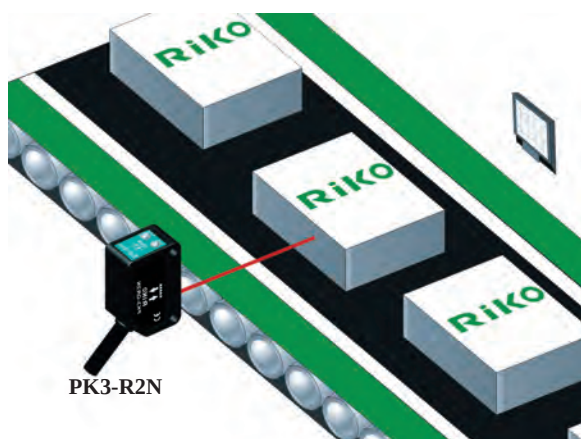
P0024 Page 097

Visible red LED / 可見紅光



Detecting wine bottle.
酒瓶檢測

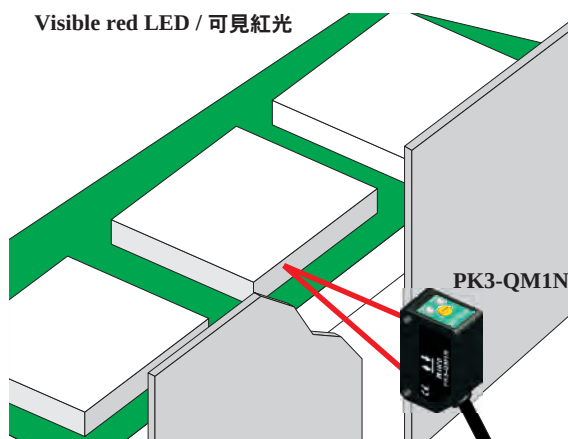
P0025 Page 108



Detecting the passing of products.
檢測產品通過

P0026 Page 107

Visible red LED / 可見紅光



Detecting parts.
零件檢測

Fiber Sensor

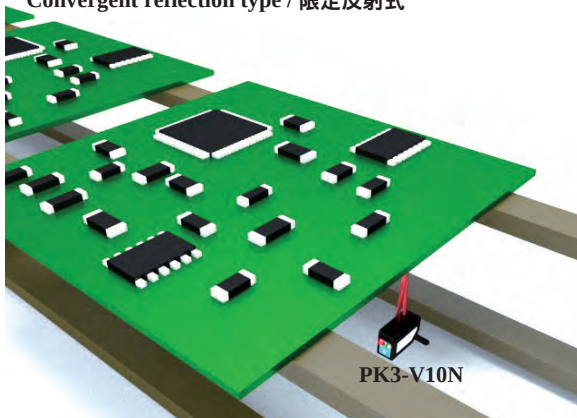
Photo / Area Photo / Ultrasonic Sensor

Inductive / Capacitive Proximity Sensor

Others

P0027 Page 109

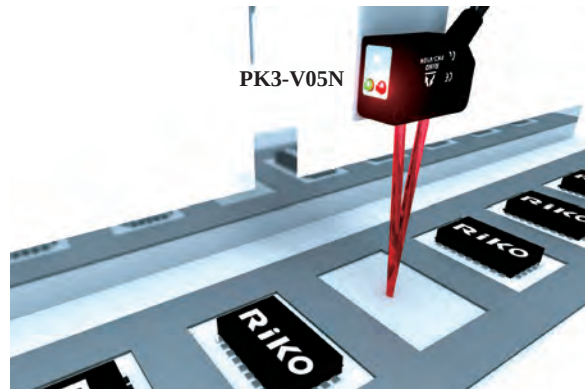
Convergent reflection type / 限定反射式



Detecting location of PCB.
檢測PCB定位

P0028 Page 109

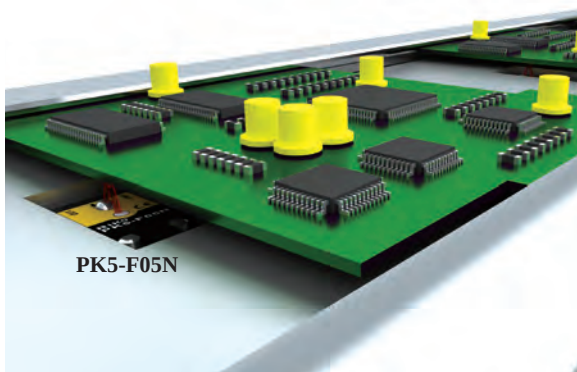
Convergent reflection type / 限定反射式



Detecting if the IC is existed or not.
檢測有無IC

P0029 Page 111

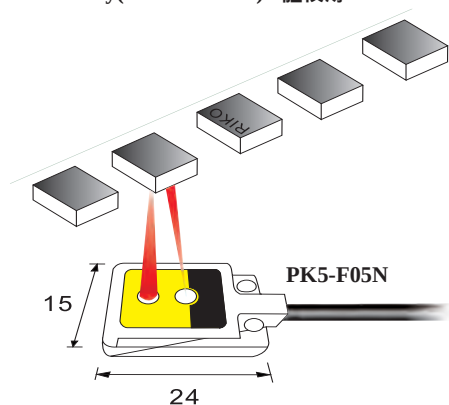
Ultra slim body(3.5x15x19mm) / 體積薄



Detecting location of PCB.
檢測PCB定位

P0030 Page 111

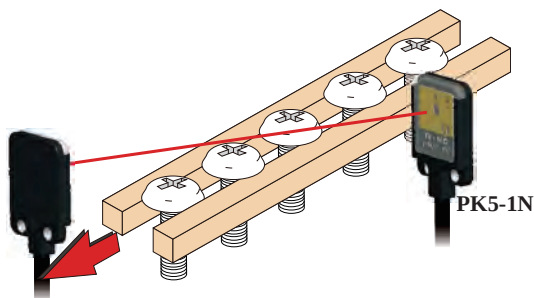
Ultra slim body(3.5x15x19mm) / 體積薄



Detecting presence of object.
檢測有無物件

P0031 Page 111

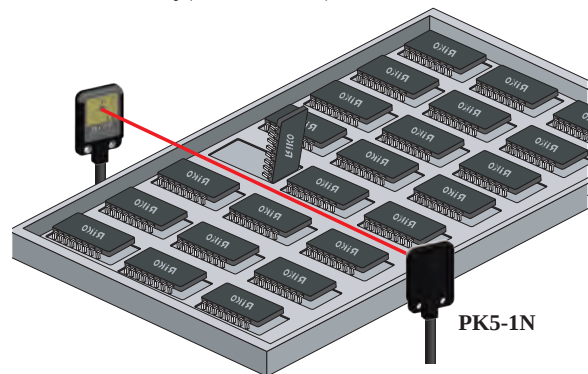
Ultra slim body(3.5x15x19mm) / 體積薄



To detect the screws in conveyor.
檢測輸送帶上的螺絲

P0032 Page 111

Ultra slim body(3.5x15x19mm) / 體積薄



Detecting the unseated IC.
檢測IC是否翻開

P0033 Page 111

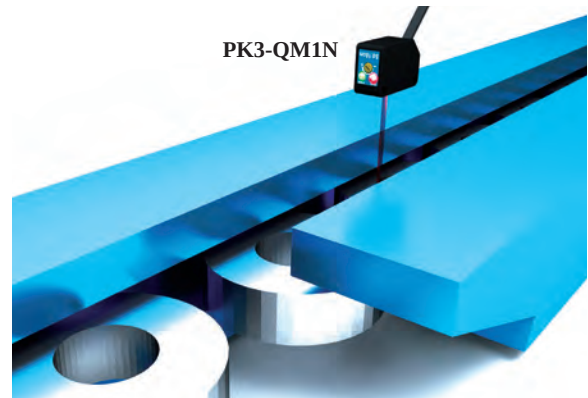
Ultra slim body(3.5x15x19mm) / 體積薄



To detect the steel balls passing inside the glass tube.
檢測鋼珠通過

P0034 Page 107

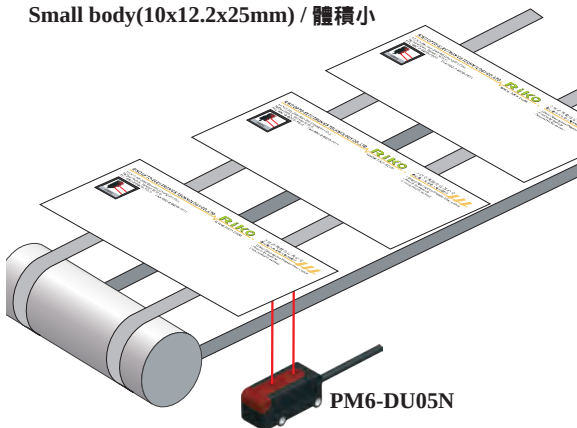
Visible red LED / 可見紅光



Detecting metal stamping parts.
檢測金屬沖壓件

P0035 Page 112

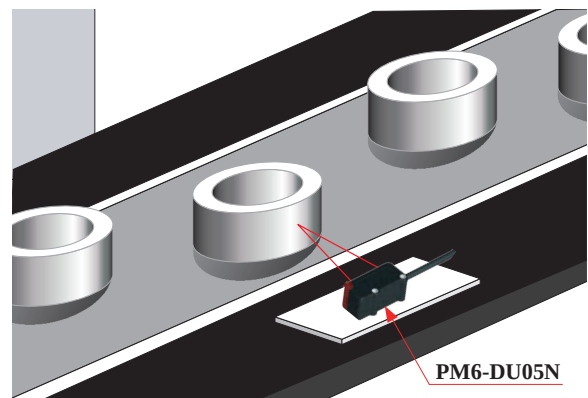
Small body(10x12.2x25mm) / 體積小



Detecting the envelope.
檢測信封

P0036 Page 112

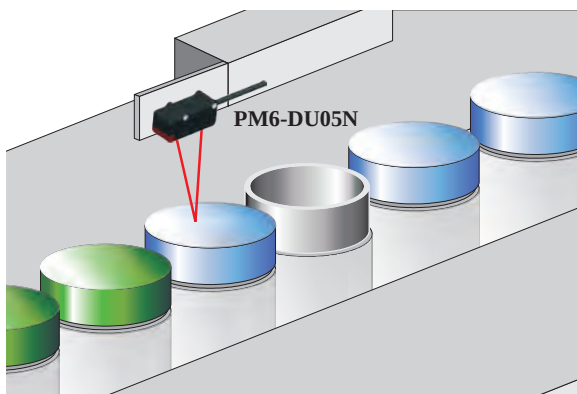
Small body(10x12.2x25mm) / 體積小



Detecting the passing of products.
檢測產品通過

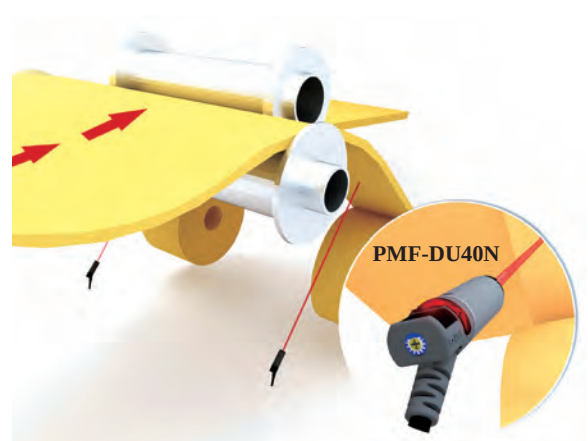
P0037 Page 112

Small body(10x12.2x25mm) / 體積小



Detecting the lid on the product is existed or not.
檢測有無蓋子

P0038 Page 101



Detecting the pasteboard.
檢測紙板

Fiber Sensor

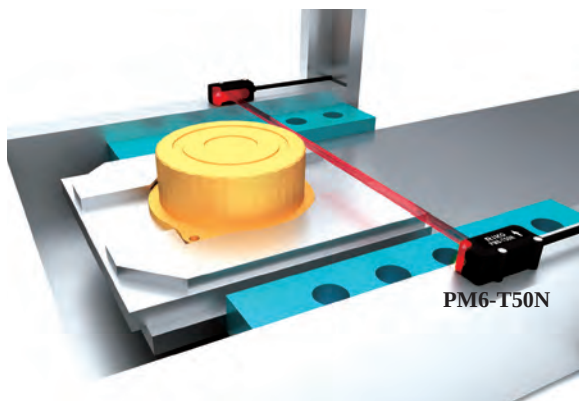
Photo / Area Photo / Ultrasonic Sensor

Inductive / Capacitive Proximity Sensor

Others

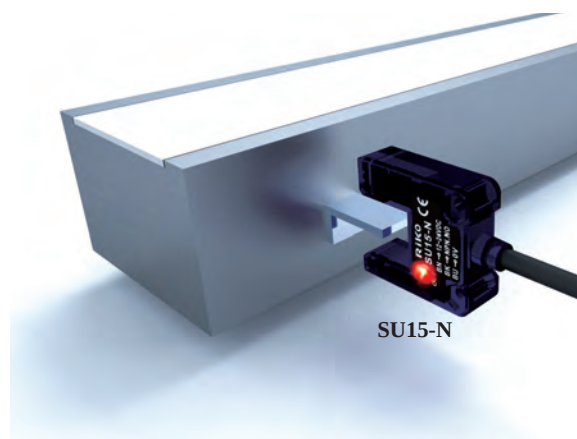
P0039 Page 112

Small body(10x12.2x25mm) / 體積小



Detecting presence of object.
檢測有無物件

P0040 Page 114



Machine positioning.
位置檢出

P0041 Page 122



Speeding monitoring
速度檢出

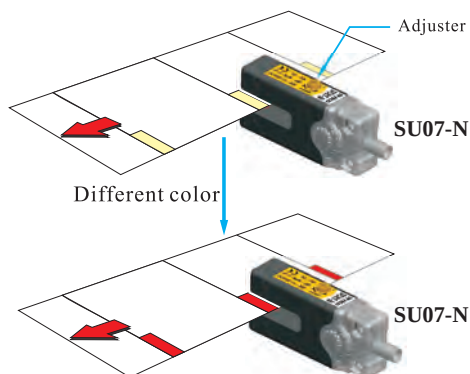
P0042 Page 122



Rotary cam sensing.
定位檢出

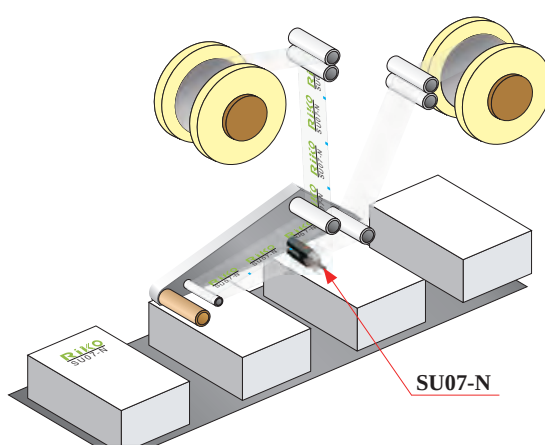
P0043 Page 116

The optimum sensitivity can be set easily according to different colors.



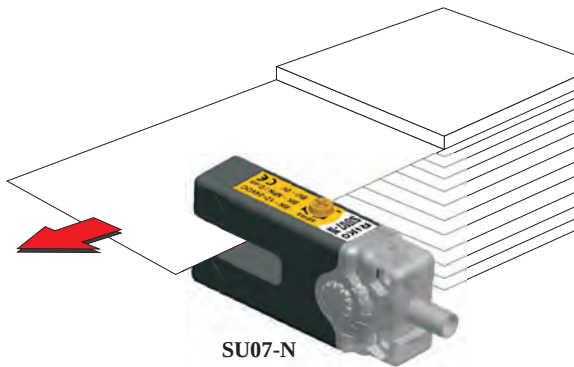
Sealing machine
使用於封口機

P0044 Page 116



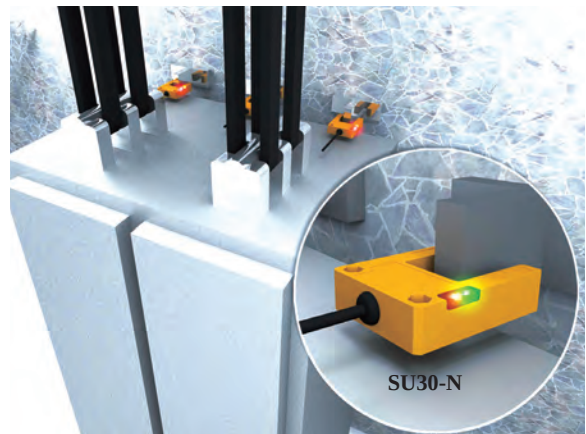
Detecting printing TAB marks.
檢測印刷記號點

P0045 Page 116



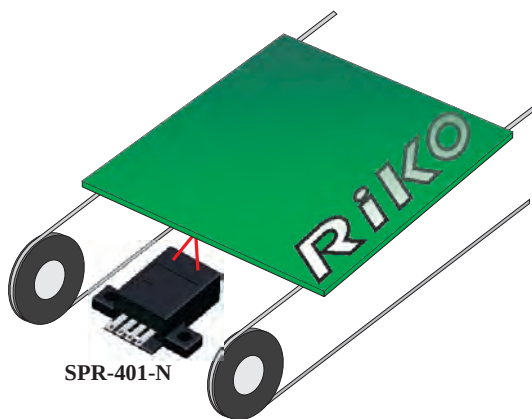
Detecting the pasteboard.
紙板檢測

P0046 Page 118



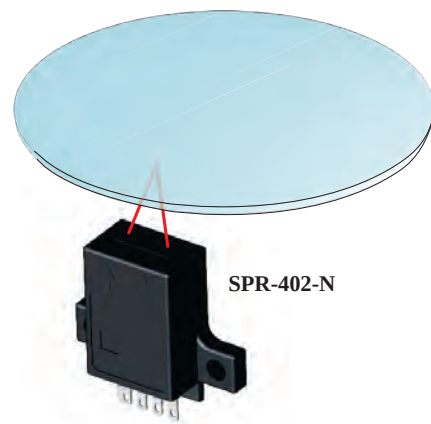
Positioning the moving-part.
機構定位

P0047 Page 121



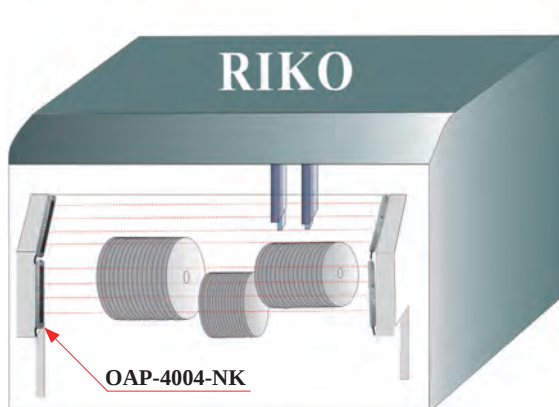
Detecting PCB.
檢測PCB

P0048 Page 121



To detect the disc.
檢測圓盤

P0049 Page 126



To avoid the intrusion of objects from outside of the machine.
保護電子組件機器，不受外物入侵

P0050 Page 126



To protect arm.
手臂防護

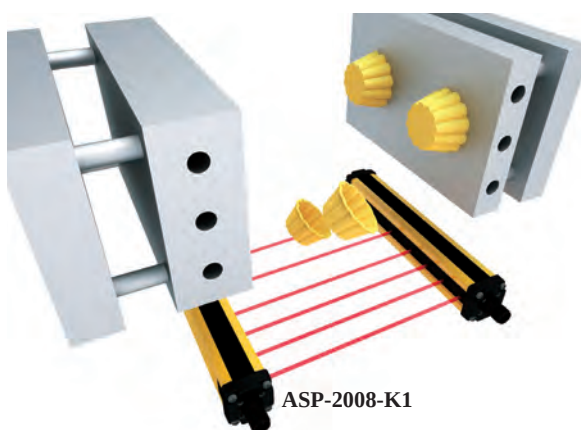
Fiber Sensor

Photo / Area Photo / Ultrasonic Sensor

Inductive / Capacitive Proximity Sensor

Others

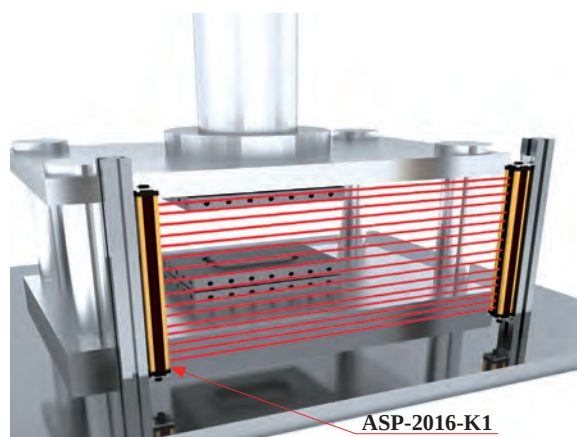
P0051 Page 137



ASP-2008-K1

Detecting objects with irregular shapes.
不規則物掉落檢知

P0052 Page 137



ASP-2016-K1

To protect equipment.
設備防護

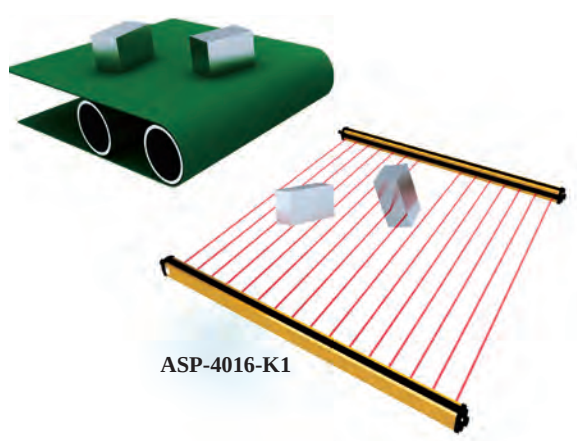
P0053 Page 140



ASP-4012-K1

Detecting a reel.
檢查捲筒

P0054 Page 140



ASP-4016-K1

Detecting the falling objects in uncertain route.
檢查路徑不確定的下落物體

P0055 Page 143

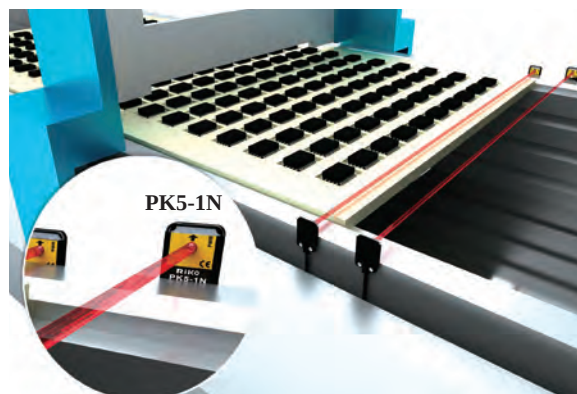


RU18-DU90-VK1

For transparent object detection.
透明物體檢測

P0056 Page 111

Ultra slim body(3.5x15x19mm) / 體積薄



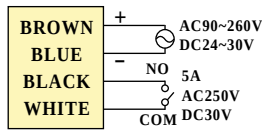
PK5-1N

Detecting the unseated IC.
檢測IC是否翻開

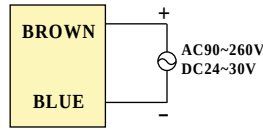
◆ Wiring diagrams / 接線圖 :

R5JM系列

A3 Output or Receiver

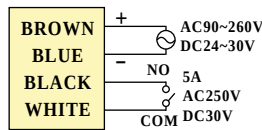


A3(Emitter)

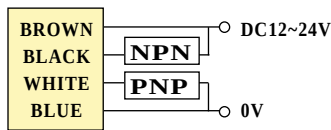


R3JK系列

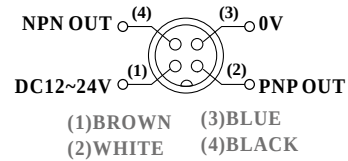
A3 Output or Receiver



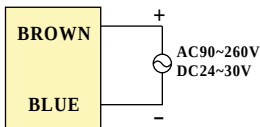
KP2 Output or Receiver



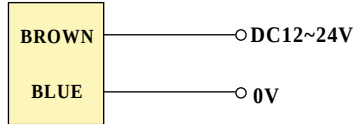
KP2K Series or Receiver



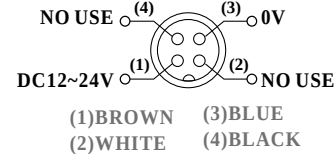
A3(Emitter)



KP2(Emitter)

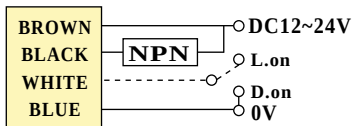


KP2K(Emitter)

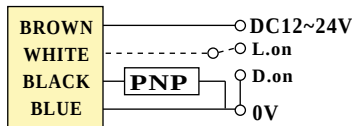


PTQ18系列

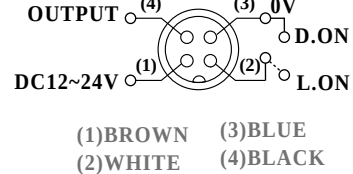
Diffuse reflection NPN Output



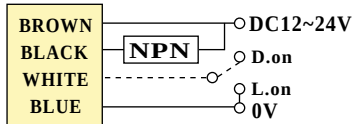
Diffuse reflection PNP Output



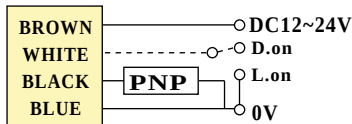
Diffuse reflection K1 Series



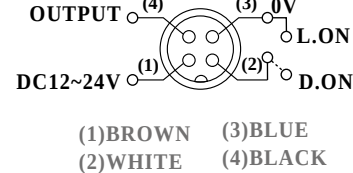
Retroreflective Through beam NPN Output or Receiver



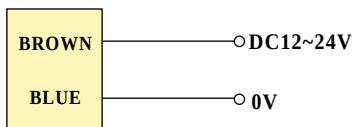
Retroreflective Through beam PNP Output or Receiver



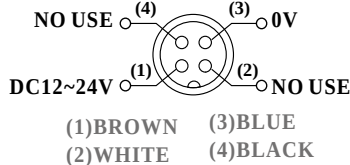
Retroreflective Through beam K1 Series or Receiver



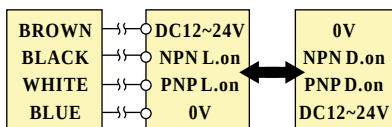
Emitter



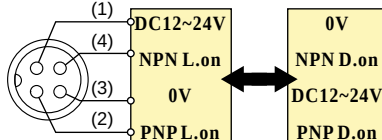
K1(Emitter)



NP Output or Receiver



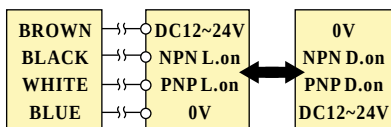
NPK1 Series or Receiver



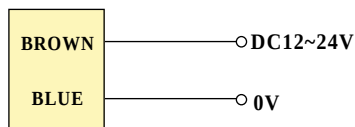
◆ Wiring diagrams / 接線圖：

PMF系列

NP Output or Receiver

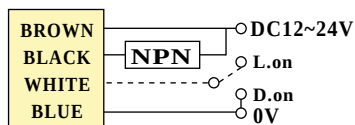


NP(Emitter)

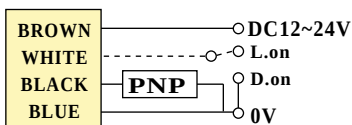


RMF&MMF系列

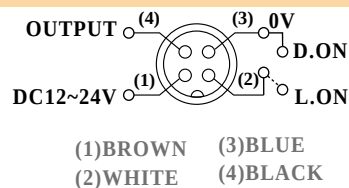
Diffuse reflection NPN Output



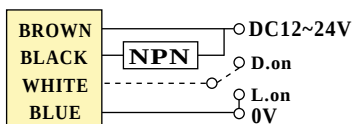
Diffuse reflection PNP Output



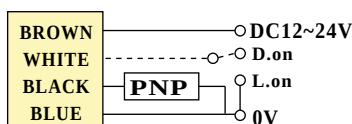
Diffuse reflection K/K1 Series or Receiver



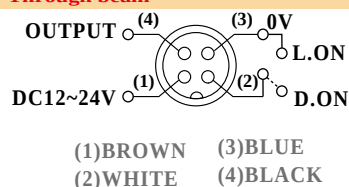
Retroreflective Through beam NPN Output or Receiver



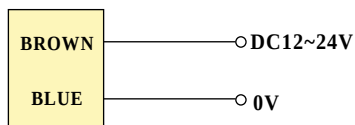
Retroreflective Through beam PNP Output or Receiver



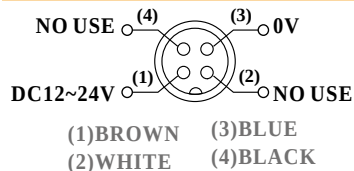
Retroreflective Through beam K/K1 Series or Receiver



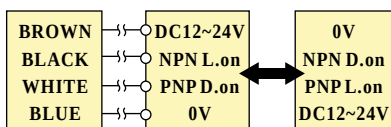
Emitter



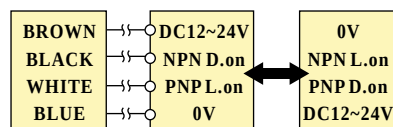
K/ K1(Emitter)



RMF-DU30KP2

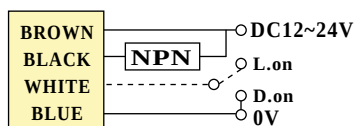


RMF-10KP2 (Receiver)

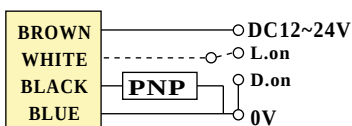


PK3系列

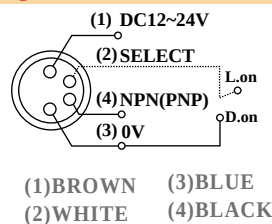
Diffuse reflection Retroreflective Through beam NPN Output or Receiver



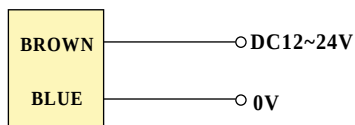
Diffuse reflection Retroreflective Through beam PNP Output or Receiver



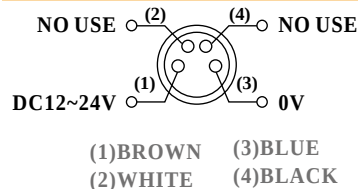
Diffuse reflection Retroreflective Through beam B Series or Receiver



Emitter



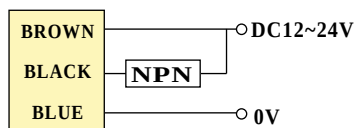
B(Emitter)



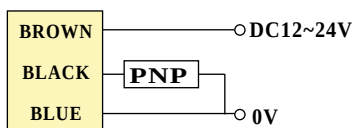
◆ Wiring diagrams / 接線圖：

PK5&PM6系列

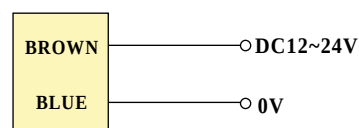
NPN Output or Receiver



PNP Output or Receiver

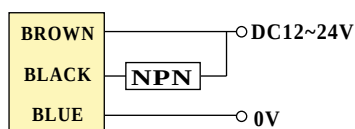


Emitter

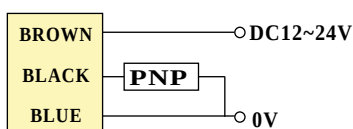


SU&SU15&SU07系列

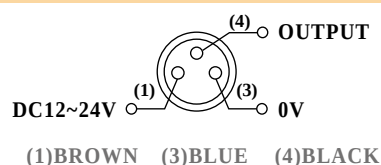
NPN Output



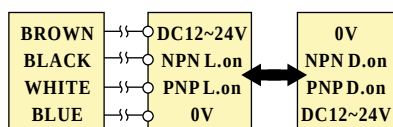
PNP Output



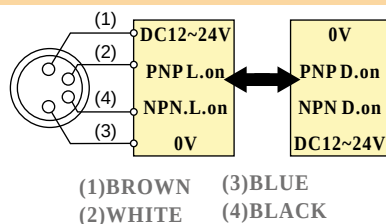
D/D1 Series



NP Output

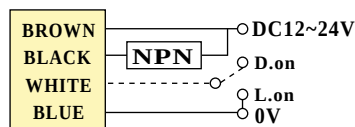


NPB1 Series

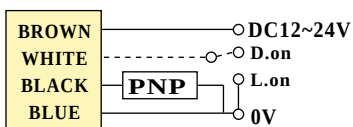


SU30系列

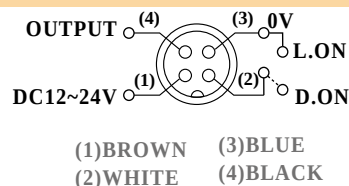
NPN Output



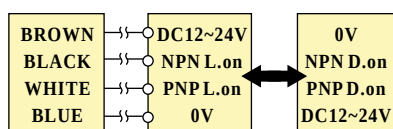
PNP Output



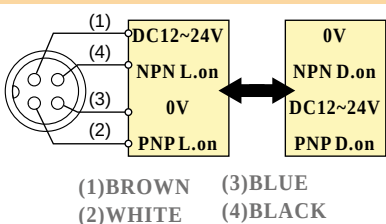
K1 Series



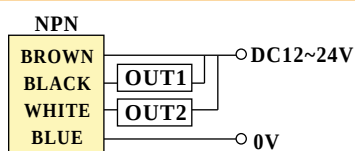
NP Output



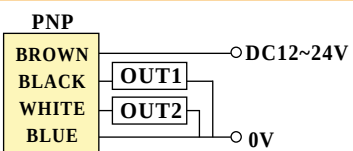
NPK1 Series



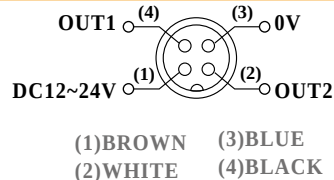
2NPN Output



2PNP Output



2N/2PK1 Series



◆ Order Information / 訂貨索引：

Fiber Sensor

Photo / Area Photo / Ultrasonic Sensor

Inductive / Capacitive Proximity Sensor

Others

		R5JM — DU200 A3			
Ultra-long sensing range Photo Sensor 超長距離方形光電開關	R5JM			K	M12 Pigtailed type M12接頭15cm電線式
Long sensing range Photo Sensor 長距離檢測方形光電開關	R3JK			K1	M12 plug-in connector type M12接頭式
Superior Waterproof T-style Photo Sensor 高防水性 T形光電開關	PTQ18			B	M8 Pigtailed type (4pin) M8接頭15cm電線式 (4pin)
Anti-bending, 60 degree wiring, Plastic body Photo Sensor 耐彎抗拉60度出線塑殼光電開關	PMF			D	M8 Pigtailed type (3pin) M8接頭15cm電線式 (3pin)
M18 Photo switch Plastic housing 光電開關塑膠外殼	RMF				Pre-wired 2M model 出線式 2M
M18 Photo switch Metal housing 光電開關金屬管外殼	MMF			N	Output NPN N.O.
Rectangular Photo Sensor 小方形光電開關	PK3			P	Output PNP N.O.
Micro-sized Flat Photo Sensor 微小薄形光電開關	PK5			NP	NPN L.on/D.on& PNP L.on/D.on NPN & PNP SYNC. OUT
Micro-sized Square Photo Sensor 微小方形光電開關	PM6			KP2	NPN L.on/D.on& PNP D.on/L.on
				A3	Relay output AC90~260V DC24~30V
Convergent reflective type 限定距離反射式 Sensing distance/檢測距離 5cm	V05	Through beam / 對照式 Sensing distance/檢測距離 50cm	T50	Retroreflective (Red LED) 鏡片反射式(紅光) Sensing distance/檢測距離 2M	QR2
Convergent reflective type 限定距離反射式 Sensing distance/檢測距離 10cm	V10	Through beam / 對照式 Sensing distance/檢測距離 1M	1	Polarized Retroreflective 偏光鏡片反射式 Sensing distance/檢測距離 1M	PR1
Diffuse reflective(small spot from LED Red light) 擴散反射式(紅光小光點) Sensing distance/檢測距離 5cm	F05	Through beam / 對照式 Sensing distance/檢測距離 2M	2	Polarizing Retroreflective 偏光鏡片反射式 Sensing distance/檢測距離 2M	PR2
Diffuse reflective(Red LED) 擴散反射式(紅光) Sensing distance/檢測距離 10cm	QM1	Through beam / 對照式 Sensing distance/檢測距離 5M	5	Retroreflective / 鏡片反射式 Sensing distance/檢測距離 2M	R2
Diffuse reflective / 擴散反射式 Sensing distance/檢測距離 5cm	DU05	Through beam / 對照式 Sensing distance/檢測距離 10M	10	Retroreflective / 鏡片反射式 Sensing distance/檢測距離 5M	R5
Diffuse reflective / 擴散反射式 Sensing distance/檢測距離 10cm	DU10	Through beam / 對照式 Sensing distance/檢測距離 20M	20		
Diffuse reflective / 擴散反射式 Sensing distance/檢測距離 40cm	DU40	Through beam / 對照式 Sensing distance/檢測距離 30M	30		
Diffuse reflective / 擴散反射式 Sensing distance/檢測距離 50cm	DU50	Through beam / 對照式 Sensing distance/檢測距離 50M	50		
Diffuse reflective / 擴散反射式 Sensing distance/檢測距離 1M	DU100				
Diffuse reflective / 擴散反射式 Sensing distance/檢測距離 2M	DU200				

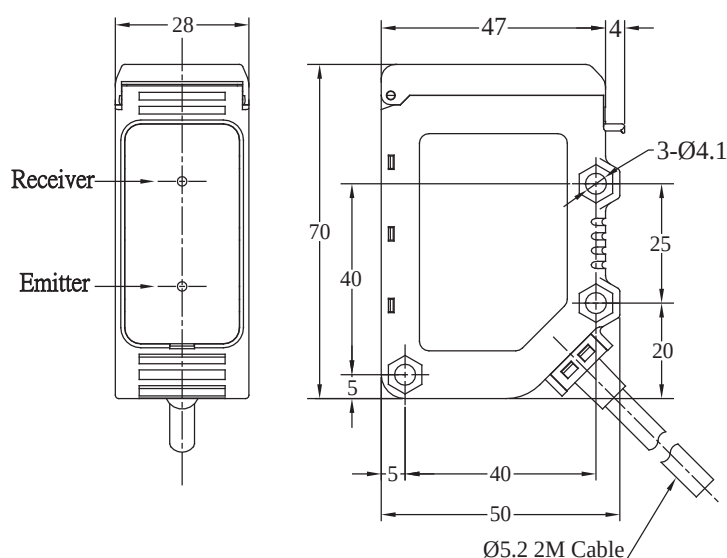
◆ Characteristic / 特點：

- Special protective hood against waterdrop and dust.
/ 專用防塵蓋設計，可防潑水及灰塵。
- Its special design enhances more durable and rigid.
/ 特別的機構設計，更加堅固耐用。
- Through beam sensing distance 50M. / 長距對照式，檢距50M。
- Timer function：On-delay / Off-delay.
/ 有On-delay與Off-delay計時器功能。

◆ Specifications / 規格表：

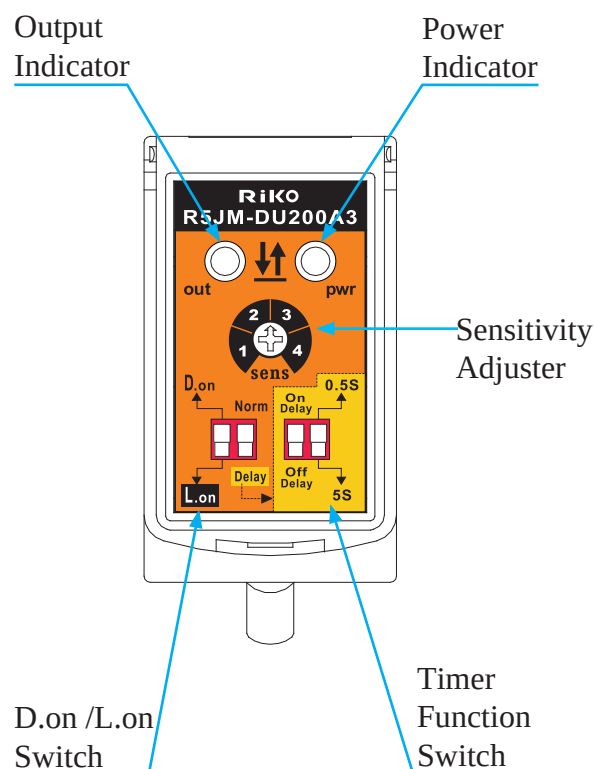
Model / 型號	R5JM-DU200A3	R5JM-50A3
Sensing type / 檢出方式	Diffuse reflection / 擴散反射式	Through beam / 對照式
Sensing distance / 檢出距離	200cm	50m
Emitting light / 發光源	Infrared LED 850nm	
Operating voltage / 工作電壓	AC90 ~ 260V DC24~30V	
Current Consumption / 消耗電流	40 mA	
Load current / 負載電流	Relay : DC30V 5A/ AC250V 5A	
Output type / 輸出模式	Relay out: Com./No.	
Response time / 反應時間	30ms Max.	
Insulation resistance / 隔離阻抗	20M Ω min. (DC500V)	
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.	
Operating temperature/工作溫度	-25℃ ~ + 60℃	
Ambient humidity / 工作溼度	35% ~ 85% RH	
Protection degree / 防水等級	IP65	
Material / 外觀材質	ABS	
Wiring method / 出線方式	$\varnothing 5.2 \times 2$ M / 4-wires	(Receiver) $\varnothing 5.2 \times 2$ M / 4-wires / (Emitter) $\varnothing 5.2 \times 2$ M / 2-wires
Weight / 重量	Approx.123.5g	Approx.247g

◆ Dimensions / 尺寸圖：(unit:mm)

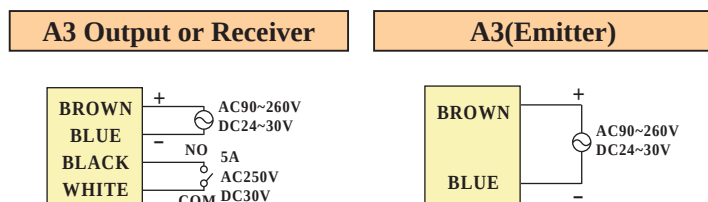


◆ Functions manual of panels / 面板功能說明：

• A3 Output or Receiver



◆ Wiring diagrams / 接線圖：



◆ Characteristic / 特點：

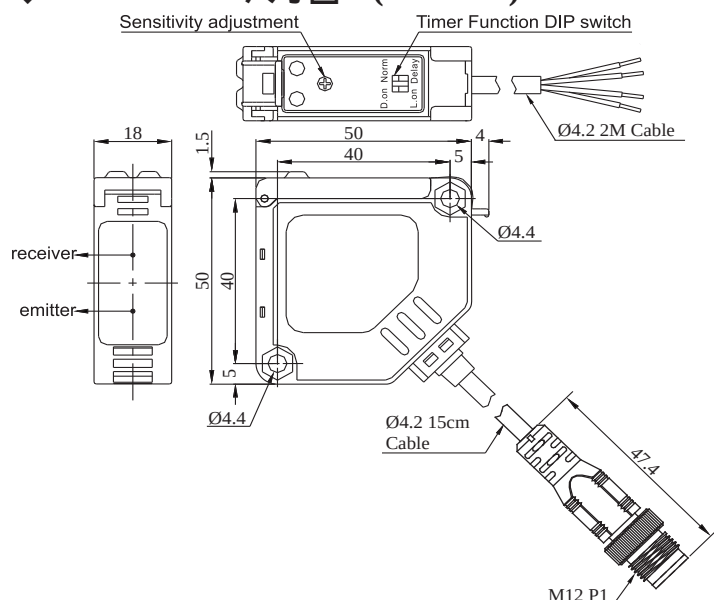
- Non-spherical optical lens.
/ 非球面光學鏡片。
- Relay output.
/ Relay輸出模式。
- Off-delay 0.2 second.
/ Off-delay(0.2Sec.) 功能。



◆ Specifications/ 規格表：

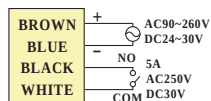
Model / 型號	R3JK-DU50A3 R3JK-DU100A3	R3JK-10A3 R3JK-30A3	R3JK-DU50KP2 R3JK-DU100KP2	R3JK-10KP2 R3JK-30KP2	
	—	—	R3JK-DU50KP2K R3JK-DU100KP2K	R3JK-10KP2K R3JK-30KP2K	
Sensing type / 檢出方式	Diffuse reflection / 擴散反射式	Through beam / 對照式	Diffuse reflection / 擴散反射式	Through beam / 對照式	
Sensing distance / 檢出距離	50cm / 100cm 白紙300 x 300mm	10M 30M	50cm 100cm	10M 30M	
Emitting light / 發光源	Infrared LED 850 nm /Infrared LED 940 nm	Infrared LED 850 nm	Infrared LED 940 nm	Infrared LED 850 nm	
Operating voltage / 工作電壓	AC90 ~ 260V DC24~30V		DC12 ~ 24 V		
Current Consumption / 消耗電流	25 mA Max.		30 mA Max.		
Load current / 負載電流	Relay : DC30V 5A/ AC250V 5A		100mA Max. at DC24V		
Output type / 輸出模式	Relay out Com./NO.		NPN L.on/D.on PNP D.on/L.on		
Response time / 反應時間	30 ms Max.		1.5 ms Max.		
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)				
Voltage withstandabiligy / 絕緣耐壓	AC1000V 60Hz for 60 Sec.				
Operating temperature/工作溫度	- 20 ℃ ~ + 60 ℃				
Ambient humidity / 工作溼度	35% ~ 85% RH				
Protection degree / 防水等級	IP65				
Material / 外觀材質	ABS				
Wiring method / 出線方式	R3JK-□A3/ KP2	(A3 Output or Receiver) Ø4.2 x 2 M / 4-wires (Emitter) Ø4.2 x 2 M / 2-wires			
	R3JK-□KP2K	M12 Pigtailed type/ M12接頭 15cm電線式			
Weight / 重量	R3JK-□A3/ KP2	Approx. 85g	Approx. 165g	Approx. 80g	Approx. 150g
	R3JK-□KP2K	—	—	Approx. 45g	Approx. 80g

◆ Dimensions / 尺寸圖：(unit:mm)

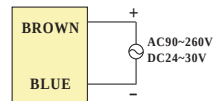


◆ Wiring diagrams / 接線圖：

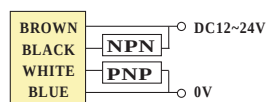
A3 Output or Receiver



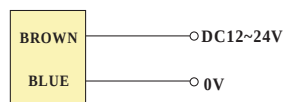
A3(Emitter)



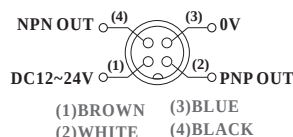
KP2 Output or Receiver



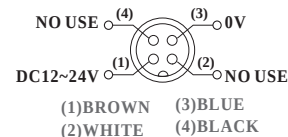
KP2(Emitter)



KP2K Output or Receiver



KP2K(Emitter)



◆ Characteristic / 特點：

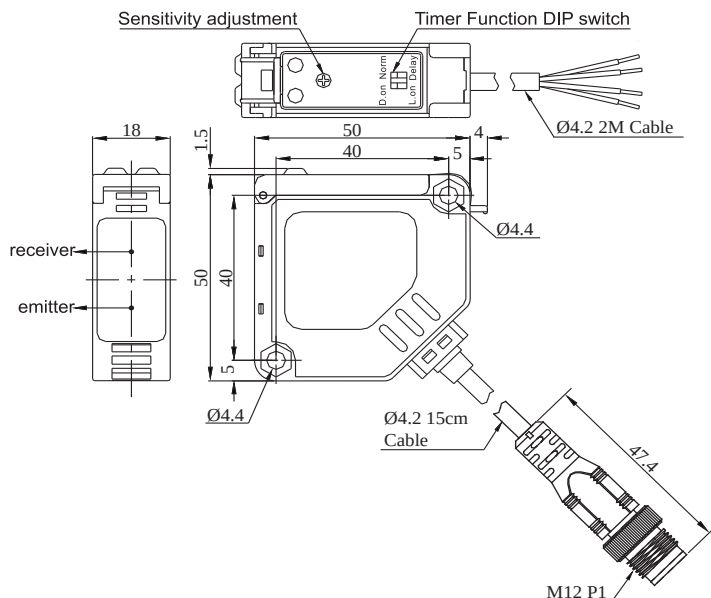
- Non-spherical optical lens./ 非球面光學鏡片。
- Off-delay 0.2 second./ Off-delay(0.2Sec.) 功能。
- Visible RED light for positioning.
/ 可見紅光，方便調整對位。
- Special protective hood for dust-proof and greasiness-proof.
/ 專用防塵蓋設計，可防灰塵及油污入侵。



◆ Specifications / 規格表：

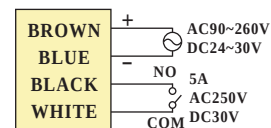
Model / 型號		R3JK-R5A3	R3JK-R5KP2	R3JK-QR2KP2	R3JK-PR2KP2
		—	R3JK-R5KP2K	R3JK-QR2KP2K	R3JK-PR2KP2K
Sensing type / 檢出方式		Retroreflective / 鏡片反射式		Retroreflective(RED) / 鏡片反射式(紅光)	Polarizing Retroreflective / 偏光鏡片反射式
Sensing distance / 檢出距離		5M		2M	
Emitting light / 發光源		Infrared LED 940 nm		Red LED 650 nm	
Operating voltage / 工作電壓		AC90 ~ 260V DC24~30V	DC12 ~ 24 V		
Current Consumption / 消耗電流		25 mA Max.	30 mA Max.		
Load current / 負載電流		Relay : DC30V 5A/ AC250V 5A	100mA Max. at DC24V		
Output type / 輸出模式		Relay out Com./NO.	NPN L.on/D.on PNP D.on/L.on		
Response time / 反應時間		30 ms Max.	1.5 ms Max.		
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)			
Voltage withstandabiligy / 絕緣耐壓		AC1000V 60Hz for 60 Sec.			
Operating temperature/工作溫度		- 20 ℃ ~ + 60 ℃			
Ambient humidity / 工作溼度		35% ~ 85% RH			
Protection degree / 防水等級		IP65			
Material / 外觀材質		ABS			
Wiring method / 出線方式	R3JK-□A3/ KP2	Pre-wired Ø4.2 x 2 M / 4-wires			
	R3JK-□KP2K	M12 Pigtailed type/ M12接頭 15cm電線式			
Weight / 重量	R3JK-□A3/ KP2	Approx. 85g	Approx. 80g		
	R3JK-□KP2K	—	Approx. 45g		

◆ Dimensions / 尺寸圖：(unit:mm)

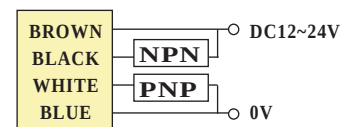


◆ Wiring diagrams / 接線圖：

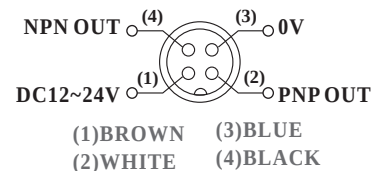
A3 Output



KP2 Output



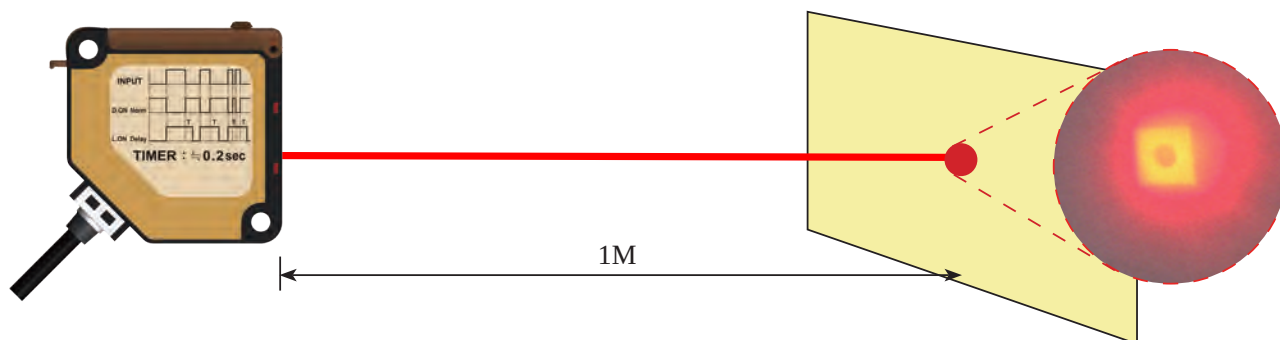
KP2K Output



◆ Introduction / 介紹：

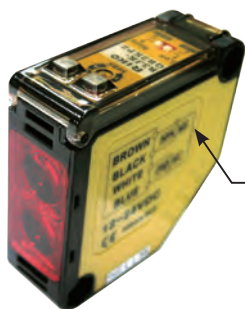
● Clearly visible red LED (QR series) / 清晰可見的紅光LED(QR系列)

The visible red LED is available at the distance of 1M. It is easy for your installation and detection.
/ 使用紅光LED，即使在1M的距離，一樣可以清楚的看見紅光，讓您在安裝檢測時更方便。



● Special design of protective hood for dust-proof / 專用防塵蓋設計

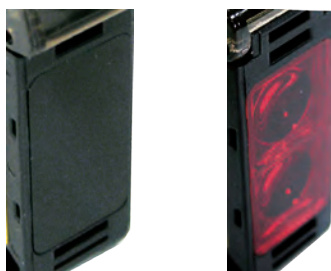
With special protective hood for dust-proof, it can avoid the breakdown caused by dust or spray.



Special protective hood for dust-proof and spray-proof.

● Non-spherical optical lens / 非球面光學鏡片

For a better focusing, with the exceptional optical lens.



Special optical lens

● Import high switching capability relay. / 進口高容量Relay.

Import relay is with 0.2 Sec. delay function and can be switched L.on/D.on directly.



● Dual LED indicator / 雙LED指示燈

Visible dual LED makes you easy to know the current operating situation.



● Sensitivity adjuster / 可調式旋鈕

Users can adjust the sensitivity more optimum according to different situations.



◆ Characteristic / 特點：

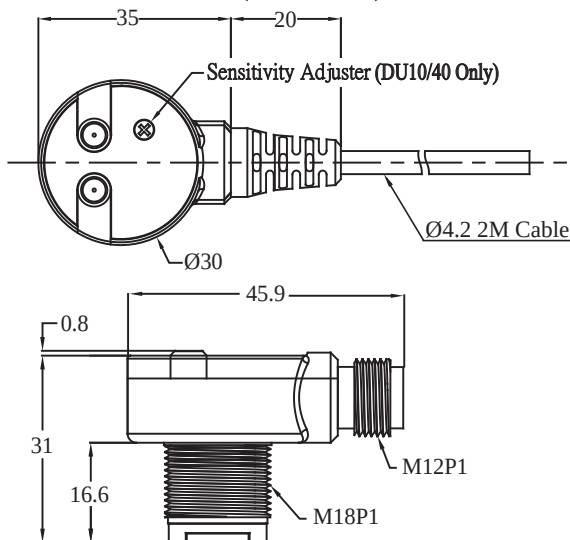
- T-shaped 31mm housing design, saving space. / T型設計，長度31mm，省空間。
- Bright Dual LED output indicators. / 高亮度電源及動作指燈。
- Superior waterproof IP67. / IP67防水等級。
- Through beam type：SD=20M. / 長距對照式檢距20M。
- NP model：NPN+PNP L.on/D.on 4-in-1 outputs. / 新型NP電路：NPN/PNP L.on/D.on 4-in-1輸出。



◆ Specifications / 規格表：

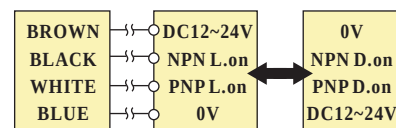
Model / 型號	NPN L.on/D.on	PTQ18-DU10/40N	PTQ18-DU10/40NK1	PTQ18-20N	PTQ18-20NK1
	PNP L.on/D.on	PTQ18-DU10/40P	PTQ18-DU10/40PK1	PTQ18-20P	PTQ18-20PK1
	NPN L.on/D.on PNP L.on/D.on	PTQ18-DU10/40NP	PTQ18-DU10/40NPK1	PTQ18-20NP	PTQ18-20NPK1
Sensing type / 檢出方式		Diffuse reflection / 擴散反射式		Through beam / 對照式	
Sensing distance / 檢出距離		10cm / 40cm , white paper 10 x 10 (10/40cm)		20M	
Emitting light / 發光源		Infrared LED 850 nm			
Operating voltage / 工作電壓		DC12 ~ 24 V			
Current Consumption / 消耗電流		20mA Max.		(Receiver)20mA Max. (Emitter)18mA Max.	
Load current / 負載電流		100mA Max. at DC24V			
Response time / 反應時間		1.5 ms Max.		7 ms Max.	
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)			
Voltage withstandabiligy / 絕緣耐壓		AC1000V 60Hz for 60 Sec.			
Operating temperature/工作溫度		- 20 °C ~ + 60 °C			
Ambient humidity / 工作溼度		35% ~ 85% RH			
Protection degree / 防水等級		IP67			
Material / 外觀材質		ABS			
Wiring method / 出線方式	PTQ18-□N/P/NP	Ø4.2 x 2 M / 4-wires		(Receiver) Ø4.2 x 2 M / 4-wires / (Emitter) Ø4.2 x 2 M / 2-wires	
	PTQ18-□K1	M12 plug-in connector type / M12接頭			
Weight / 重量	PTQ18-□N/P/NP	Approx.68.5g		Approx.137g	
	PTQ18-□K1	Approx.18g		Approx.36g	

◆ Dimensions / 尺寸圖：(unit:mm)

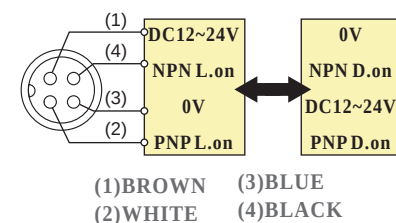


◆ Wiring diagrams / 接線圖：

NP Output



NPK1 Output



◆ Characteristic / 特點：

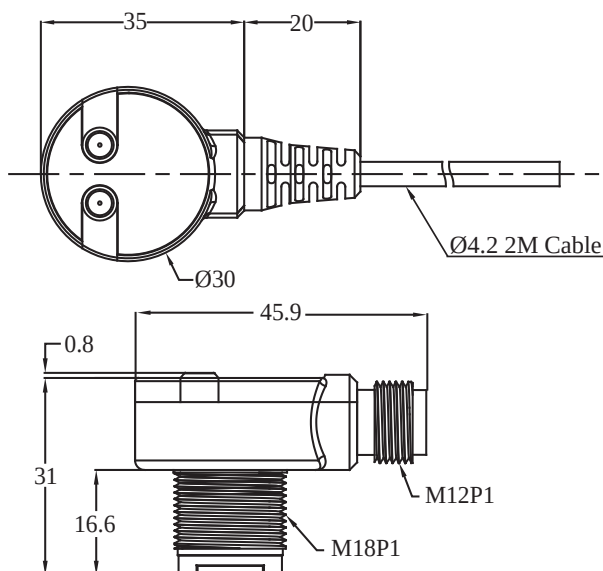
- Visible red light spot.
/ 可見紅光光點，方便調整。
- Superior waterproof IP67.
/ IP67防水等級。
- Polarized retroreflective model for bright surface target.
/ 偏光反射型，檢測亮面物體更穩定。



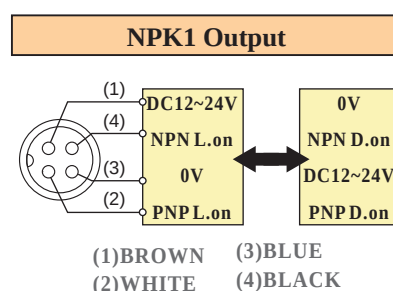
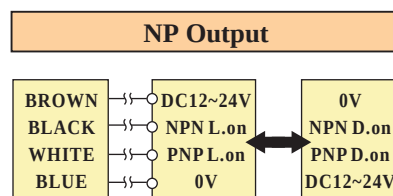
◆ Specifications / 規格表：

Model / 型號	NPN L.on/D.on	PTQ18-R2N	PTQ18-R2NK1	PTQ18-QR2N	PTQ18-QR2NK1	PTQ18-PR1N	PTQ18-PR1NK1
	PNP L.on/D.on	PTQ18-R2P	PTQ18-R2PK1	PTQ18-QR2P	PTQ18-QR2PK1	PTQ18-PR1P	PTQ18-PR1PK1
	NPN L.on/D.on	PTQ18-R2NP	PTQ18-R2NPK1	PTQ18-QR2NP	PTQ18-QR2NPK1	PTQ18-PR1NP	PTQ18-PR1NPK1
	PNP L.on/D.on						
Sensing type / 檢出方式		Retroreflective/鏡片反射式		Retroreflective(RED) / 鏡片反射式(紅光)		Polarizing Retroreflective / 偏光鏡片反射式	
Sensing distance / 檢出距離		2M		2M		1M	
Emitting light / 發光源		Infrared LED 850 nm		Red LED 650nm			
Operating voltage / 工作電壓		DC12 ~ 24 V					
Current Consumption / 消耗電流		20mA Max.					
Load current / 負載電流		100mA Max. at DC24V					
Response time / 反應時間		1.5 ms Max.					
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)					
Voltage withstandabiligy / 絕緣耐壓		AC1000V 60Hz for 60 Sec.					
Operating temperature/工作溫度		- 20 °C ~ + 60 °C					
Ambient humidity / 工作溼度		35% ~ 85% RH					
Protection degree / 防水等級		IP67					
Material / 外觀材質		ABS					
Wiring method / 出線方式	PTQ18-□N/P/NP	Pre-wired Ø4.2 x 2M / 4-wires					
	PTQ18-□K1	M12 plug-in connector type / M12接頭					
Weight / 重量	PTQ18-□N/P/NP	Approx.68.5g					
	PTQ18-□K1	Approx.18g					

◆ Dimensions / 尺寸圖：(unit:mm)

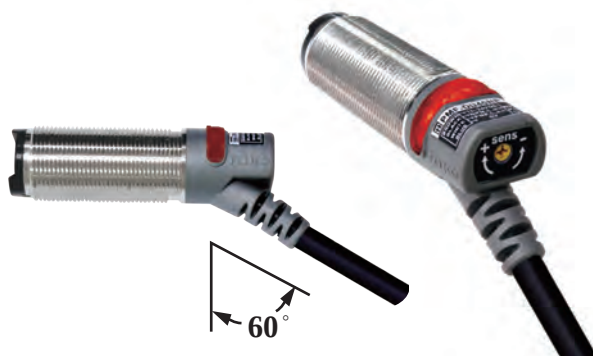


◆ Wiring diagrams / 接線圖：



◆ Characteristic / 特點：

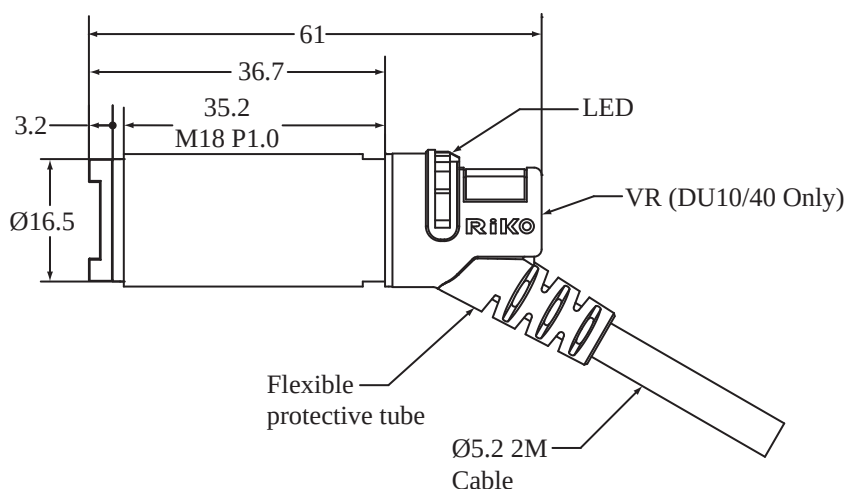
- 60 degree pre-wiring applied to vertical or horizontal positions.
/ 出線60度角，適用於垂直或水平。
- High brightness red LED indication makes you easy to know the operating situation.
/ 採用超高亮度紅色LED，更易於辨識感應器的使用狀態。
- Special line-out design for tensile. It will upgrade the durability and life.
/ 獨特的出線包覆設計，抗拉，提升耐用度及壽命。



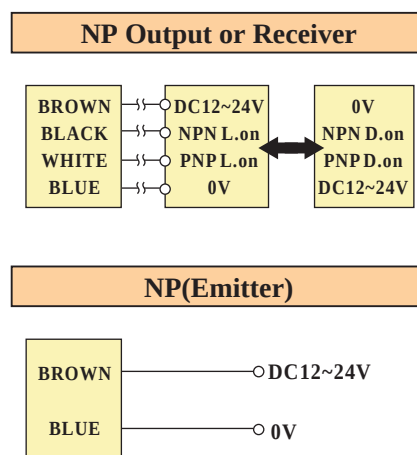
◆ Specifications / 規格表：

Model / 型號	PMF-DU10NP PMF-DU40NP	PMF-10NP PMF-20NP	PMF-R2NP
Sensing type / 檢出方式	Diffuse reflection / 擴散反射式	Through beam / 對照式	Retroreflective / 鏡片反射式
Sensing distance / 檢出距離	10 cm 40 cm	10 M 20 M	2M
Emitting light / 發光源	Infrared LED 850 nm	Infrared LED 850 nm	Infrared LED 850 nm
Operating voltage / 工作電壓	DC12 ~ 24 V		
Current Consumption / 消耗電流	20 mA Max.	(Receiver) 20 mA Max. (Emitter) 18mA Max.	20 mA Max.
Load current / 負載電流	100mA Max. at DC24V		
Output type / 輸出模式	NPN L.on/D.on PNP L.on/D.on		
Response time / 反應時間	1.5 ms Max.	7 ms Max.	1.5 ms Max.
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)		
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.		
Operating temperature/工作溫度	- 20 °C ~ + 60 °C		
Ambient humidity / 工作溼度	35% ~ 85% RH		
Protection degree / 防水等級	IP66		
Wiring method / 出線方式	Pre-weird Ø5.2 x 2 M / 4-wires	(Receiver) Ø5.2 x 2 M / 4-wires / (Emitter) Ø5.2 x 2 M / 2-wires	Pre-weird Ø5.2 x 2 M / 4-wires
Option / 選購配件 (Page 252)	Bracket / 固定架：MF-01		
Weight / 重量	Approx.85g	Approx.165g	Approx.85g

◆ Dimensions / 尺寸圖：(unit:mm)



◆ Wiring diagrams / 接線圖：



◆ Characteristic / 特點：

- Standard M18 cylindrical plastic tube.
/ M18螺牙，國際標準規格。
- Threaded length=35mm.
/ 螺牙長度35mm，易於安裝調整。
- ABS barrel applied to factory environments..
/ ABS工程塑膠外殼，抗環境能力佳。

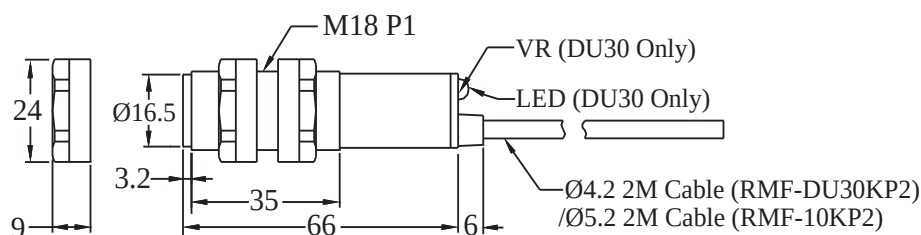


◆ Specifications / 規格表：

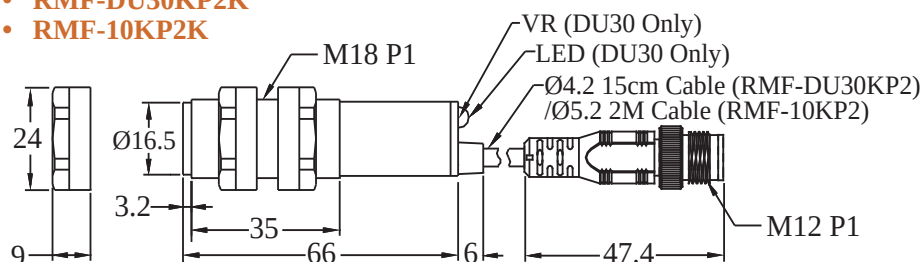
Model / 型號	RMF-DU30KP2	RMF-DU30KP2K	RMF-10KP2	RMF-10KP2K
Sensing type / 檢出方式	Diffuse reflection / 擴散反射式		Through beam / 對照式	
Sensing distance / 檢出距離	30 cm		10M	
Emitting light / 發光源	Infrared LED 875 nm		Infrared LED 850 nm	
Operating voltage / 工作電壓	DC12 ~ 24 V			
Current Consumption / 消耗電流	30 mA Max.		45 mA Max./Each side	
Load current / 負載電流	100mA Max. at DC24V			
Output type / 輸出模式	NPN L.on/D.on		PNP D.on./L.on	
Response time / 反應時間	1.5 ms Max.			
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)			
Voltage withstandabiligy / 絕緣耐壓	AC1000V 60Hz for 60 Sec.			
Operating temperature/工作溫度	- 25 ℃ ~ + 60 ℃			
Ambient humidity / 工作溼度	35% ~ 85% RH			
Protection degree / 防水等級	IP66			
Material / 外觀材質	ABS			
Wiring method / 出線方式	Pre-wired Ø4.2 x 2M / 4-wires	M12 pigtailed type / M12 接頭15cm電線式	(Receiver) Ø5.2 x 2 M / 4-wires/ (Emitter) Ø5.2 x 2 M / 2-wires	M12 pigtailed type / M12 接頭15cm電線式
Option / 選購配件 (Page 252)	Bracket / 固定架：MF-01			
Weight / 重量	Approx.80g	Approx.40g	Approx.160g	Approx.60g

◆ Dimensions / 尺寸圖：(unit:mm)

- RMF-DU30KP2
- RMF-10KP2

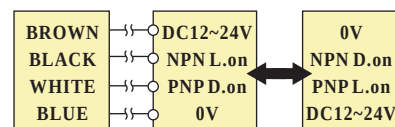


- RMF-DU30KP2K
- RMF-10KP2K

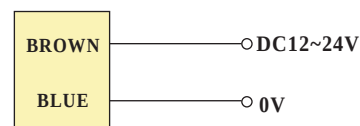


◆ Wiring diagrams / 接線圖：

KP2 Output or Receiver



KP2(Emitter)



◆ Characteristic / 特點：

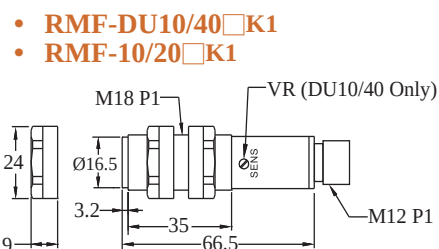
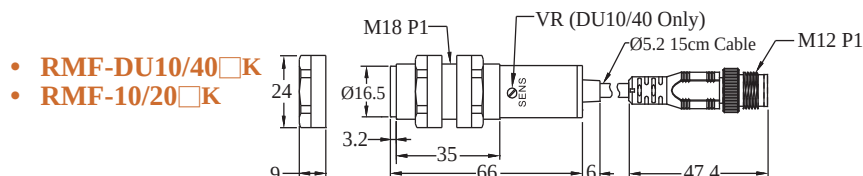
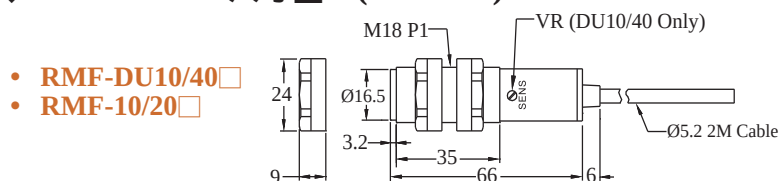
- Standard M18 cylindrical plastic tube.
/ M18螺牙，國際標準規格。
- Threaded length = 35mm.
/ 螺牙長度35mm，易於安裝調整。
- ABS barrel applied to factory environments.
/ ABS工程塑膠外殼，抗環境能力佳。



◆ Specifications / 規格表：

Model / 型號	RMF-DU10□ RMF-DU40□	RMF-10□ RMF-20□
	RMF-DU10□K RMF-DU40□K	RMF-10□K RMF-20□K
	RMF-DU10□K1 RMF-DU40□K1	RMF-10□K1 RMF-20□K1
Sensing type / 檢出方式	Diffuse reflection / 擴散反射式	
Sensing distance / 檢出距離	10 cm 40 cm	10 M 20 M
Emitting light / 發光源	Infrared LED 875 nm	
Operating voltage / 工作電壓	DC12 ~ 24 V	
Current Consumption / 消耗電流	25 mA Max.	45 mA Max.
Load current / 負載電流	100mA Max. at DC24V	
Output type / 輸出模式	[N] : NPN L.on/D.on / [P] : PNP L.on/D.on	
Response time / 反應時間	1.5 ms Max.	
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)	
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.	
Operating temperature / 工作溫度	- 20 °C ~ + 60 °C	
Ambient humidity / 工作溼度	35% ~ 85% RH	
Protection degree / 防水等級	IP66	
Material / 外觀材質	ABS	
Wiring method / 出線方式	RMF-DU10/40□ RMF-10/20□	(Receiver) Ø5.2 x 2 M / 4-wires / (Emitter) Ø5.2 x 2 M / 2-wires
	RMF-DU10/40□K RMF-10/20□K	M12 pigtailed connector type / M12 接頭15cm電線式
	RMF-DU10/40□K1 RMF-10/20□K1	M12 plug-in connector type / M12 接頭
Option / 選購配件 (Page 252)	Bracket / 固定架：MF-01	
Weight / 重量	RMF-DU10/40□ RMF-10/20□	Approx.85g
	RMF-DU10/40□K RMF-10/20□K	Approx.35g
	RMF-DU10/40□K1 RMF-10/20□K1	Approx.20g

◆ Dimensions / 尺寸圖：(unit:mm)



◆ Characteristic / 特點：

- Standard M18 cylindrical metal tube.
/ M18螺牙，國際標準規格。
- Threaded length = 35mm.
/ 螺牙長度35mm，易於安裝調整。
- ABS barrel applied to factory environments.
/ ABS工程塑膠外殼，抗環境能力佳。

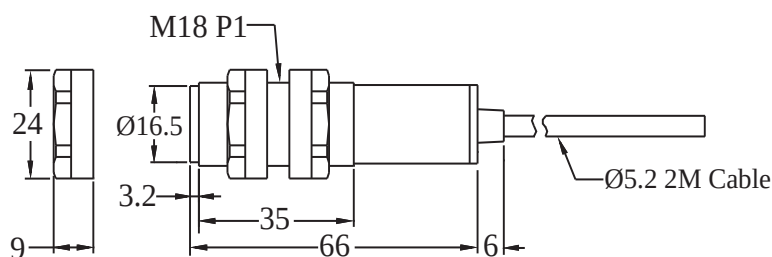


◆ Specifications / 規格表：

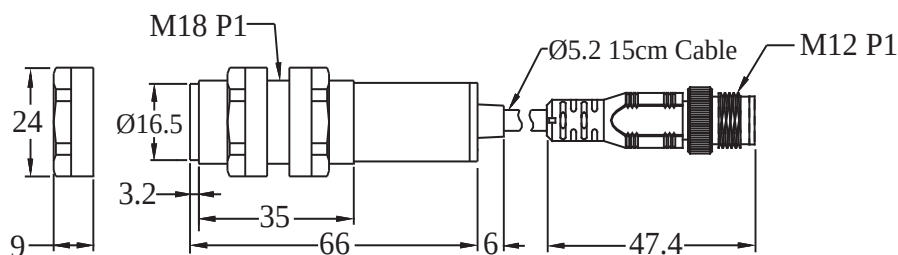
Model / 型號	RMF-CR2□	RMF-CR2□K	RMF-CR2□K1
Sensing type / 檢出方式	Retroreflective / 鏡片反射式		
Sensing distance / 檢出距離	2M		
Emitting light / 發光源	Infrared LED 940 nm		
Operating voltage / 工作電壓	DC12 ~ 24 V		
Current Consumption / 消耗電流	25 mA Max.		
Load current / 負載電流	100mA Max. at DC24V		
Output type / 輸出模式	[N] : NPN L.on/D.on / [P] : PNP L.on/D.on		
Response time / 反應時間	1.5 ms Max.		
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)		
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.		
Operating temperature/工作溫度	- 20 °C ~ + 60 °C		
Ambient humidity / 工作溼度	35% ~ 85% RH		
Protection degree / 防水等級	IP66		
Material / 外觀材質	ABS		
Wiring method / 出線方式	Pre-weird Ø5.2 x 2 M / 4-wires	M12 pigtailed connector type / M12 接頭15cm電線式	M12 plug-in connector type / M12 接頭
Option / 選購配件 (Page 252)	Bracket / 固定架：MF-01		
Weight / 重量	Approx.85g	Approx.35g	Approx.20g

◆ Dimensions / 尺寸圖：(unit:mm)

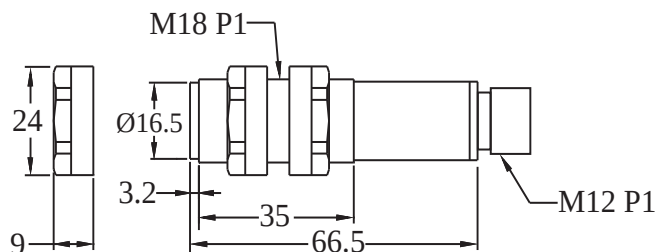
• RMF-CR2□



• RMF-CR2□K



• RMF-CR2□K1



◆ Characteristic / 特點：

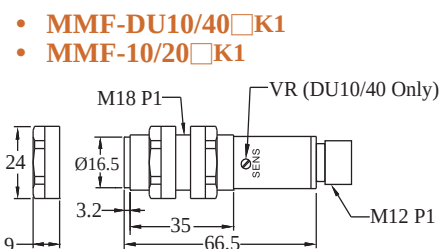
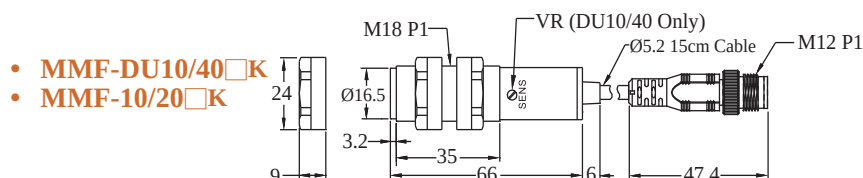
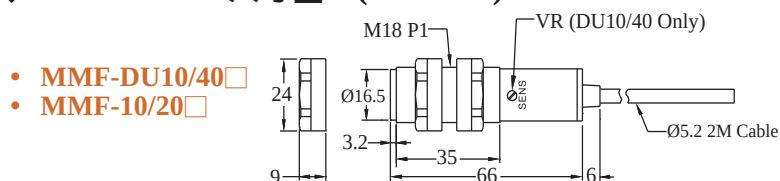
- Standard M18 cylindrical metal tube.
/ M18螺牙，國際標準規格。
- Threaded length = 35mm.
/ 螺牙長度35mm，易於安裝調整。
- Compact and durable.
/ 金屬本體，堅固耐用。



◆ Specifications / 規格表：

Model / 型號	MMF-DU10□ MMF-DU40□	MMF-10□ MMF-20□
	MMF-DU10□K MMF-DU40□K	MMF-10□K MMF-20□K
	MMF-DU10□K1 MMF-DU40□K1	MMF-10□K1 MMF-20□K1
Sensing type / 檢出方式	Diffuse reflection / 擴散反射式	
Sensing distance / 檢出距離	10 cm 40 cm	10 M 20 M
Emitting light / 發光源	Infrared LED 875 nm	
Operating voltage / 工作電壓	DC12 ~ 24 V	
Current Consumption / 消耗電流	25 mA Max.	45 mA Max.
Load current / 負載電流	100mA Max. at DC24V	
Output type / 輸出模式	[N] : NPN L.on/D.on / [P] : PNP L.on/D.on	
Response time / 反應時間	1.5 ms Max.	
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)	
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.	
Operating temperature / 工作溫度	- 20 °C ~ + 60 °C	
Ambient humidity / 工作溼度	35% ~ 85% RH	
Protection degree / 防水等級	IP66	
Material / 外觀材質	Nickel plated brass	
Wiring method / 出線方式	MMF-DU10/40□ MMF-10/20□	Pre-wired Ø5.2 x 2 M / 4-wires
	MMF-DU10/40□K MMF-10/20□K	(Receiver) Ø5.2 x 2 M / 4-wires / (Emitter) Ø5.2 x 2 M / 2-wires
	MMF-DU10/40□K1 MMF-10/20□K1	M12 pigtailed connector type / M12 接頭15cm電線式
Option / 選購配件 (Page 252)	Bracket / 固定架：MF-01	
Weight / 重量	MMF-DU10/40□ MMF-10/20□	Approx.105g
	MMF-DU10/40□K MMF-10/20□K	Approx.50g
	MMF-DU10/40□K1 MMF-10/20□K1	Approx.40g

◆ Dimensions / 尺寸圖：(unit:mm)

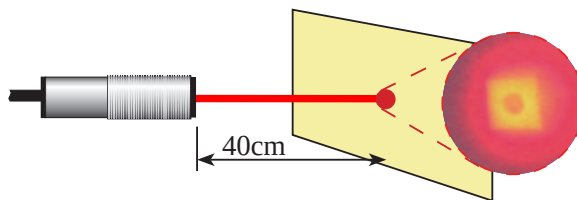


◆ Characteristic / 特點：

- Standard M18 cylindrical metal tube. Compact and durable.
/ M18螺牙，金屬本體，堅固耐用。
- Threaded length = 35mm.
/ 螺牙長度35mm，易調整。



- MMF-QR2□
Clearly visible red LED / 清晰可見的紅光LED

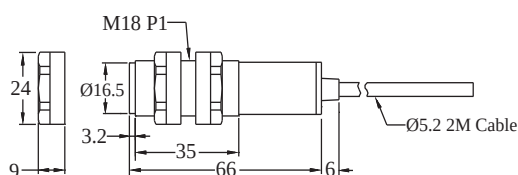


◆ Specifications / 規格表：

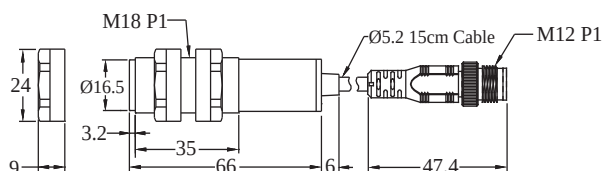
Model / 型號	MMF-CR2□	MMF-QR2□
	MMF-CR2□K	MMF-QR2□K
	MMF-CR2□K1	MMF-QR2□K1
Sensing type / 檢出方式	Retroreflective / 鏡片反射式	Retroreflective(Red LED) / 鏡片反射式(紅光)
Sensing distance / 檢出距離	2M	
Emitting light / 發光源	Infrared LED 940 nm	Red LED 650 nm
Operating voltage / 工作電壓	DC12 ~ 24 V	
Current Consumption / 消耗電流	25 mA Max.	
Load current / 負載電流	100mA Max. at DC24V	
Output type / 輸出模式	[N] : NPN L.on/D.on / [P] : PNP L.on/D.on	
Response time / 反應時間	1.5 ms Max.	
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)	
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.	
Operating temperature / 工作溫度	- 20 °C ~ + 60 °C	
Ambient humidity / 工作溼度	35% ~ 85% RH	
Protection degree / 防水等級	IP66	
Material / 外觀材質	Nickel plated brass	
Wiring method / 出線方式	MMF-CR2□ MMF-QR2□	Pre-wired Ø5.2 x 2 M / 4-wires
	MMF-CR2□K MMF-QR2□K	M12 pigtailed connector type / M12 接頭15cm電線式
	MMF-CR2□K1 MMF-QR2□K1	M12 plug-in connector type / M12 接頭
Option / 選購配件 (Page 252)	Bracket / 固定架：MF-01	
Weight / 重量	MMF-CR2□ MMF-QR2□	Approx.105g
	MMF-CR2□K MMF-QR2□K	Approx.50g
	MMF-CR2□K1 MMF-QR2□K1	Approx.40g

◆ Dimensions / 尺寸圖：(unit:mm)

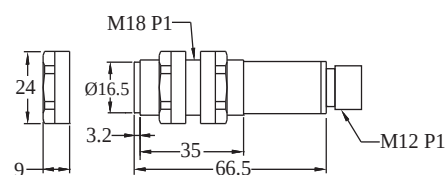
- MMF-CR2□
- MMF-QR2□



- MMF-CR2□K
- MMF-QR2□K



- MMF-CR2□K1
- MMF-QR2□K1



◆ Characteristic / 特點：

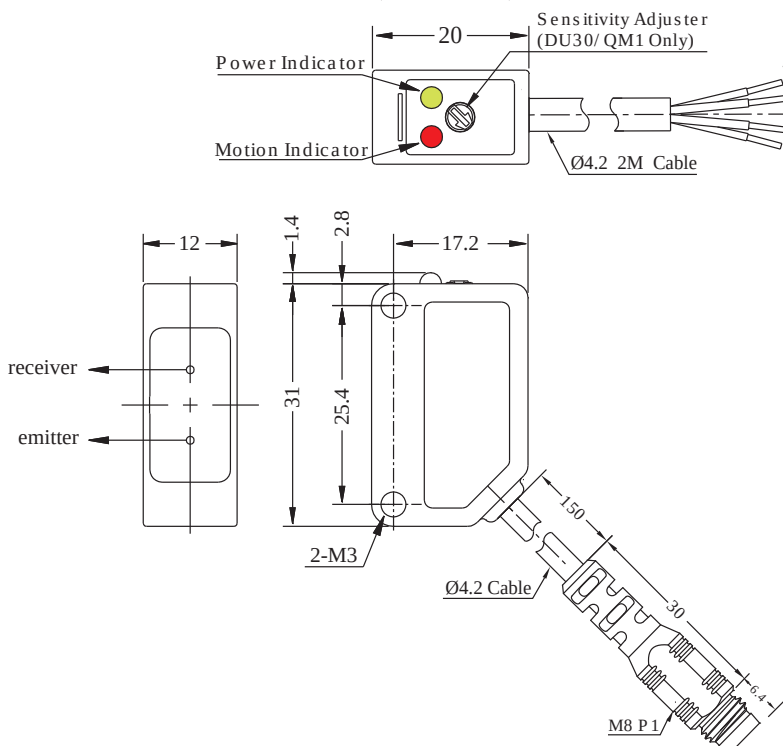
- Standard screw hole 25.4mm.
/ 標準規格 25.4mm螺絲固定孔。
- Visible dual LED makes you easy to know the current operating situation..
/ 雙LED指示燈，容易辨別動作情形。
- Compact size (W12xH31xD20mm), space saving.
/ 尺寸輕巧(W12xH31xD20mm)，省空間。



◆ Specifications / 規格表：

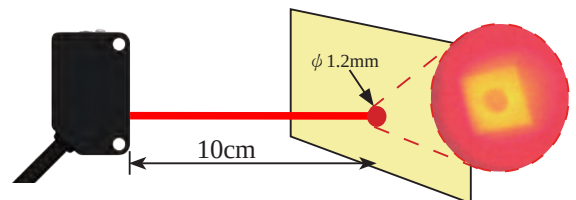
Model / 型號	Pre-wired Ø4.2	PK3-DU30N	PK3-DU30P	PK3-QM1N	PK3-QM1P	PK3-5N	PK3-5P
	M8 Pigtailed type	PK3-DU30NB	PK3-DU30PB	PK3-QM1NB	PK3-QM1PB	PK3-5NB	PK3-5PB
Sensing type / 檢出方式	Diffuse reflection / 擴散反射式			Diffuse reflection (RED) / 擴散反射型 (紅光)		Through beam / 對照式	
Sensing distance / 檢出距離	60 cm white paper 300x300 mm			10cm		5M	
Emitting light / 發光源	Infrared LED 850 nm			Red LED 660 nm		Infrared LED. 940 nm	
Operating voltage / 工作電壓	DC12 ~ 24 V						
Current Consumption / 消耗電流	25 mA Max.			20 mA Max.		40 mA Max.	
Load current / 負載電流	100mA Max. at DC24V						
Output type / 輸出模式	[N] : NPN L.on/D.on / [P] : PNP L.on/D.on						
Response time / 反應時間	1.5 ms Max.			1 ms Max.		1.5 ms Max.	
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)						
Voltage withstandabiligy / 絕緣耐壓	AC1000V 60Hz for 60 Sec.						
Operating temperature/工作溫度	- 20 °C ~ + 60 °C						
Ambient humidity / 工作溼度	35% ~ 85% RH						
Protection degree / 防水等級	IP64						
Material / 外觀材質	ABS						
Wiring method / 出線方式	PK3-□N/P	Pre-weird Ø4.2 x 2 M / 4-wires					(Receiver) Ø4.2 x 2 M / 4-wires / (Emitter) Ø4.2 x 2 M / 2-wires
	PK3-□B	M8 pigtailed connector type/ M8 接頭15cm電線式					
Weight / 重量	PK3-□N/P	Approx.60g					Approx.115g
	PK3-□B	Approx.20g					Approx.40g

◆ Dimensions / 尺寸圖：(unit:mm)

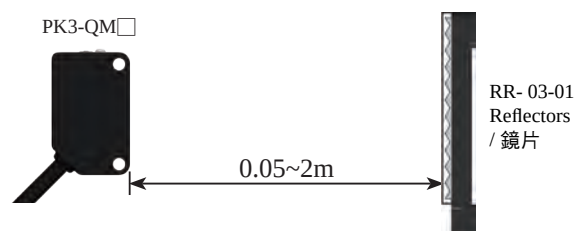


◆ Clearly visible red LED (QM series) / 清晰可見的紅光LED(QM系列)

The visible red LED is available at the distance of 10cm for PK3-QM□. It is easy for your installation and detection.



◆ With reflector, sensing distance 0.05~2m / 鏡片0.05~2m可感應(QM系列)



◆ Characteristic / 特點：

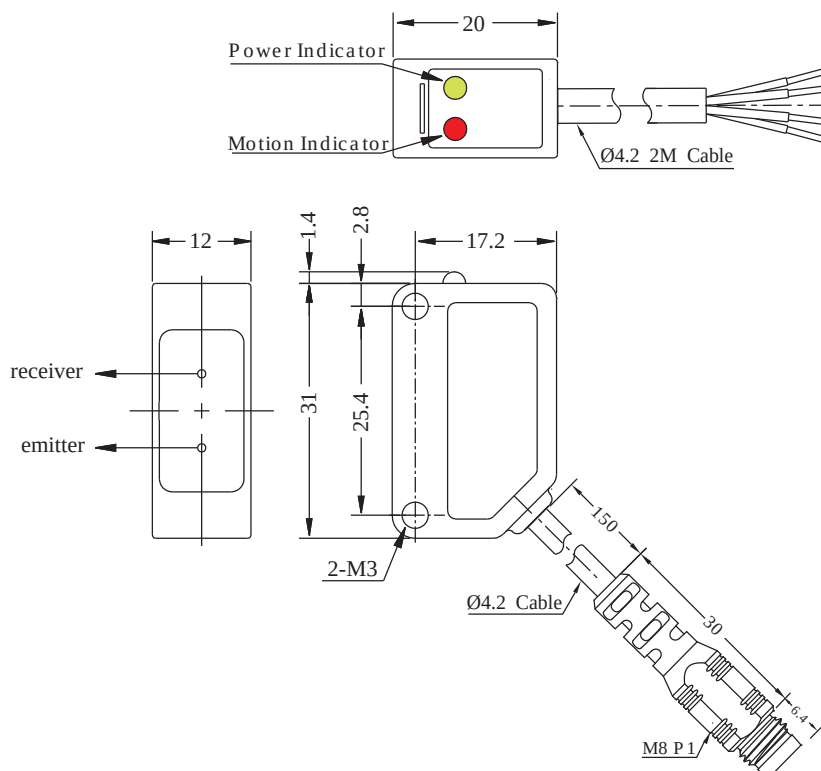
- Visible dual LED makes you easy to know the current operating situation.
/ 雙LED指示燈，讓您可以很快的辨別感應品的使用狀態。
- For a better focusing, with the Non-spherical optical lens.
/ 非球面鏡片設計，讓您在感應物體時，更加的穩定。
- Compact size (W12xH31xD20mm), space saving.
/ 省空間(W12xH31xD20mm)輕薄尺寸。



◆ Specifications / 規格表：

Model / 型號	Pre-wired Ø4.2	PK3-R2N	PK3-R2P
	M8 Pigtailed type	PK3-R2NB	PK3-R2PB
Sensing type / 檢出方式	Retroreflective/ 鏡片反射式		
Sensing distance / 檢出距離	2M		
Emitting light / 發光源	Infrared LED 850 nm		
Operating voltage / 工作電壓	DC12 ~ 24 V		
Current Consumption / 消耗電流	25 mA Max.		
Load current / 負載電流	100mA Max. at DC24V		
Output type / 輸出模式	NPN L.on/D.on		PNP L.on/D.on
Response time / 反應時間	1.5 ms Max.		
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)		
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.		
Operating temperature/工作溫度	- 20 °C ~ + 60°C		
Ambient humidity / 工作溼度	35% ~ 85% RH		
Protection degree / 防水等級	IP64		
Material / 外觀材質	ABS		
Wiring method / 出線方式	PK3-□N/P	Pre-wired Ø4.2 x 2 M / 4-wires	
	PK3-□B	M8 pigtailed connector type/ M8 接頭15cm電線式	
Weight / 重量	PK3-□N/P	Approx.60g	
	PK3-□B	Approx.20g	

◆ Dimensions / 尺寸圖：(unit:mm)



◆ Characteristic / 特點：

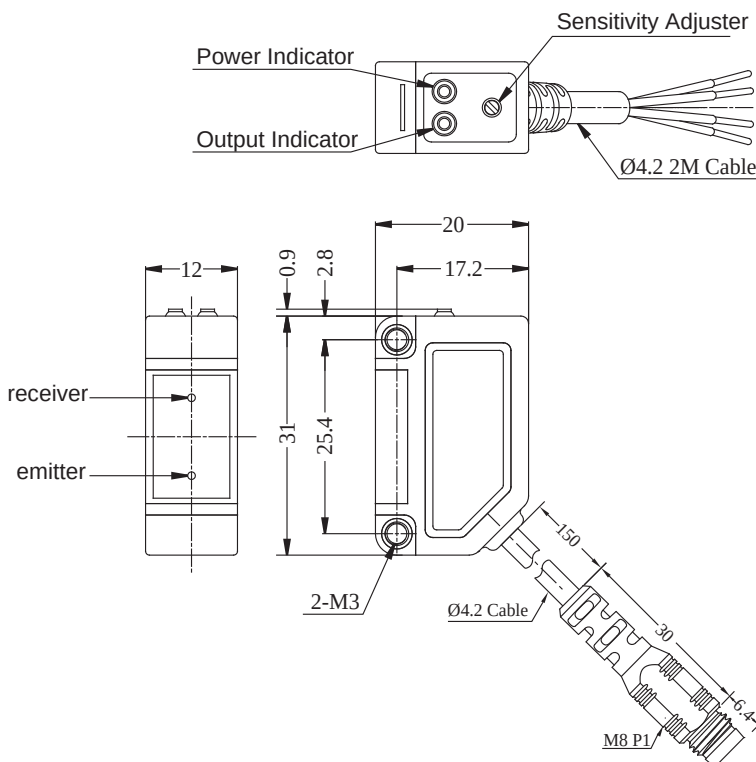
- Overmoulding pre-wired cable. One-mold design.
/ 包覆射出，一體成型，堅固耐用。
- Convergent reflective with potentiometer.
/ 限定距離可調式機種，可依不同情況而有所調整。



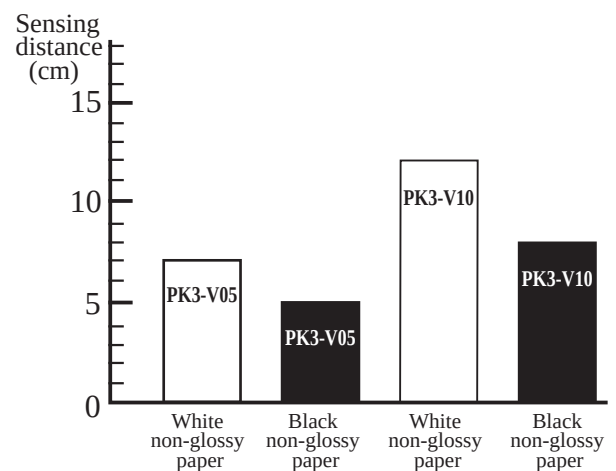
◆ Specifications / 規格表：

Model / 型號	Pre-wired Ø4.2	PK3-V05N	PK3-V05P	PK3-V10N	PK3-V10P
	M8 Pigtailed type	PK3-V05NB	PK3-V05PB	PK3-V10NB	PK3-V10PB
Sensing type / 檢出方式		Convergent reflection type / 限定距離反射型			
Sensing distance / 檢出距離		7 cm (white paper 100x100mm)		10 cm (black plastic shell)	
Emitting light / 發光源		Infrared LED 850 nm			
Operating voltage / 工作電壓		DC12 ~ 24 V			
Current Consumption / 消耗電流		20 mA Max.			
Load current / 負載電流		100mA Max. at DC24V			
Output type / 輸出模式		NPN L.on/D.on	PNP L.on/D.on	NPN L.on/D.on	PNP L.on/D.on
Response time / 反應時間		1.5 ms Max.			
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)			
Voltage withstandabiligy / 絕緣耐壓		AC1000V 60Hz for 60 Sec.			
Operating temperature/工作溫度		- 20 ℃ ~ + 60℃			
Ambient humidity / 工作溼度		35% ~ 85% RH			
Protection degree / 防水等級		IP64			
Material / 外觀材質		ABS + PC			
Wiring method / 出線方式	PK3-□N/P	Pre-weird Ø4.2 x 2 M / 4-wires			
	PK3-□B	M8 pigtailed connector type/ M8 接頭15cm電線式			
Weight / 重量	PK3-□N/P	Approx.60g			
	PK3-□B	Approx.20g			

◆ Dimensions / 尺寸圖：(unit:mm)



◆ PK3-V05 & PK3-V10 detecting different materials：



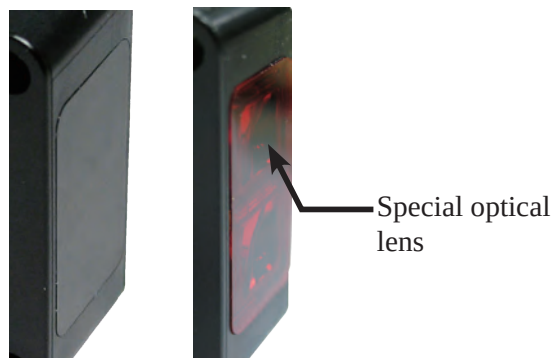
◆ Introduction / 介紹：

• Dual LED indicator / 雙LED指示燈

Visible dual LED makes you easy to know the current operating situation.

• Non-spherical optical lens / 非球面光學鏡片

For a better focusing, with the exceptional optical lens.



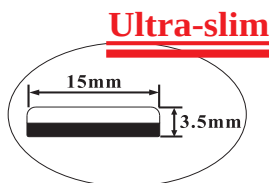
• Flexible Mounting / 本體固定

Embedded brass screw hole, easy mounting and no damage to the body.



◆ Characteristic / 特點：

- Ultra slim body(only 3.5mm thickness). Easy to be mounted.
/ 超薄體積(3.5mm)，容易安裝。
- Application：Narrow space sensing.
/ 適合狹小空間檢測物體。
- Visible focused lightn, easy for recognition.
/ 光點集中，方便識別。

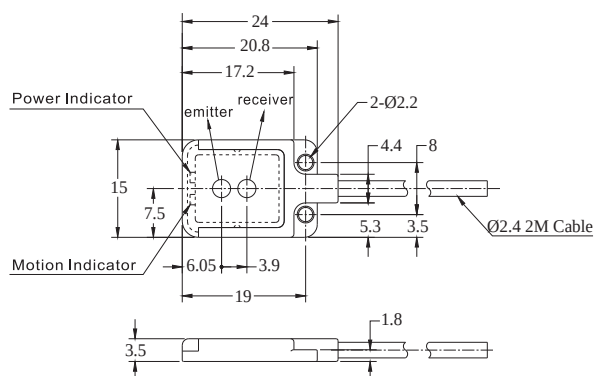


◆ Specifications / 規格表：

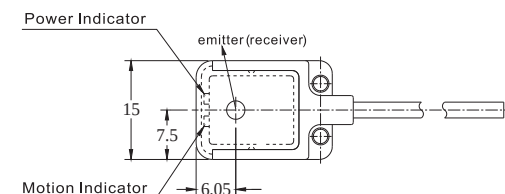
Model / 型號	PK5-DU03N PK5-DU03P	PK5-F05N PK5-F05P	PK5-1N PK5-1P
Sensing type / 檢出方式	Diffuse reflection / 擴散反射式	Diffuse reflection (small spot from LED Red light) / 擴散反射式(紅光小光點)	Through beam / 對照式
Sensing distance / 檢出距離	3 cm, 白板 100x100mm	5 cm, 白板 100x100mm	1M
Emitting light / 發光源	Red LED 632 nm		Infrared LED 940nm
Operating voltage / 工作電壓	DC12 ~ 24 V±10% (Ripple P-P : 10% Max.)		
Current Consumption / 消耗電流	15 mA Max.		
Load current / 負載電流	100mA Max. at DC24V		
Output type / 輸出模式	☐ N : NPN L.on ☐ P : PNP L.on		☐ N : NPN D.on ☐ P : PNP D.on
Protection circuit / 保護電路	Reversed supply circuit protection, short circuit protection output 電源反接保護及輸出短路保護		
Response time / 反應時間	0.5 ms Max.		
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)		
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.		
Operating temperature / 工作時溫度	-10℃ ~ + 45℃ (No freezing allowed不可結霜,結冰)		
Ambient humidity / 工作時溼度	35% ~ 85% RH 相對溼度		
Storage temperature / 儲存時溫度	-10℃ ~ + 55℃ (No freezing allowed不可結霜,結冰)		
Storage humidity / 儲存時溼度	35% ~ 95% RH 相對溼度		
Protection degree / 防水等級	IP64	IP65	IP64
Material / 外觀材質	ABS		
Wiring method / 出線方式	Ø2.4 x 2 M / 3-wires		(Receiver) Ø2.4 x 2 M / 3-wires / (Emitter) Ø2.4 x 2 M / 2-wires
Option / 選購配件 (Page 252)	Bracket / 固定架：PK5/PM6 Mounting Bracket		
Weight / 重量	Approx.20g		Approx.40g

◆ Dimensions / 尺寸圖：(unit:mm)

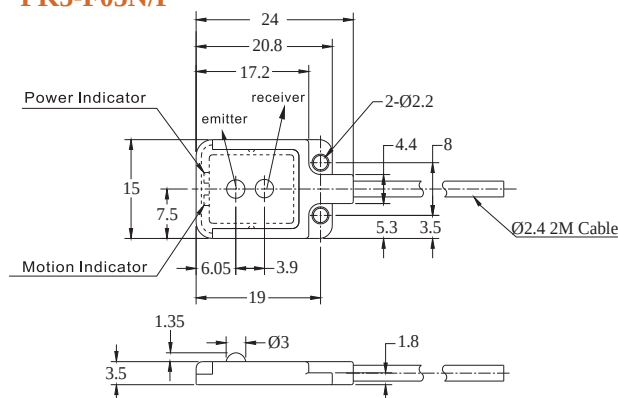
• PK5-DU03N/P



• PK5-1N/P



• PK5-F05N/P



◆ Characteristic / 特點：

- Focused small light spot easy to detect tiny objects.
/ 光源集中，適合檢測小物體。
- Complied with mask tilt, mounted in narrow space.
/ 配合專屬狹光片，可安裝窄小空間。



◆ Specifications / 規格表：

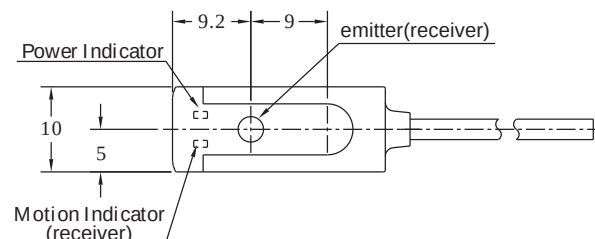
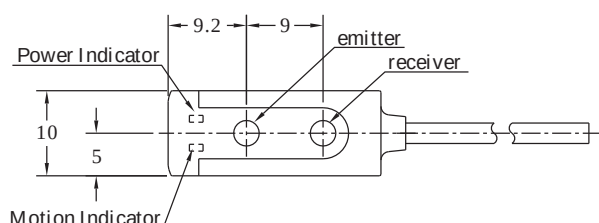
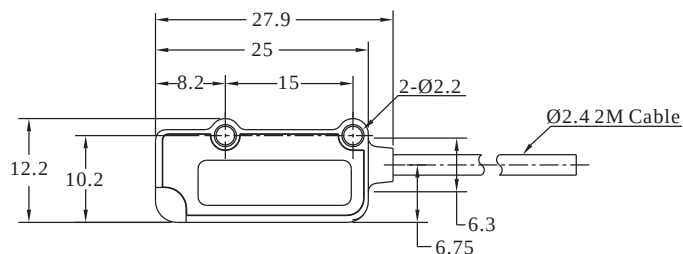
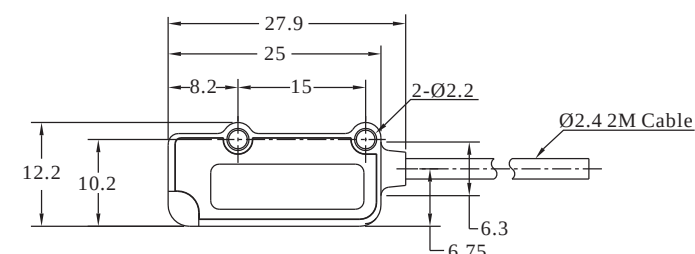
Model / 型號	PM6-DU05N	PM6-T50N	PM6-2N
	PM6-DU05P	PM6-T50P	PM6-2P
Sensing type / 檢出方式	Diffuse reflection / 擴散反射式	Through beam / 對照式	
Sensing distance / 檢出距離	5 cm , 白紙 100x100 (5cm以上)	50cm	2M
Emitting light / 發光源	Infrared LED 940nm		
Operating voltage / 工作電壓	DC12 ~24V±10% (Ripple P-P : 10% Max.)		
Current Consumption / 消耗電流	20mA Max.	30mA Max.	
Load current / 負載電流	100mA Max. at DC24V		
Output type / 輸出模式	☐ N : NPN L.on ☐ P : PNP L.on	☐ N : NPN D.on ☐ P : PNP D.on	
Protection circuit / 保護電路	Reversed supply circuit protection, short circuit protection output 電源反接保護及輸出短路保護		
Response time / 反應時間	1 ms Max.		
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)		
Voltage withstandabiligy / 絕緣耐壓	AC1000V 60Hz for 60 Sec.		
Operating temperature / 工作時溫度	-10℃ ~ + 45℃ (No freezing allowed不可結霜,結冰)		
Ambient humidity / 工作時溼度	35% ~ 85% RH 相對溼度		
Storage temperature / 儲存時溫度	-10℃ ~ + 55℃ (No freezing allowed不可結霜,結冰)		
Storage humidity / 儲存時溼度	35% ~ 95% RH 相對溼度		
Protection degree / 防水等級	IP64		
Material / 外觀材質	ABS		
Wiring method / 出線方式	Ø2.4 x 2M / 3-wires	(Receiver) Ø2.4 x 2 M / 3-wires / (Emitter) Ø2.4 x 2 M / 2-wires	
Option / 選購配件 (Page 252)	Bracket / 固定架：PK5/PM6 Mounting Bracket		
Weight / 重量	Approx.20g	Approx.40g	

◆ Dimensions / 尺寸圖：(unit:mm)

• PM6-DU50N/P

• PM6-T50N/P

• PM6-2N/P



◆ Characteristic / 特點：

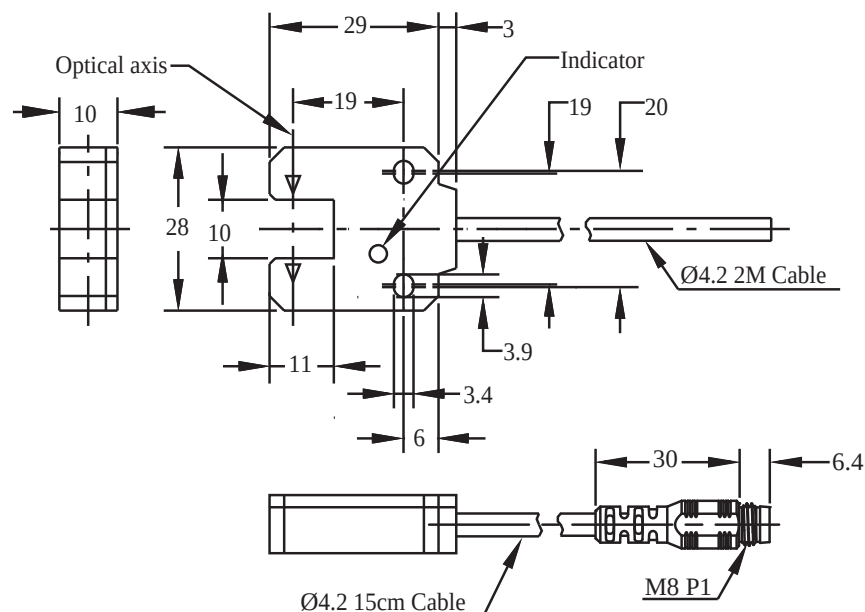
- High-speed response, 1 kHz (DC-light type)
/ 體積小, 反應速度快約1kHz.
- Sensing distance 10mm, suitable for the detection of small objects.
/ 檢測距離10mm,適用於小物體檢測.
- Infrared beam axis 1mm width.
/ 紅外線光軸檢測寬度1.0mm.



◆ Specifications / 規格表：

Model / 型號		SU-N	SU-ND	SU-P	SU-PD
		SU-N2	SU-N2D	SU-P2	SU-P2D
Sensing distance / 檢出距離		10mm			
Min. detection object / 最小檢測物		Opaque / 非透明體 (Ø0.5 x 10.0mm)			
Emitting light / 發光源		Infrared LED 940nm			
Operating voltage / 工作電壓		DC12 ~ 24 V			
Current Consumption / 消耗電流		20 mA Max.			
Load current / 負載電流		100mA Max. at DC24V			
Output type / 輸出模式	NO Type	N : NPN N.O. (dark operated)		P : PNP N.O. (dark operated)	
	NC Type	N2 : NPN N.C. (light operated)		P2 : PNP N.C.(light operated)	
Response time / 反應時間		1 ms Max.			
Ambient illumination/使用環境光源		Incandescent light / 白光 : 1,000 lux max.			
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)			
Voltage withstandabiligy / 絕緣耐壓		AC500V 60Hz for 60 Sec.			
Operating temperature/工作溫度範圍		-10℃ ~ + 55℃			
Ambient humidity/溼度範圍		45% ~ 85% RH 相對溼度			
Protection degree / 防水等級		IP64			
Vibration resistance / 耐震頻率		1.5-mm peak-to-peak amplitude, 10 to 55 Hz, 2 hours each in X, Y, and Z directions			
Shock resistance / 耐震度		50G, repeated 10 times each in X, Y, and Z directions			
Material / 外觀材質		PC			
Wiring method / 出線方式		Pre-wired Ø4.2 x 2 M / 3-wires	M8 pigtailed type / M8 接頭15cm電線式	Pre-wired Ø4.2 x 2 M / 3-wires	M8 pigtailed type / M8 接頭15cm電線式
Weight /重量		Approx.55g	Approx.35g	Approx.55g	Approx.35g

◆ Dimensions / 尺寸圖：(unit:mm)



◆ Characteristic / 特點：

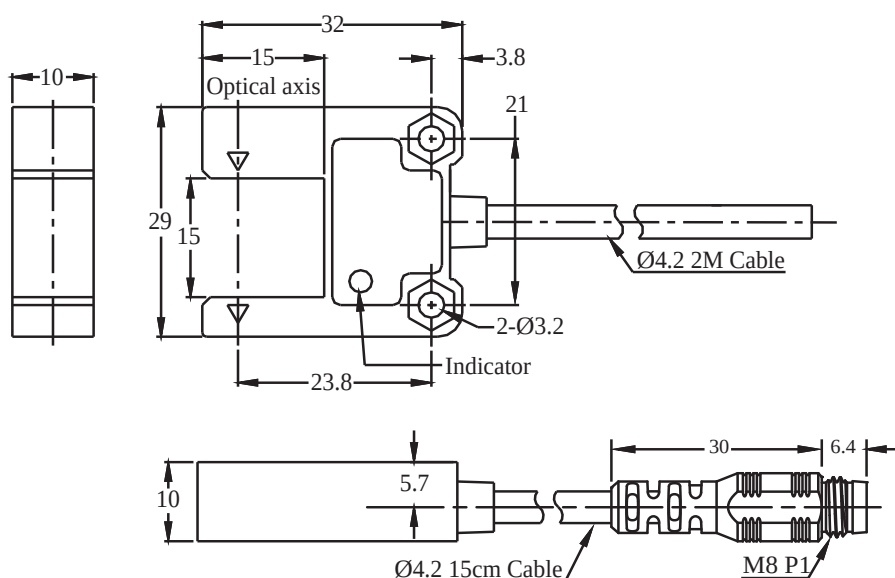
- High-speed response, 1 kHz (DC-light type)
/ 體積小, 反應速度快約1kHz。
- Wide vane, 15 mm (DC-light type)
/ 檢測距離15mm,適用於小物體檢測。
- SU15 has a better prevention of outside light.
/ SU15對外亂光干擾抵抗優。



◆ Specifications / 規格表：

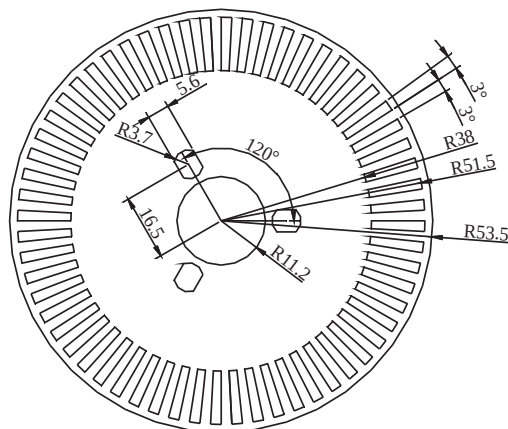
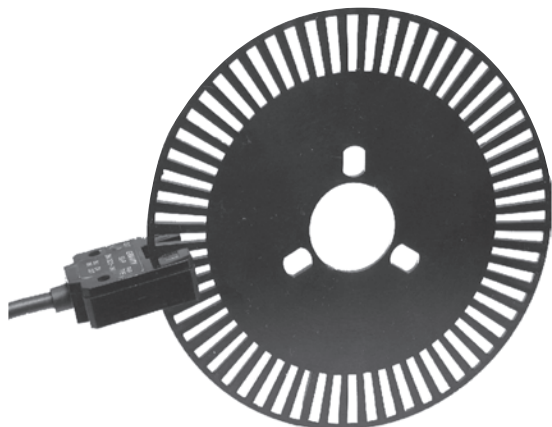
Model / 型號		SU15-N	SU15-ND	SU15-P	SU15-PD
		SU15-N2	SU15-N2D	SU15-P2	SU15-P2D
Sensing distance / 檢出距離		15mm			
Min. detection object / 最小檢測物		Opaque / 非透明體 (Ø0.5 x 10.0mm)			
Emitting light / 發光源		Infrared LED 940nm			
Operating voltage / 工作電壓		DC12 ~ 24 V			
Current Consumption / 消耗電流		25 mA Max.			
Load current / 負載電流		100mA Max. at DC24V			
Output type / 輸出模式	NO Type	N : NPN N.O. (dark operated)		P : PNP N.O. (dark operated)	
	NC Type	N2 : NPN N.C. (light operated)		P2 : PNP N.C.(light operated)	
Response time / 反應時間		1 ms Max.			
Ambient illumination/使用環境光源		Incandescent light / 白光 : 1,000 lux max.			
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)			
Voltage withstandabiligy / 絕緣耐壓		AC500V 60Hz for 60 Sec.			
Operating temperature/工作溫度範圍		-10℃ ~ + 55℃			
Ambient humidity/溼度範圍		45% ~ 85% RH 相對溼度			
Protection degree / 防水等級		IP64			
Vibration resistance / 耐震頻率		1.5-mm peak-to-peak amplitude, 10 to 55 Hz, 2 hours each in X, Y, and Z directions			
Shock resistance / 耐震度		50G, repeated 10 times each in X, Y, and Z directions			
Material / 外觀材質		PC			
Wiring method / 出線方式		Pre-wired Ø4.2 x 2 M / 3-wires	M8 pigtailed type / M8 接頭15cm電線式	Pre-wired Ø4.2 x 2 M / 3-wires	M8 pigtailed type / M8 接頭15cm電線式
Weight / 重量		Approx.55g	Approx.35g	Approx.55g	Approx.35g

◆ Dimensions / 尺寸圖：(unit:mm)



◆ FAN001 Dimensions / FAN001尺寸圖 : (unit:mm)

• FAN001



R5JM
/R3JK

PTQ18

PMF
/RMF
/MMF

PK3
/PK5
/PM6

SU
/SU15
/SU07
/SU30

SPR
/RX

OAP
/ASP

RU18

◆ Characteristic / 特點：

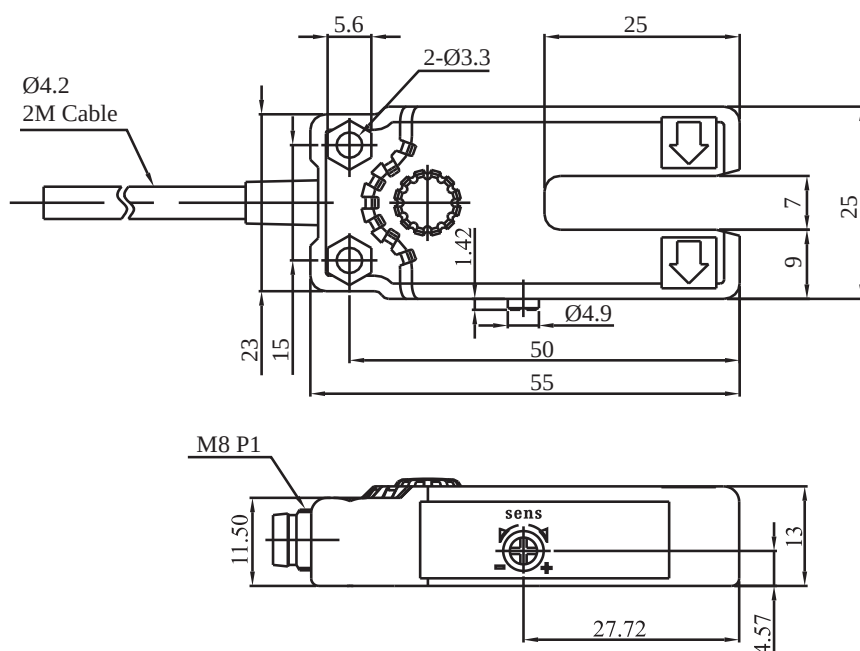
- Sensing distance 7mm.
/ U型寬幅7mm，檢出範圍大。
- Bright LED output indicator. / 高亮度LED動作燈。
- Sensitivity adjustment 12-turn potentiometer (VR).
/ 多轉式(12轉)VR調整，檢出更方便。
- Visible red light detection application：Address reading and cut mark sensing.
/ 可見紅光檢出，適合位置讀取，記號點檢知。



◆ Specifications / 規格表：

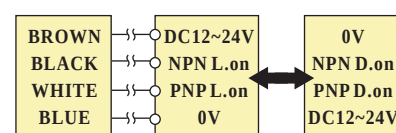
Model / 型號	NPN D.on	SU07-N	SU07-ND1
	PNP D.on	SU07-P	SU07-PD1
	NPN L.on/D.on PNP L.on/D.on	SU07-NP	SU07-NPB1
Sensing distance / 檢出距離	7 mm		
Min. detection object / 最小檢測物	Opaque / 非透明體 (Ø0.5 x 10.0mm)		
Emitting light / 發光源	Red LED 660 nm		
Operating voltage / 工作電壓	DC12 ~ 24 V		
Current Consumption / 消耗電流	18 mA Max.		
Load current / 負載電流	100mA Max. at DC24V		
Response time / 反應時間	1 ms Max.		
Ambient illumination/使用環境光源	Incandescent light / 白光：1,000 lux max.		
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)		
Voltage withstandability / 絕緣耐壓	AC500V 60Hz for 60 Sec.		
Operating temperature/工作溫度範圍	-10℃ ~ + 55℃		
Ambient humidity/溼度範圍	35% ~ 85% RH 相對溼度		
Protection degree / 防水等級	IP64		
Vibration resistance / 耐震頻率	1.5 mm peak to peak amplitude, 10 to 55 Hz, 2 hours in X,Y and z directions		
Shock resistance / 耐震度	50 G repeated 10 times each in X,Y and Z directions		
Material / 外觀材質	PC		
Wiring method / 出線方式	N/P：Pre-wired Ø4.2 x 2 M / 3-wires NP：Pre-wired Ø4.2 x 2 M / 4-wires		M8 connector / M8 接頭式
Weight / 重量	Approx.65g		Approx.25g

◆ Dimensions / 尺寸圖：(unit:mm)

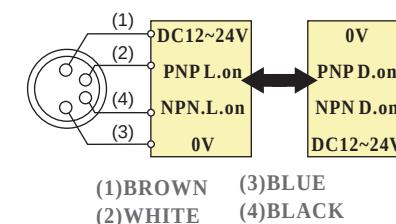


◆ Wiring diagrams / 接線圖：

NP Output



NPB1 Output



◆ Timing chart / 時序圖：

NPN/ PNP/ NP Type

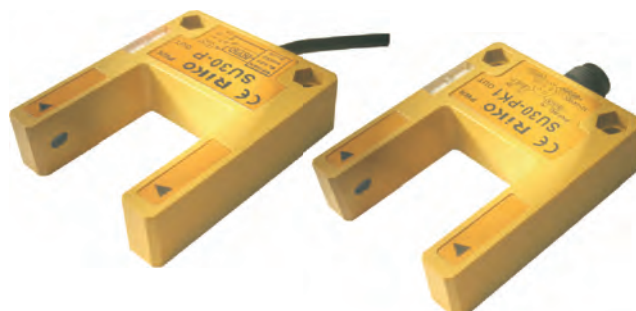
No. of optical axes/model	Operation mode	Timing charts
SU07-N SU07-ND1 SU07-P SU07-PD1 SU07-NP SU07-NPB1	Dark ON	Incident light No incident light Operation indicator (red) Control output Output transistor Load (e.g., relay) ON OFF ON OFF Operate Reset

NP Type

No. of optical axes/model	Operation mode	Timing charts
SU07-NP SU07-NPB1	Light ON	Incident light No incident light Operation indicator (red) Control output Output transistor Load (e.g., relay) ON OFF ON OFF Operate Reset

◆ Characteristic / 特點：

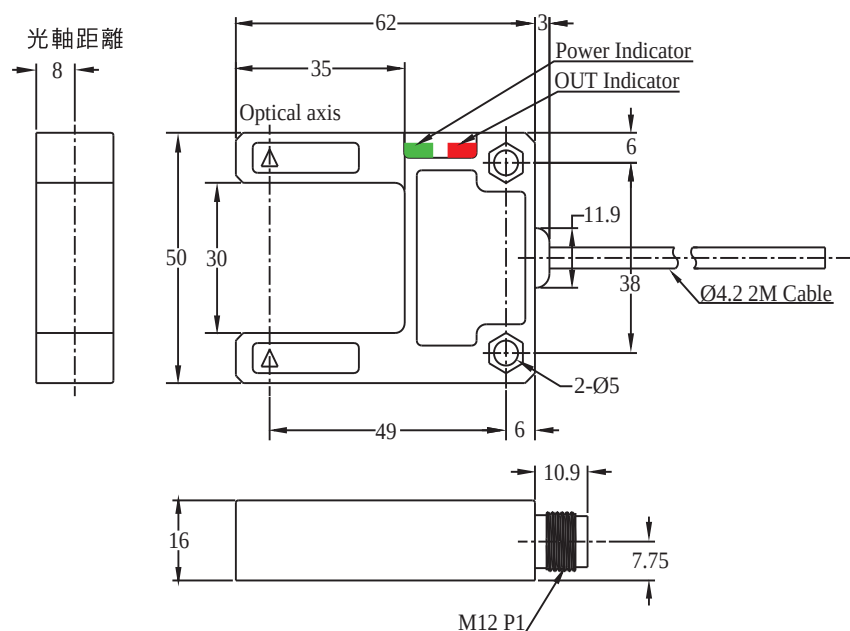
- Wide sensing range : 30mm.
/ U型寬幅30mm，檢出範圍大。
- Two indicators (power/sensing). Easy to recognize.
/ 雙指示燈(電源指示/感應指示)容易辨認。
- NP model : NPN+PNP L.on/D.on 4-in-1 outputs.
/ 新型NP電路：NPN/PNP All in one.



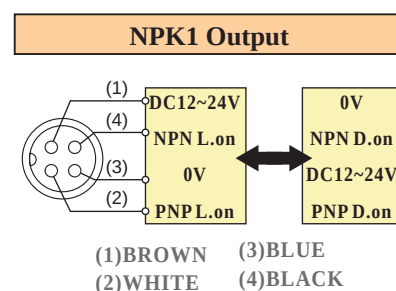
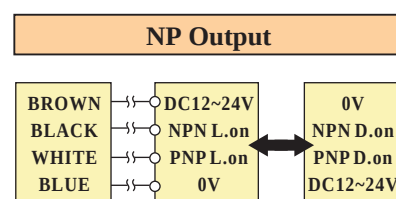
◆ Specifications / 規格表：

Model / 型號	NPN L.on/D.on	SU30-N	SU30-NK1
	PNP L.on/D.on	SU30-P	SU30-PK1
	NPN L.on/D.on	SU30-NP	SU30-NPK1
	PNP L.on/D.on		
Sensing distance / 檢出距離	30 mm		
Min. detection object / 最小檢測物	Opaque / 非透明體 (Ø1.0 x 10.0mm)		
Emitting light / 發光源	Infrared LED 940 nm		
Operating voltage / 工作電壓	DC12 ~ 24 V		
Current Consumption / 消耗電流	20 mA Max.		
Load current / 負載電流	100mA Max. at DC24V		
Response time / 反應時間	1 ms Max.		
Ambient illumination/使用環境光源	Incandescent light / 白光 : 3,000 lux max.		
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)		
Voltage withstandability / 絕緣耐壓	AC500V 60Hz for 60 Sec.		
Operating temperature/工作溫度範圍	-20°C ~ + 60°C		
Ambient humidity/溼度範圍	35% ~ 85% RH 相對溼度		
Protection degree / 防水等級	IP64		
Vibration resistance / 耐震頻率	1.5 mm peak to peak amplitude, 10 to 55 Hz, 2 hours in X,Y and z directions		
Shock resistance / 耐震度	50 G repeated 10 times each in X,Y and Z directions		
Material / 外觀材質	PC		
Wiring method / 出線方式	SU30-□	Pre-wired Ø4.2 x 2 M / 4-wires	
	SU30-□K1	M12 pigtailed type / M12 接頭式	
Weight / 重量	SU30-□	Approx.86g	
	SU30-□K1	Approx.26g	

◆ Dimensions / 尺寸圖：(unit:mm)



◆ Wiring diagrams / 接線圖：



◆ Characteristic / 特點：

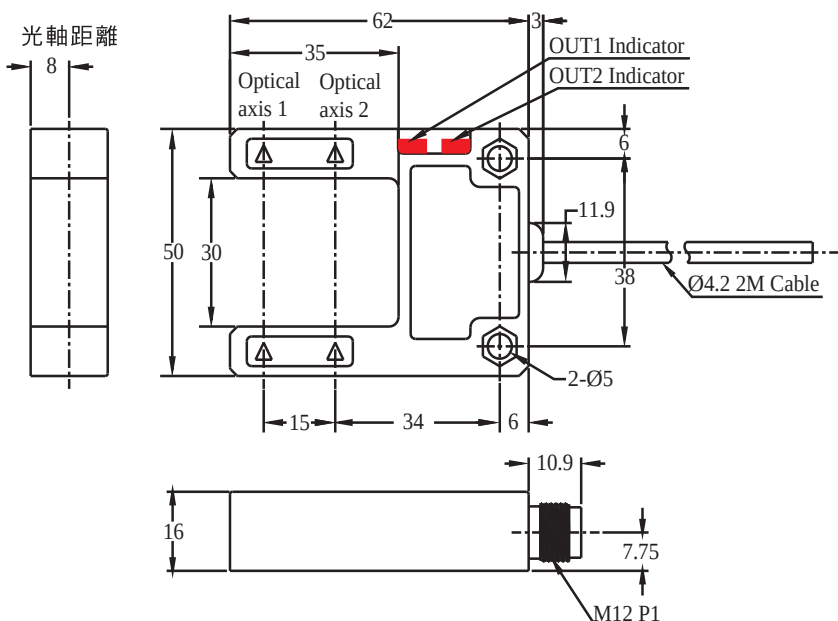
- Two indicators (OUT1 Indicator/OUT2 Indicator). Easy to recognize.
/ 雙指示燈(OUT1 Indicator/OUT2 Indicator)容易辨認。
- The distance is 7mm between front edge and first optic axis. The distance is 15mm between two optic axes.
/ 第一光軸與前端相距7mm，兩光軸相距15mm。
- Two optic axes react respectively.
/ 兩光軸各自獨立感應。



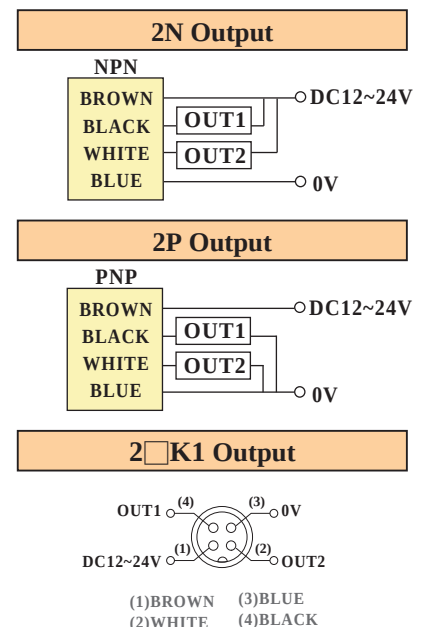
◆ Specifications / 規格表：

Model / 型號	NPN D.on	SU30-2N	SU30-2NK1
	PNP D.on	SU30-2P	SU30-2PK1
Sensing distance / 檢出距離	30 mm		
Min. detection object / 最小檢測物	Opaque / 非透明體 (Ø1.0 x 10.0mm)		
Emitting light / 發光源	Infrared LED 940 nm		
Operating voltage / 工作電壓	DC12 ~ 24 V		
Current Consumption / 消耗電流	30 mA Max.		
Load current / 負載電流	100mA Max. at DC24V		
Response time / 反應時間	1 ms Max.		
Ambient illumination/使用環境光源	Incandescent light / 白光 : 1,000 lux max.		
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)		
Voltage withstandability / 絕緣耐壓	AC500V 60Hz for 60 Sec.		
Operating temperature/工作溫度範圍	-20°C ~ + 60°C		
Ambient humidity/溼度範圍	35% ~ 85% RH 相對溼度		
Protection degree / 防水等級	IP64		
Vibration resistance / 耐震頻率	1.5 mm peak to peak amplitude, 10 to 55 Hz, 2 hours in X,Y and z directions		
Shock resistance / 耐震度	50 G repeated 10 times each in X,Y and Z directions		
Material / 外觀材質	PC		
Wiring method / 出線方式	Pre-wired Ø4.2 x 2 M / 4-wires		M12 Plug-in connector type / M12接頭式
Weight / 重量	Approx.86g		Approx.26g

◆ Dimensions / 尺寸圖：(unit:mm)



◆ Wiring diagrams / 接線圖：



◆ Timing chart / 時序圖：

NPN/ PNP/ NP Type

No. of optical axes/model	Operation mode	Timing charts	
1 axis SU30-N SU30-NK1 SU30-P SU30-PK1 SU30-NP SU30-NPK1	Dark ON	Incident light No incident light Operation ON indicator (red) OFF Control output ON Output transistor OFF Load Operate (e.g., relay) Reset	
2 axis SU30-2N SU30-2NK1	Dark ON	Optical axis1	Optical axis2
		Incident light No incident light Operation ON indicator (red) OFF Control output ON Output transistor OFF Load Operate (e.g., relay) Reset (Between brown and black (white) leads)	Incident light No incident light Operation ON indicator (red) OFF Control output ON Output transistor OFF Load Operate (e.g., relay) Reset (Between brown and black (white) leads)

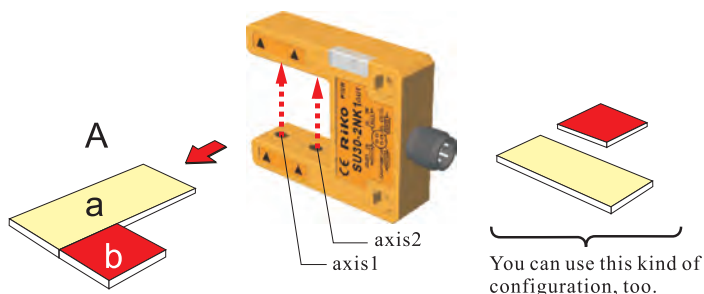
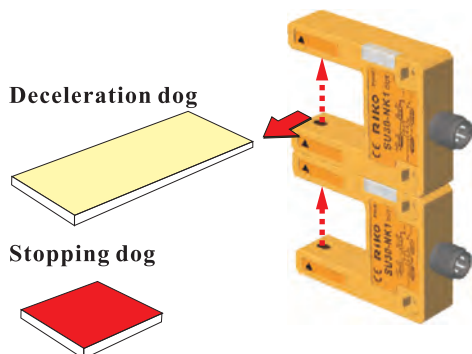
◆ To detect the retardation and stop locations on stacker cranes and guided trolleys.

(1) One optic axis:

For retardation and stopping, you have to use two sensors.

(2) Two optic axes:

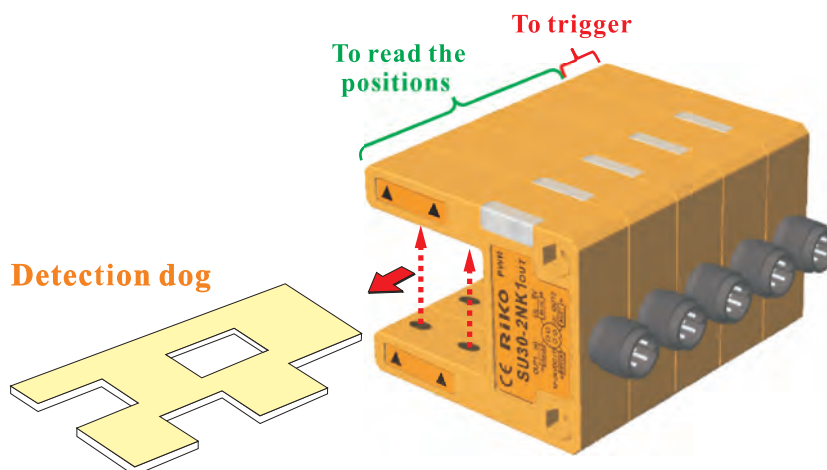
Just need to use one sensor if you change the shape of dock like A. It will have the same application like (1).



The first optic axis detects the retardation on a.
The second optic axis detects the stopping on b.

◆ Two optic axes sensors can be mounted side by side to read the positions.

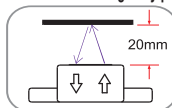
(A application of 8 optic axes)



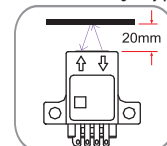
◆ Characteristic / 特點：

- Front surface/ Top surface sensing models available.
/ 多種檢測方式：上方感應、前方感應。
- Sensing distance up to 20mm.
/ 長距檢測距離20mm。
- Light ON/ Dark ON selectable.
/ 入光動作/遮光動作 可選擇。

▶ 10x10cm Black non-glossy paper



▶ 10x10cm Black non-glossy paper

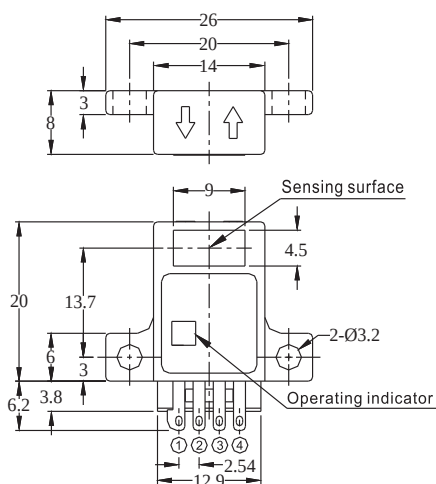


◆ Specifications / 規格表：

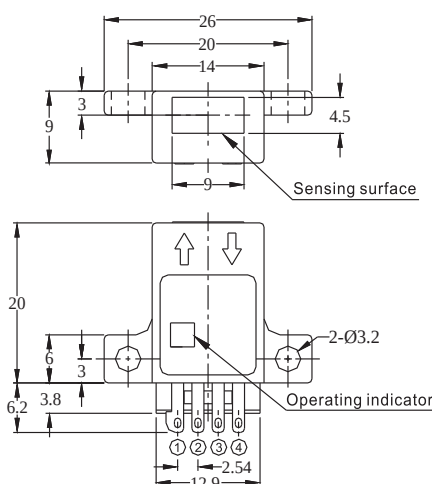
Model / 型號	SPR-401-N	SPR-401-P	SPR-402-N	SPR-402-P
Sensing type / 檢出方式	Diffuse Reflection / 擴散反射式			
Sensing distance / 檢出距離	20mm 10x10cm Black non-glossy paper / 黑紙 10x10cm			
Emitting light / 發光源	Infrared LED 940 nm			
Operating voltage / 工作電壓	DC12 ~ 24 V			
Current Consumption / 消耗電流	25 mA Max.			
Load current / 負載電流	100mA Max. at DC24V			
Output type / 輸出模式	NPN L.on/D.on	PNP L.on/D.on	NPN L.on/D.on	PNP L.on/D.on
Response time / 反應時間	1 ms Max.			
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)			
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.			
Operating temperature/工作溫度	- 20 °C ~ + 45 °C			
Ambient humidity / 工作溼度	35% ~ 85% RH			
Material / 外觀材質	PC			
Option / 選購配件 (Page 256)	EE-1001 / RE-1006-PVC-2M			
Weight / 重量	Approx. 3g			

◆ Dimensions / 尺寸圖：(unit:mm)

• SPR-401-N/P



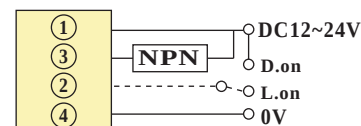
• SPR-402-N/P



◆ Wiring diagrams / 接線圖：

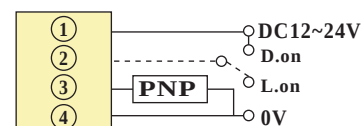
NPN Output

Pin fitting			
①	②	③	④
+	L	OUT	-



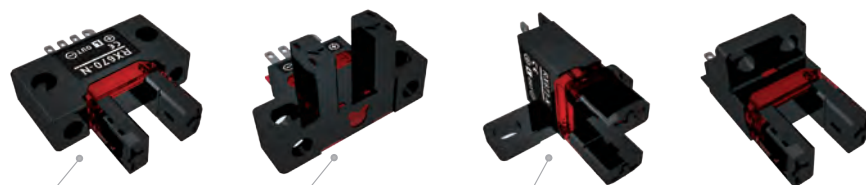
PNP Output

Pin fitting			
①	②	③	④
+	L	OUT	-



◆ Characteristic / 特點：

- High-speed response : 2kHz.
/ 體積小, 反應速度約2kHz。
- Sensing distance 6mm, suitable for the detection of small objects.
/ 檢測距離6mm, 適用於小物體檢測。
- Infrared beam axis 0.8x2mm width.
/ 紅外線光軸檢測寬度0.8x2mm。

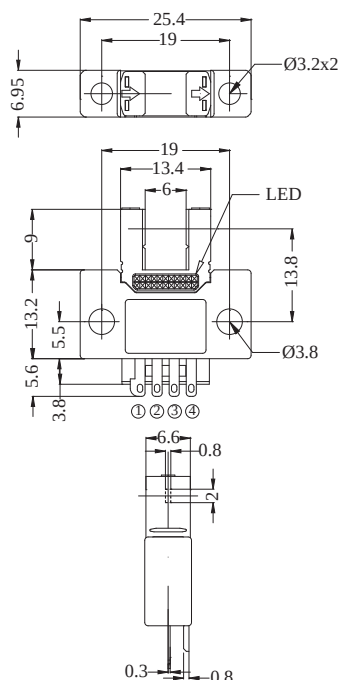


◆ Specifications / 規格表：

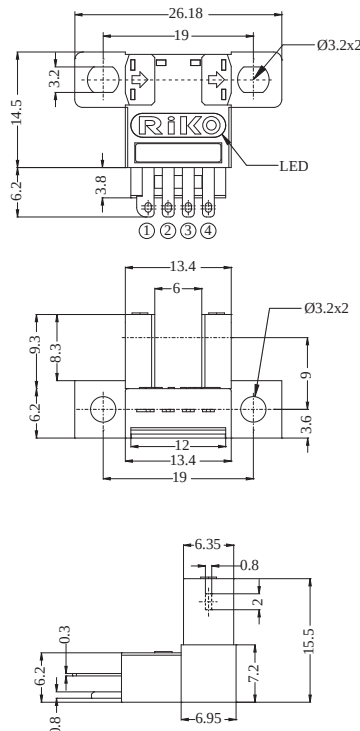
Model / 型號	RX670-N	RX671-N	RX672-N	RX673-N
	RX670-P	RX671-P	RX672-P	RX673-P
Sensing distance / 檢出距離	6 mm			
Output type / 輸出模式	NPN L.on/D.on	NPN L.on/D.on	NPN L.on/D.on	NPN L.on/D.on
	PNP L.on/D.on	PNP L.on/D.on	PNP L.on/D.on	PNP L.on/D.on
Emitting light / 發光源	Infrared LED 940 nm			
Operating voltage / 工作電壓	DC10 ~ 30 V			
Current Consumption / 消耗電流	15 mA Max.			
Load current / 負載電流	100mA Max. at DC24V			
Response time / 反應時間	0.5 ms Max.			
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)			
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.			
Operating temperature / 工作溫度	0 °C ~ + 60 °C			
Ambient humidity / 工作溼度	35% ~ 85% RH			
Material / 外觀材質	ABS			
Protection degree / 防水等級	IP50			
Option / 選購配件 (Page 256)	EE-1001 / RE-1006-PVC-2M			
Weight / 重量	Approx.3.5g	Approx.3.5g	Approx. 3g	Approx. 3g

◆ Dimensions / 尺寸圖：(unit:mm)

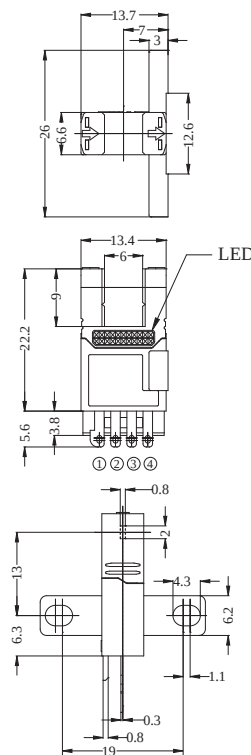
• RX-670-N/P



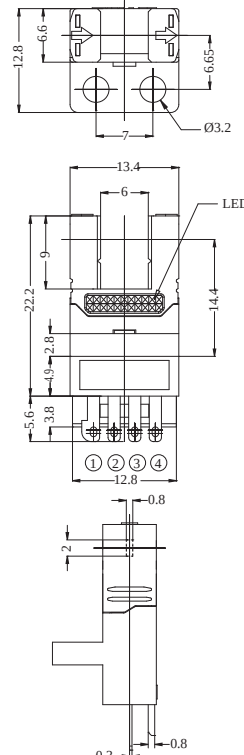
• RX-671-N/P



• RX-672-N/P



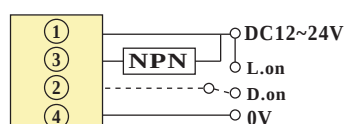
• RX-673-N/P



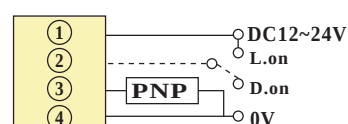
◆ Wiring diagrams / 接線圖：

Pin fitting			
①	②	③	④
+	L	OUT	-

NPN Output



PNP Output

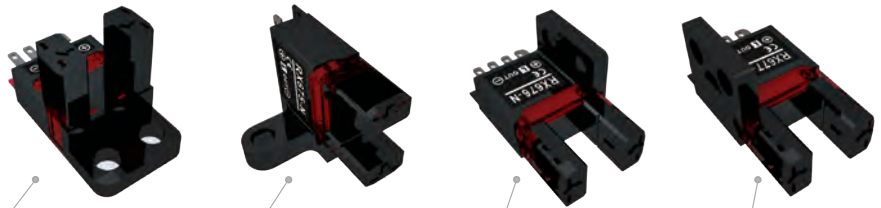


U-shape Photo Sensor

RX

◆ Characteristic / 特點 :

- High-speed response : 2kHz.
/ 體積小, 反應速度快約2kHz。
- Sensing distance 6mm, suitable for the detection of small objects.
/ 檢測距離6mm,適用於小物體檢測。
- Infrared beam axis 0.8x2mm width.
/ 紅外線光軸檢測寬度0.8x2mm。

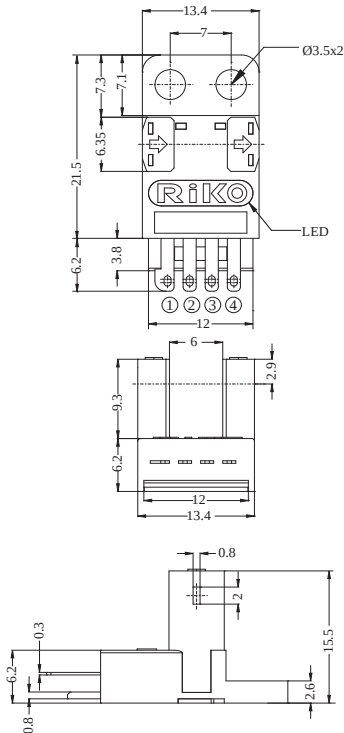


◆ Specifications / 規格表 :

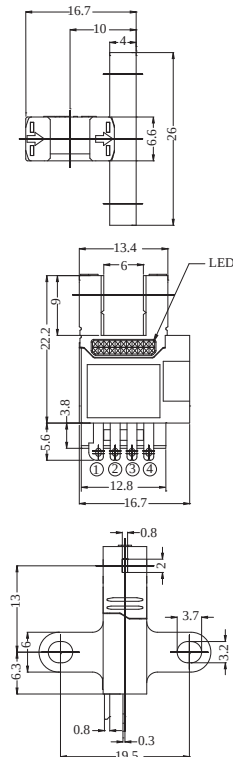
Model / 型號	RX674-N RX674-P	RX675-N RX675-P	RX676-N RX676-P	RX677-N RX677-P
Sensing distance / 檢出距離	6 mm			
Output type / 輸出模式	NPN L.on/D.on PNP L.on/D.on	NPN L.on/D.on PNP L.on/D.on	NPN L.on/D.on PNP L.on/D.on	NPN L.on/D.on PNP L.on/D.on
Emitting light / 發光源	Infrared LED 940 nm			
Operating voltage / 工作電壓	DC10 ~ 30 V			
Current Consumption / 消耗電流	15 mA Max.			
Load current / 負載電流	100mA Max. at DC24V			
Response time / 反應時間	0.5 ms Max.			
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)			
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.			
Operating temperature/工作溫度	0 °C ~ +60 °C			
Ambient humidity / 工作溼度	35% ~ 85% RH			
Material / 外觀材質	ABS			
Protection degree / 防水等級	IP50			
Option / 選購配件 (Page 256)	EE-1001 / RE-1006-PVC-2M			
Weight / 重量	Approx.3.5g	Approx.3g	Approx. 3g	Approx. 3 g

◆ Dimensions / 尺寸圖 : (unit:mm)

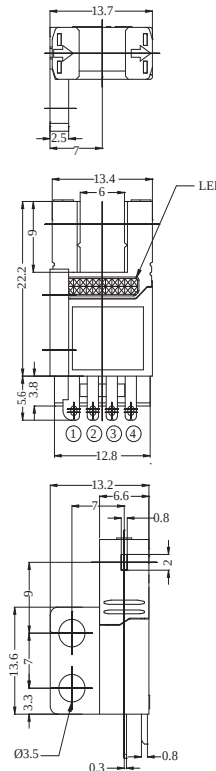
• RX-674-N/P



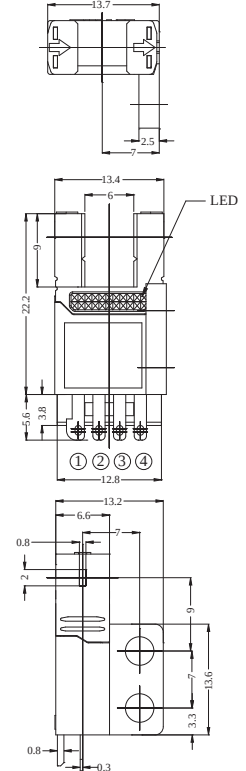
• RX-675-N/P



• RX-676-N/P



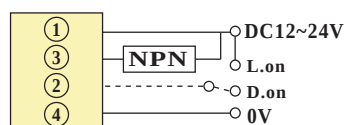
• RX-677-N/P



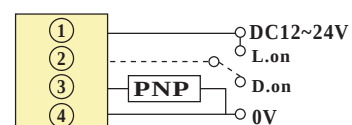
◆ Wiring diagrams / 接線圖 :

Pin fitting			
①	②	③	④
+	L	OUT	-

NPN Output



PNP Output



◆ Characteristic / 特點：

- High-speed response : 2kHz.
/ 體積小, 反應速度快約2kHz。
- Sensing distance 6mm, suitable for the detection of small objects.
/ 檢測距離6mm, 適用於小物體檢測。
- Infrared beam axis 0.8x2mm width.
/ 紅外線光軸檢測寬度0.8x2mm。

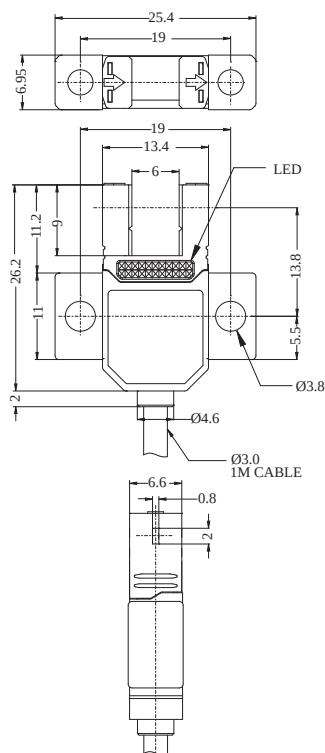


◆ Specifications / 規格表：

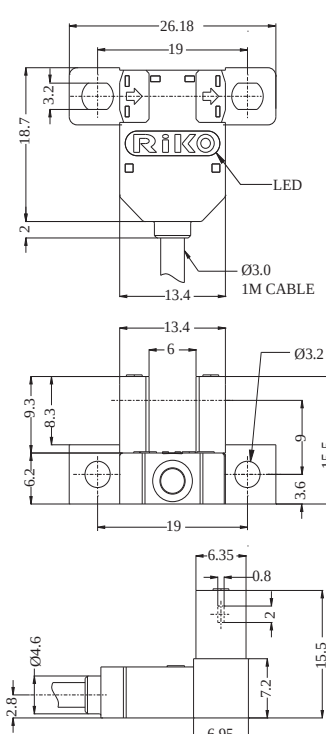
Model / 型號	RX670-NW	RX671-NW	RX672-NW	RX673-NW
	RX670-PW	RX671-PW	RX672-PW	RX673-PW
Sensing distance / 檢出距離	6 mm			
Output type / 輸出模式	NPN L.on/D.on	NPN L.on/D.on	NPN L.on/D.on	NPN L.on/D.on
	PNP L.on/D.on	PNP L.on/D.on	PNP L.on/D.on	PNP L.on/D.on
Emitting light / 發光源	Infrared LED 940 nm			
Operating voltage / 工作電壓	DC10 ~ 30 V			
Current Consumption / 消耗電流	15 mA Max.			
Load current / 負載電流	100mA Max. at DC24V			
Response time / 反應時間	0.5 ms Max.			
Insulation resistance / 隔離阻抗	20M Ω min. (DC500V)			
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.			
Operating temperature/工作溫度	0 °C ~ + 60 °C			
Ambient humidity / 工作溼度	35% ~ 85% RH			
Material / 外觀材質	ABS			
Protection degree / 防水等級	IP54			
Weight / 重量	Approx.28.5g	Approx.28.5g	Approx. 28 g	Approx. 28g

◆ Dimensions / 尺寸圖：(unit:mm)

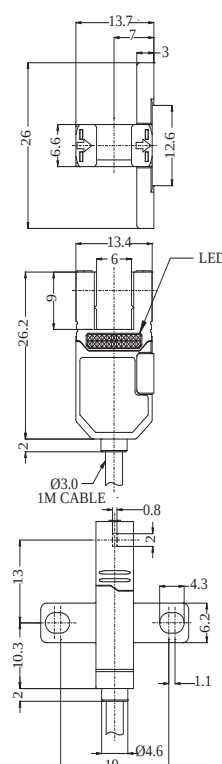
• RX-670-NW/PW



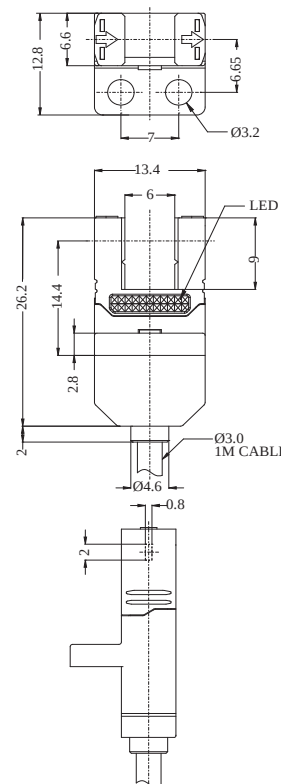
• RX-671-NW/PW



• RX-672-NW/PW



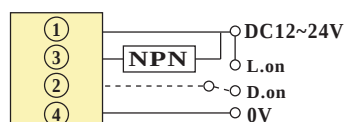
• RX-673-NW/PW



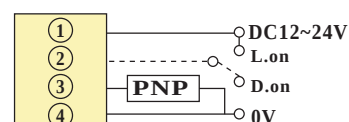
◆ Wiring diagrams / 接線圖：

Pin fitting			
①	②	③	④
+	L	OUT	-

NPN Output



PNP Output



U-shape Photo Sensor

RX

◆ Characteristic / 特點 :

- High-speed response : 2kHz.
/ 體積小, 反應速度快約2kHz。
- Sensing distance 6mm, suitable for the detection of small objects.
/ 檢測距離6mm,適用於小物體檢測。
- Infrared beam axis 0.8x2mm width.
/ 紅外線光軸檢測寬度0.8x2mm。

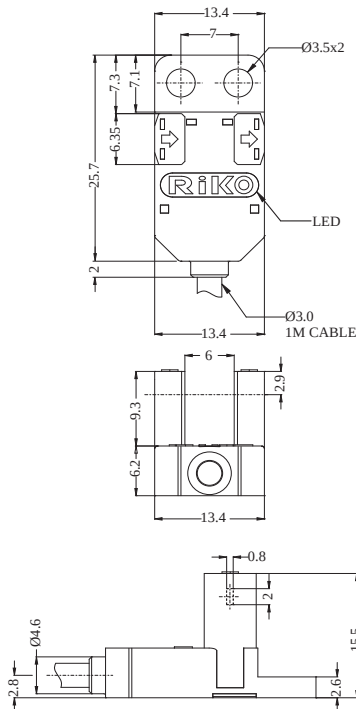


◆ Specifications / 規格表 :

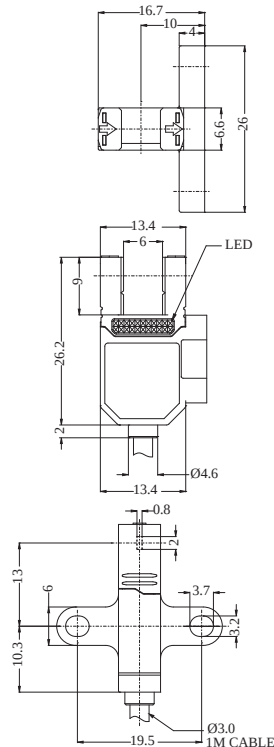
Model / 型號	RX674-NW RX674-PW	RX675-NW RX675-PW	RX676-NW RX676-PW	RX677-NW RX677-PW
Sensing distance / 檢出距離	6 mm			
Output type / 輸出模式	NPN L.on/D.on	NPN L.on/D.on	NPN L.on/D.on	NPN L.on/D.on
	PNP L.on/D.on	PNP L.on/D.on	PNP L.on/D.on	PNP L.on/D.on
Emitting light / 發光源	Infrared LED 940 nm			
Operating voltage / 工作電壓	DC10 ~ 30 V			
Current Consumption / 消耗電流	15 mA Max.			
Load current / 負載電流	100mA Max. at DC24V			
Response time / 反應時間	0.5 ms Max.			
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)			
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.			
Operating temperature/工作溫度	0 °C ~ + 60 °C			
Ambient humidity / 工作溼度	35% ~ 85% RH			
Material / 外觀材質	ABS			
Protection degree / 防水等級	IP54			
Weight / 重量	Approx.28.5g	Approx.28g	Approx. 28g	Approx. 28g

◆ Dimensions / 尺寸圖 : (unit:mm)

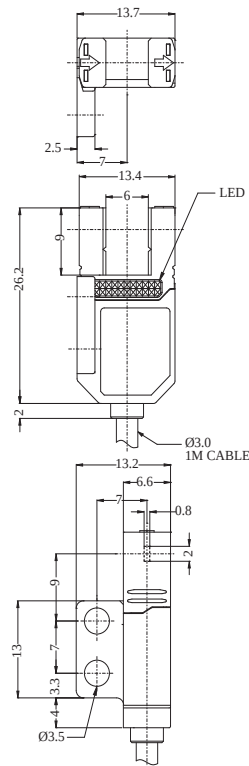
• RX-674-NW/PW



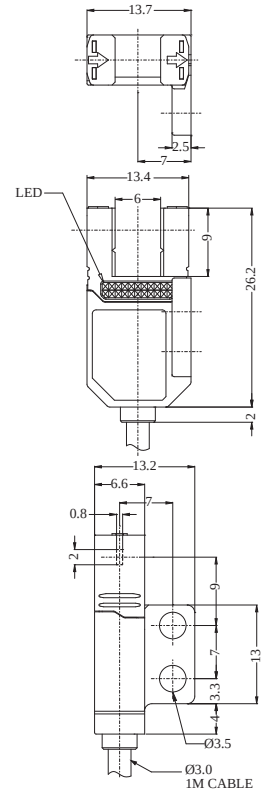
• RX-675-NW/PW



• RX-676-NW/PW

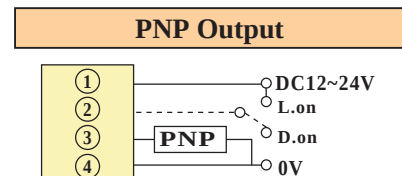
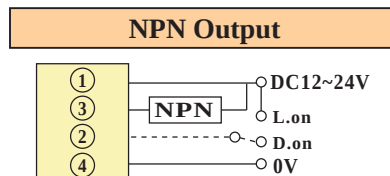


• RX-677-NW/PW



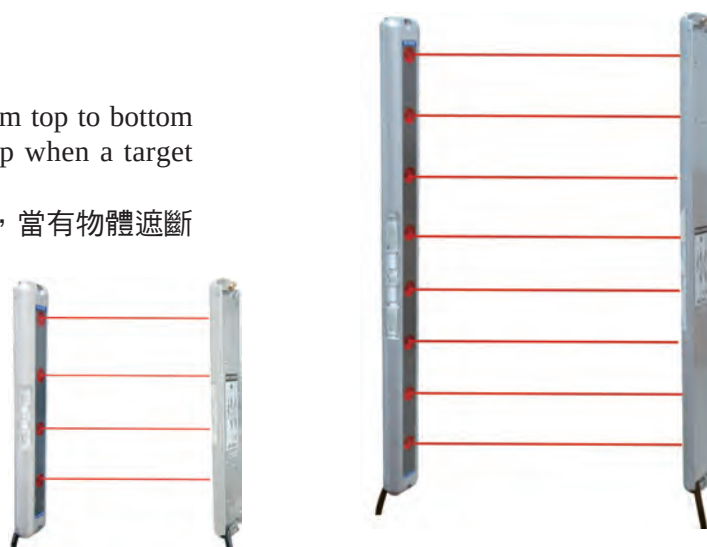
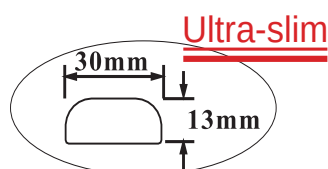
◆ Wiring diagrams / 接線圖 :

Pin fitting			
①	②	③	④
+	L	OUT	-



◆ Characteristic / 特點：

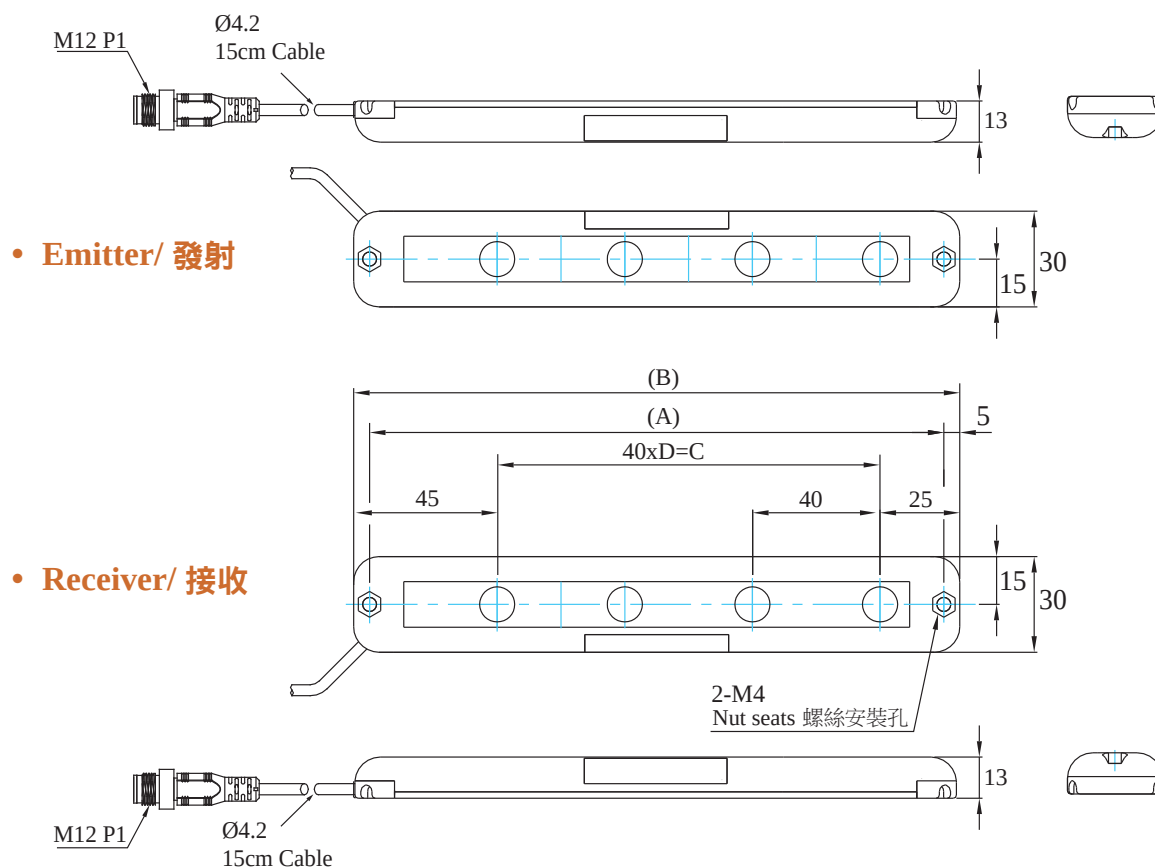
- Ultra slim body, 13mm thickness only.
/ 13mm超薄型，寬度僅有30mm。
- Min. Detectable Object Ø60mm.
/ 最小檢測物Ø60mm。
- Green and red LED blink in sequence from top to bottom under normal emission. All LED light up when a target enters into sensing area.
/ 未感應時，綠色與紅色LED依續閃爍，當有物體遮斷時，LED則全部一起亮。



◆ Specifications / 規格表：

Model / 型號	NPN D.on	OAP-4004-NK	OAP-4004S-NK	OAP-4008-NK	OAP-4008S-NK
	PNP D.on	OAP-4004-PK	OAP-4004S-PK	OAP-4008-PK	OAP-4008S-PK
No.of Beams/光軸數	4			8	
Sensing Height / 檢測高度	120 mm			280 mm	
Beam pitch / 光軸間距	40 mm				
Sensing type / 檢出方式	Through beam / 對照式				
Resolution / 分辨率	60 mm opaque object 不透明物體				
Sensing distance / 檢出距離	0.1 M ~ 5 M	0.1 M ~ 2 M		0.2 M ~ 5 M	0.2 M ~ 2 M
Emitting light / 發光源	Infrared LED(紅外線發光LED)：850 nm				
Indicating LED / LED指示燈	5 LEDs each on emitter and receiver.			7LEDs each on emitter and receiver.	
	LEDs blink from top to bottom under the normal emission.				
	All LEDs light up under the emitting circuit failure and will become blinking until the normal emission.				
Running type / 運轉方式	More than a beam is covered ON (Dark On) 任意一個光束被遮斷即輸出				
Operating voltage / 工作電壓	DC12 ~ 24 V±10% (ripple P-P：10% Max.)				
Current Consumption / 消耗電流	Transmitter：30 mA Max.			Transmitter：60 mA Max.	
	Receiver：15 mA Max.			Receiver：30 mA Max.	
Load current / 負載電流	100 mA Max at DC 24V				
Protection circuit / 保護電路	Reversed Supply circuit protection, Short circuit protection output 電源反接保護及輸出短路保護				
Response time / 反應時間	Off to On：15 ms Max.				
	On to Off：20 ms Max.				
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)				
Voltage withstandabiligy / 絕緣耐壓	AC1000V 60Hz for 60 Sec.				
Operating temperature/工作溫度	- 10℃ ~ + 45℃ （No freezing allowed不可結霜,結冰）				
Ambient humidity / 工作溼度	35% ~ 85% RH 相對溼度				
Storage temperature / 儲存時溫度	- 10℃ ~ + 45℃ （No freezing allowed不可結霜,結冰）				
Storage humidity / 儲存時溼度	35% ~ 95% RH 相對溼度				
Protection degree / 防水等級	IP62				
Material / 外觀材質	ABS				
Wiring method / 出線方式	Transmitter：M12 pigtailed type(5P) / M12接頭15cm電線式				
	Receiver：M12 pigtailed type(5P) / M12接頭15cm電線式				
Option / 選購配件 (Page 252 / Page 256)	OAP-M008 Mounting Bracket / OAP-M008固定架			OAP-M016 Mounting Bracket / OAP-M016固定架	
	Connectors / 線材：M125R-PUR-2M / M125R-PUR-5M				
Weight / 重量	Approx.200g			Approx.253g	

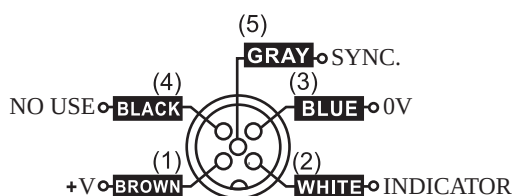
◆ Dimensions / 尺寸圖 : (unit:mm)



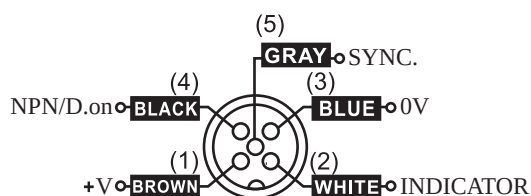
Model	(A)	(B)	(C)	(D)
OAP-4004(S)-□K	180mm	190mm	120mm	3
OAP-4008(S)-□K	340mm	350mm	280mm	7

◆ Wiring diagrams / 接線圖

• Emitter/ 發射

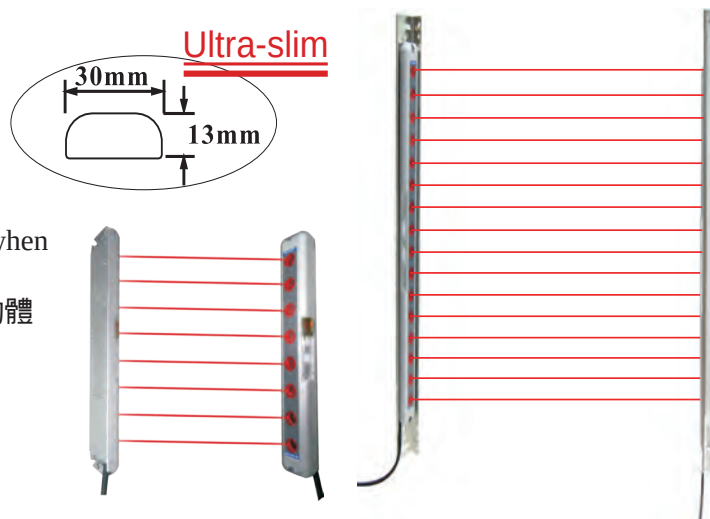


• Receiver/ 接收



◆ Characteristic / 特點：

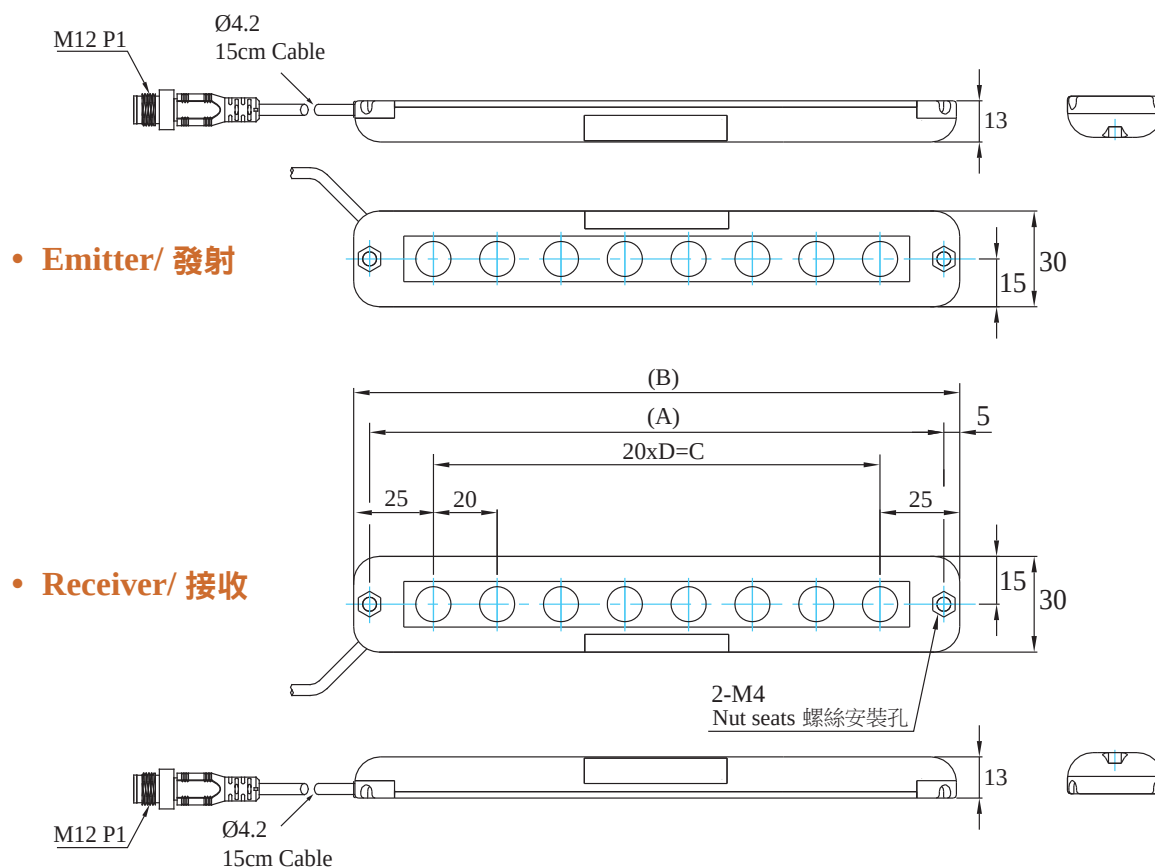
- Ultra slim body, 13mm thickness only.
/ 13mm超薄型，寬度僅有30mm。
- Min. Detectable Object Ø30mm.
/ 最小檢測物Ø30mm。
- Green and red LED blink in sequence from top to bottom under normal emission. All LED light up when a target enters into sensing area.
/ 未感應時，綠色與紅色LED依續閃爍，當有物體遮斷時，LED則全部一起亮。



◆ Specifications / 規格表：

Model / 型號	NPN D.on	OAP-2008-NK	OAP-2008S-NK	OAP-2016-NK	OAP-2016S-NK
	PNP D.on	OAP-2008-PK	OAP-2008S-PK	OAP-2016-PK	OAP-2016S-PK
Sensing type / 檢出方式	Through beam / 對照式				
Resolution / 分辨率	30 mm opaque object 不透明物體				
Sensing distance / 檢出距離	0.6 M ~ 5 M		0.3 M ~ 2 M	0.9 M ~ 5 M	0.5 M ~ 2 M
Sensing Height / 檢測高度	140 mm			300 mm	
Emitting light / 發光源	Infrared LED(紅外線發光LED)：850 nm				
No.of Beams/光軸數	8			16	
Beam pitch / 光軸間距	20 mm				
Indicating LED / LED指示燈	5 LEDs each on emitter and receiver.			7LEDs each on emitter and receiver.	
	LEDs blink from top to bottom under the normal emission. All LEDs light up under the emitting circuit failure and will become blinking until the normal emission.				
	Running type / 運轉方式 More than a beam is covered ON (Dark On) 任意一個光束被遮斷即輸出				
Operating voltage / 工作電壓	DC12 ~ 24 V±10% (ripple P-P：10% Max.)				
Current Consumption / 消耗電流	Transmitter：90 mA Max.			Transmitter：135 mA Max.	
	Receiver：35 mA Max.			Receiver：70 mA Max.	
Load current / 負載電流	100 mA Max at DC 24V				
Protection circuit / 保護電路	Reversed Supply circuit protection, Short circuit protection output 電源反接保護及輸出短路保護				
Response time / 反應時間	Off to On：15 ms Max.				
	On to Off：20 ms Max.				
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)				
Voltage withstandabiligy / 絕緣耐壓	AC1000V 60Hz for 60 Sec.				
Operating temperature/工作溫度	- 10℃ ~ + 45℃ (No freezing allowed不可結霜,結冰)				
Ambient humidity / 工作溼度	35% ~ 85% RH 相對溼度				
Storage temperature / 儲存時溫度	- 10℃ ~ + 45℃ (No freezing allowed不可結霜,結冰)				
Storage humidity / 儲存時溼度	35% ~ 95% RH 相對溼度				
Protection degree / 防水等級	IP62				
Material / 外觀材質	ABS				
Wiring method / 出線方式	Transmitter：M12 pigtailed type(5P) / M12接頭15cm電線式				
	Receiver：M12 pigtailed type(5P) / M12接頭15cm電線式				
Option / 選購配件 (Page 252 / Page 256)	OAP-M008 Mounting Bracket / OAP-M008固定架			OAP-M016 Mounting Bracket / OAP-M016固定架	
	Connectors / 線材：M125R-PUR-2M / M125R-PUR-5M				
Weight / 重量	Approx.200g			Approx.253g	

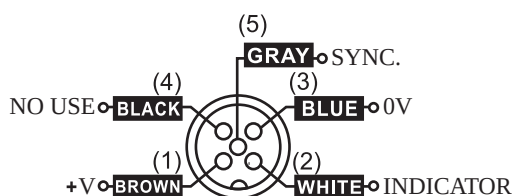
◆ Dimensions / 尺寸圖 : (unit:mm)



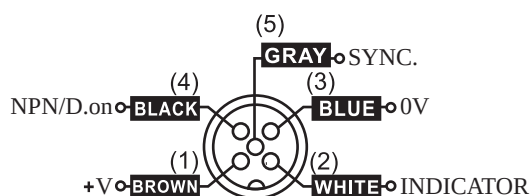
Model	(A)	(B)	(C)	(D)
OAP-2008(S)-□K	180mm	190mm	140mm	7
OAP-2016(S)-□K	340mm	350mm	300mm	15

◆ Wiring diagrams / 接線圖

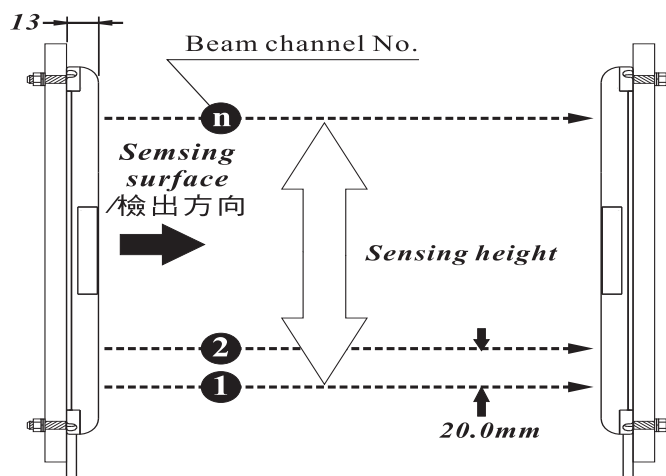
• Emitter/ 發射



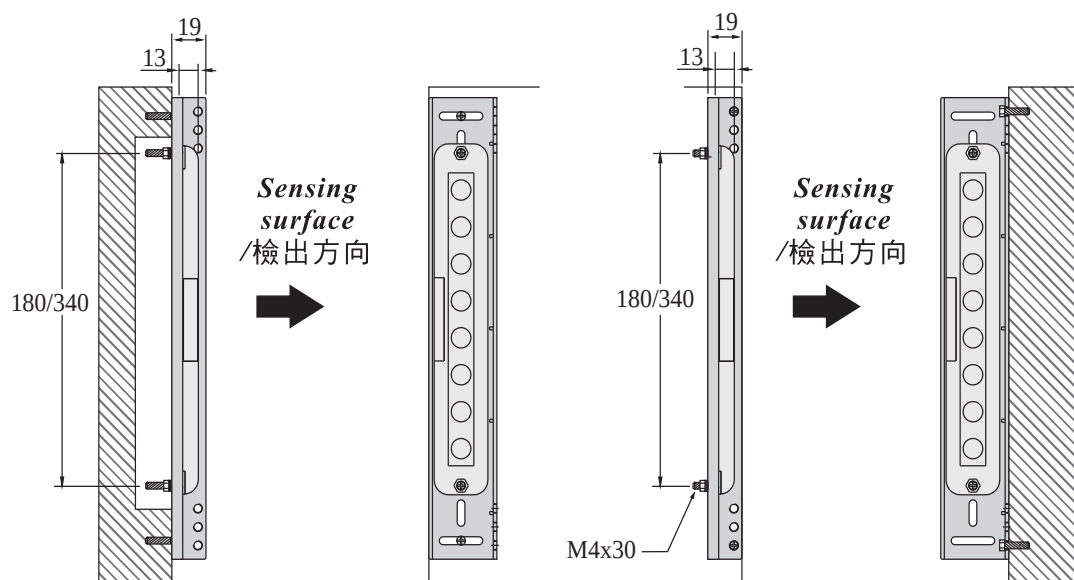
• Receiver/ 接收



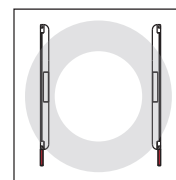
◆ Mounting / 安裝方式：



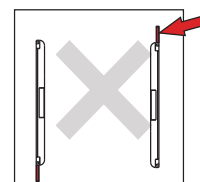
◆ OAP-Bracket Mounting / OAP固定架安裝方式：



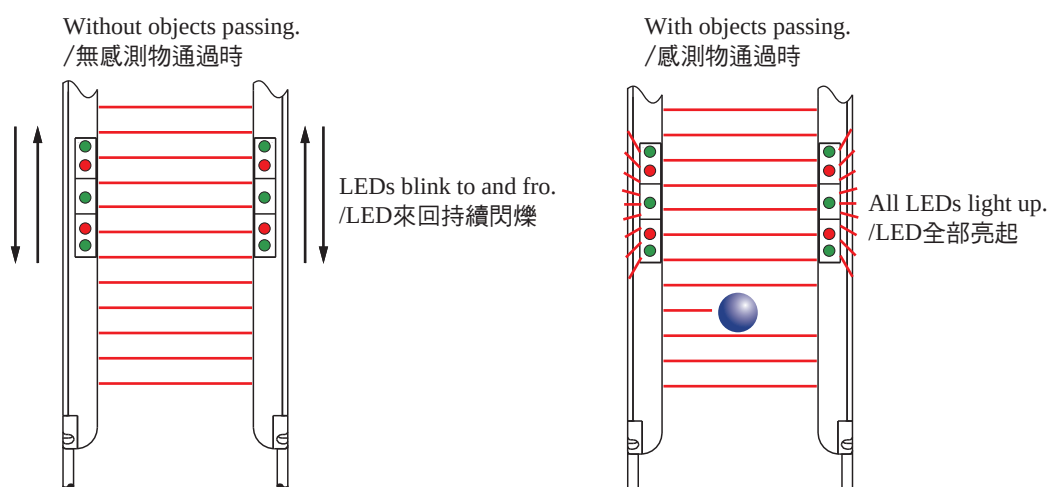
Correct/正確



Wrong/錯誤

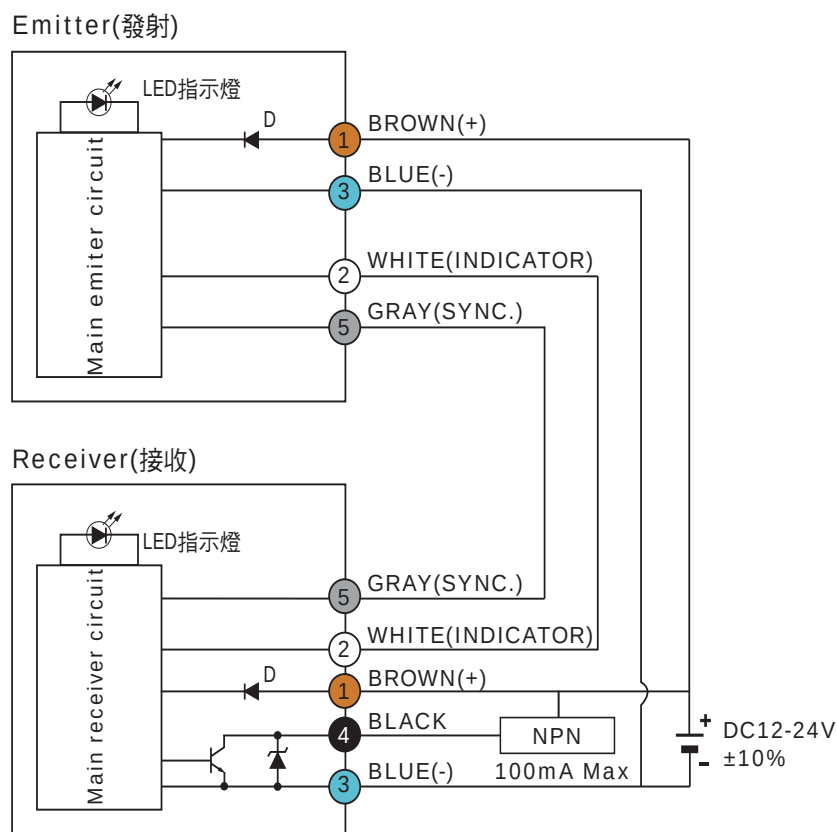


◆ Indicator / 指示燈：



Model	Without objects passing.	With objects passing.
OAP-2008	5 LEDs blink to and fro (from top to bottom). (Green,Red,Green,Red,Green)	All 5 LEDs light up. (Green,Red,Green,Red,Green)
OAP-2016	7 LEDs blink to and fro (from top to bottom). (Green,Red,Green,Red,Green,Red,Green)	All 7 LEDs light up. (Green,Red,Green,Red,Green,Red,Green)

◆ I/O Circuit Diagram / 接線圖：

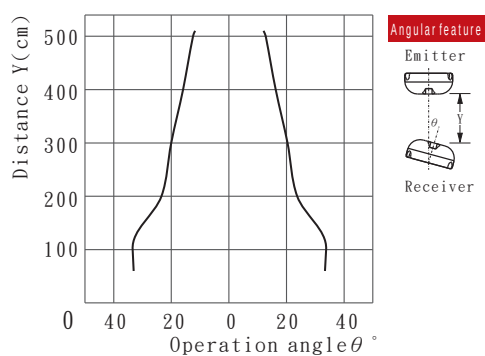


LOAD/ 負載
NPN open collector output.
Max current 100mA.
supplying voltage DC12~24V.

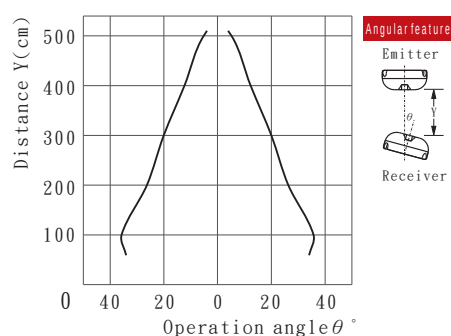
NPN最開放集極電路
最大輸出電流100mA
供應電壓DC12~24V

◆ Engineering data / 工程數據：

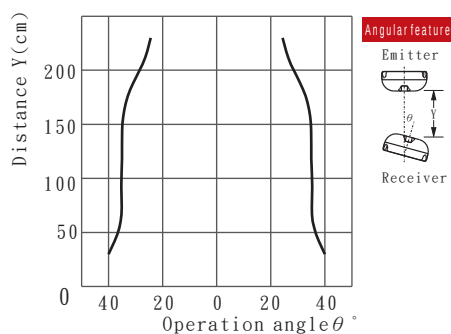
OAP-2008-□ Angular deviation



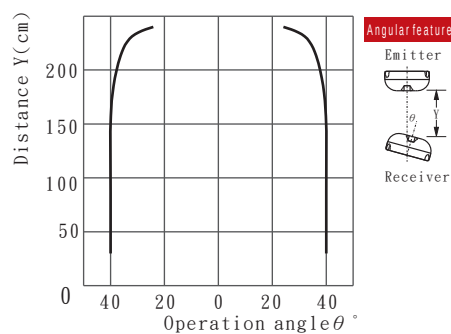
OAP-2016-□ Angular deviation



OAP-2008S-□ Angular deviation

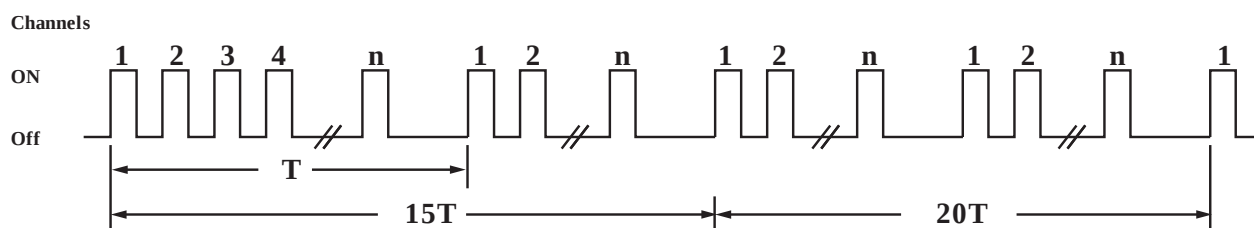
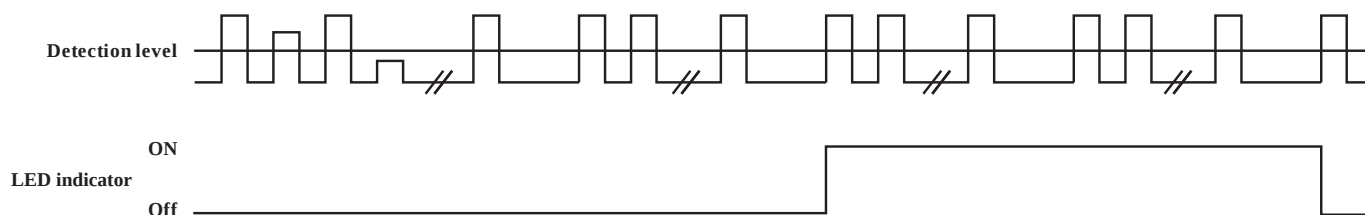


OAP-2016S- □ Angular deviation

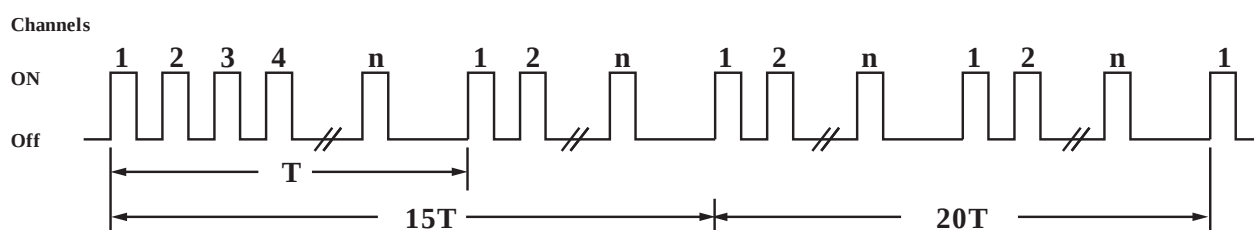
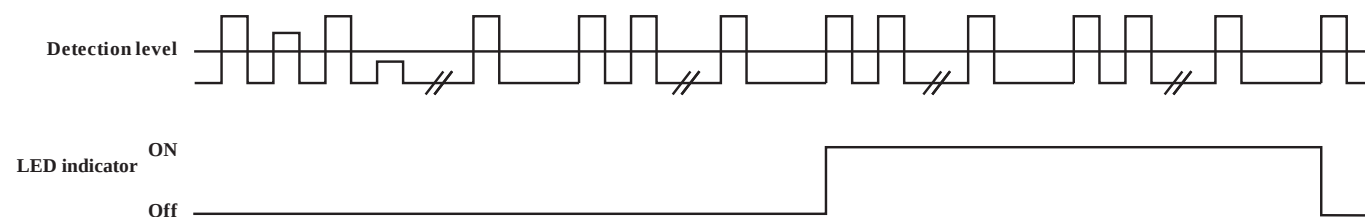


◆ Timer chart / 時序圖：

• OAP-2008-□

EmitterReceiver

• OAP-2016-□

EmitterReceiver

◆ Attention / 注意事項：

⚠ Warning1 / 警告1

This product is not permitted to use with the machines which are not stopped electronically by electronic control. /不可使用於無立即停止電子控制式的機器。

⚠ Warning2 / 警告2

Be sure to set some amount of safe distance between the sensor and dangerous point.
/在感應器及危險區域間，必須保持安全距離。

- Safe distance (D) formula. Min distance is 150mm.
/安全距離(D)公式。最短距離150mm。

$$D = 2000 \times T + \alpha \quad (D \leq 500\text{mm})$$

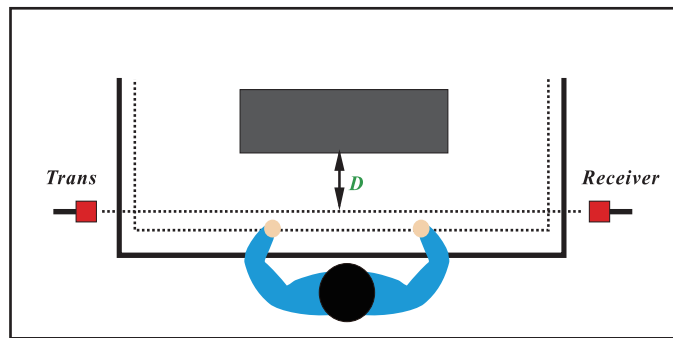
$$D = 1600 \times T + \alpha \quad (D > 500\text{mm})$$

$$D = \text{safe distance (mm)}$$

$$T = \text{response time (machine + sensor)}$$

$$\text{反應時間} = (\text{機器的反應時間} + \text{感應器的反應時間})$$

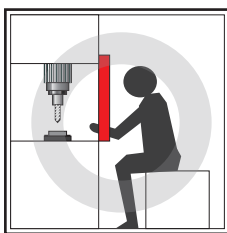
$$\alpha = 90\text{mm}$$



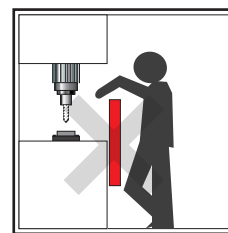
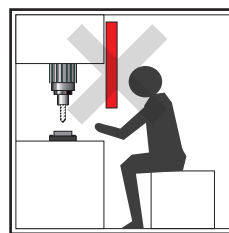
⚠ Warning3 / 警告3

Let worker keep working through the detecting range.
/在感測範圍內進行工作。

◆ Correct / 正確

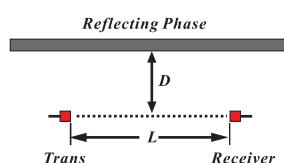
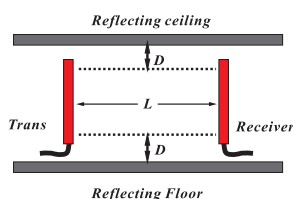


◆ Wrong / 錯誤



⚠ Warning4 / 警告4

When installing, please think of other reflecting object which may cause malfunction.
/安裝時，考慮是否有其它會導致機能故障的反射物。



Acceptable installation distance
/可接受的安裝範圍

$$D \geq 150\text{mm}$$

$$L = 0.3 \sim 5\text{M}$$

◆ Characteristic / 特點：

- Light pitch 10mm. Detecting different shaped targets.

/ 光軸間距10mm，可檢知不規則物品。

- Light bar output indicators.

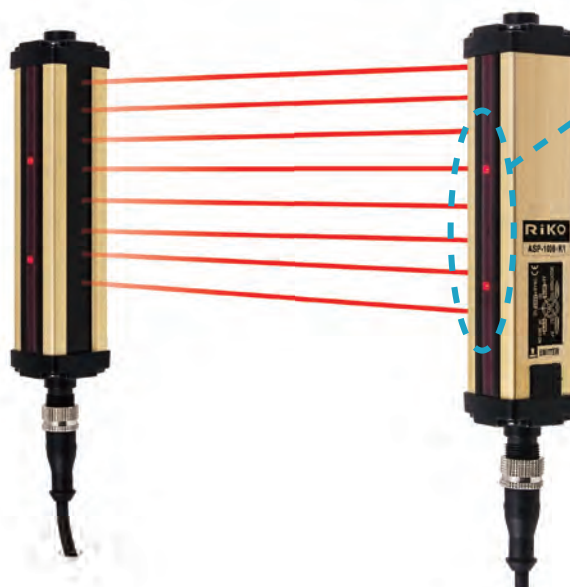
/ 專利Light-bar動作指示燈。

- Durable aluminum extrusion structure.

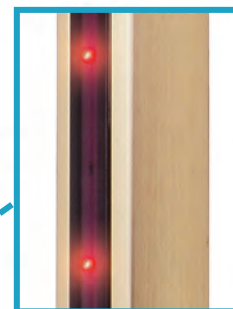
/ 鋁擠型結構，堅固耐用。

- NP model：NPN or PNP, L.on or D.on selectable.

/ 新型NP電路：NPN或PNP，L.on或D.on可選擇。



LED Indicator

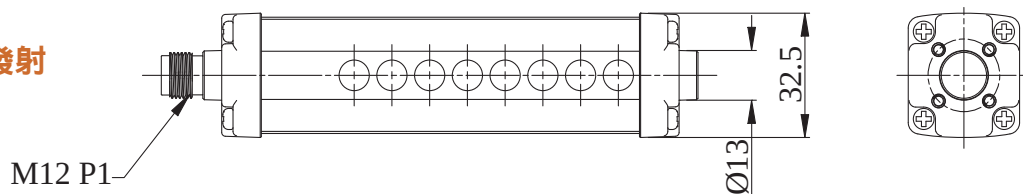


◆ Specifications / 規格表：

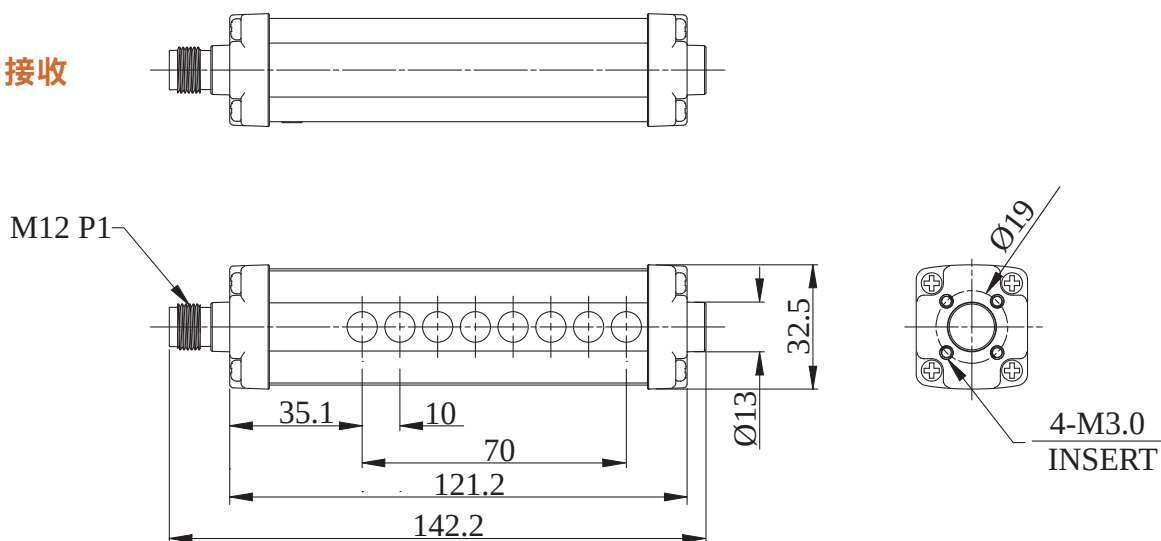
Model / 型號	NPN or PNP L.on/D.on	ASP-1008-K1
No.of Beams/光軸數		8
Sensing Height / 檢測高度		70 mm
Beam pitch / 光軸間距		10 mm
Sensing type / 檢出方式		Through beam / 對照式
Resolution / 分辨率		15 mm opaque object 不透明物體
Sensing distance / 檢出距離		0.3 M ~ 1.5 M
Emitting light / 發光源		Infrared LED(紅外線發光LED)：850 nm
Indicating LED / LED指示燈		Blinking or shining output indicators. / 動作指示燈有閃爍式、恆亮式
Running type / 運轉方式		More than one beam is covered ON (Dark On) / 任意一個光束被遮斷即輸出
Operating voltage / 工作電壓		DC12 ~ 24 V±10% (ripple P-P：10% Max.)
Current Consumption / 消耗電流		Transmitter：45 mA Max. Receiver：35 mA Max.
Load current / 負載電流		100 mA Max. at DC 24V
Protection circuit / 保護電路		Reversed Supply circuit protection, Short circuit protection output / 電源反接保護及輸出短路保護
Response time / 反應時間		Off to On：5 ms Max. On to Off：5 ms Max.
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.
Operating temperature/工作溫度		- 10 °C ~ + 45°C (No freezing allowed / 不可結霜,結冰)
Ambient humidity / 工作溼度		35% ~ 85% RH 相對溼度
Storage temperature / 儲存時溫度		- 10 °C ~ + 45°C (No freezing allowed / 不可結霜,結冰)
Storage humidity / 儲存時溼度		35% ~ 95% RH 相對溼度
Protection degree / 防水等級		IP62
Material / 外觀材質		Aluminum+ABS / 鋁+ABS
Wiring method / 出線方式		Transmitter：M12 pigtailed type(5P) Receiver：M12 pigtailed type(5P)
Option / 選購配件 (Page 256)		Connectors / 線材：M125R-PUR-2M / M125R-PUR-5M
Weight / 重量		Approx.220g

◆ Dimensions / 尺寸圖 : (unit:mm)

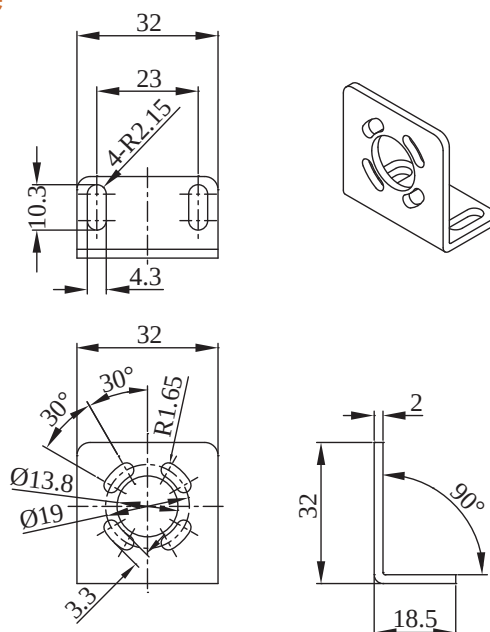
• Emitter/ 發射



• Receiver/ 接收



• ASP-Bracket / ASP固定架

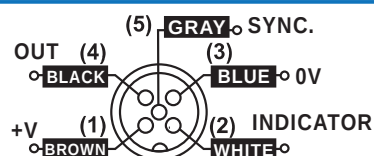


◆ ASP-1008-K1 DIP Switch / ASP-1008-K1指撥開關：

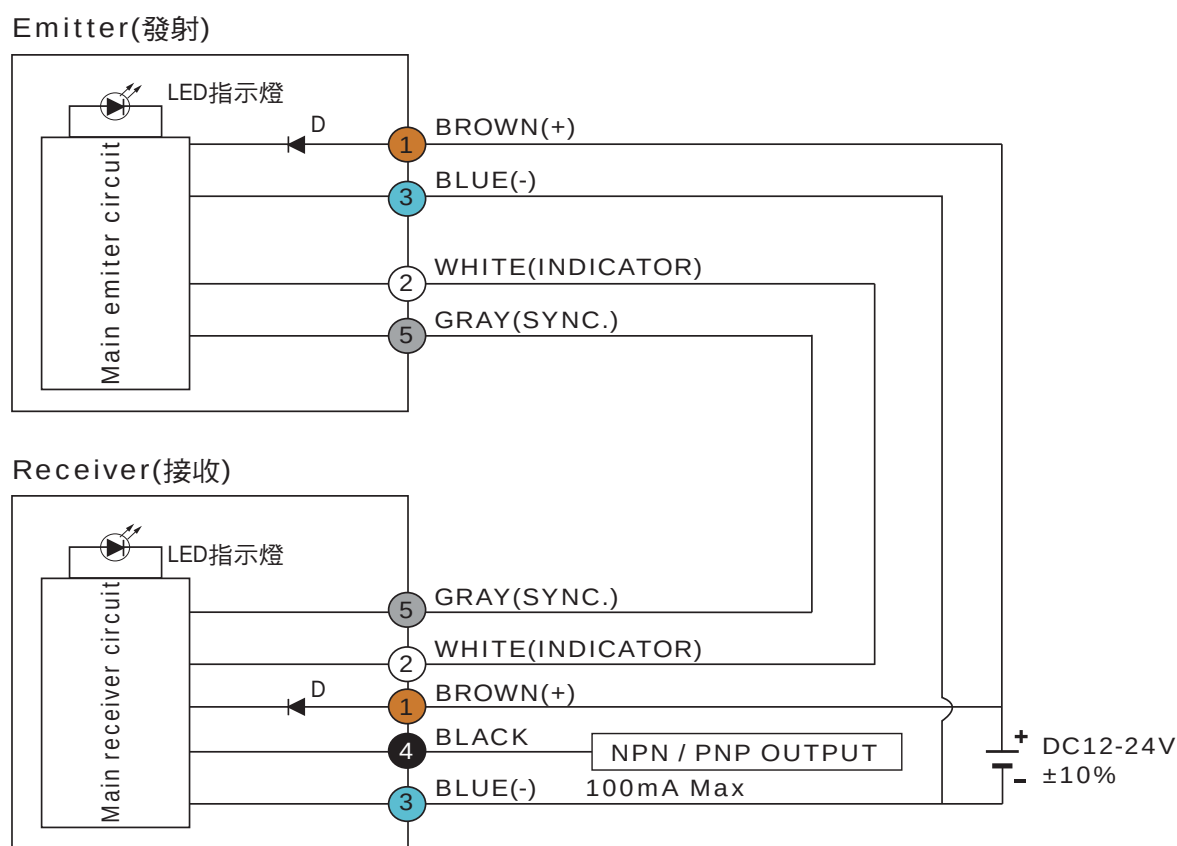
• Receiver/ 接收



- 4.N.C./N.C.(無功能)
 3.NPN/PNP OUTPUT
 2.FLASH/FIX(閃爍/不閃爍)
 1.D.ON/L.ON(遮光/入光動作)

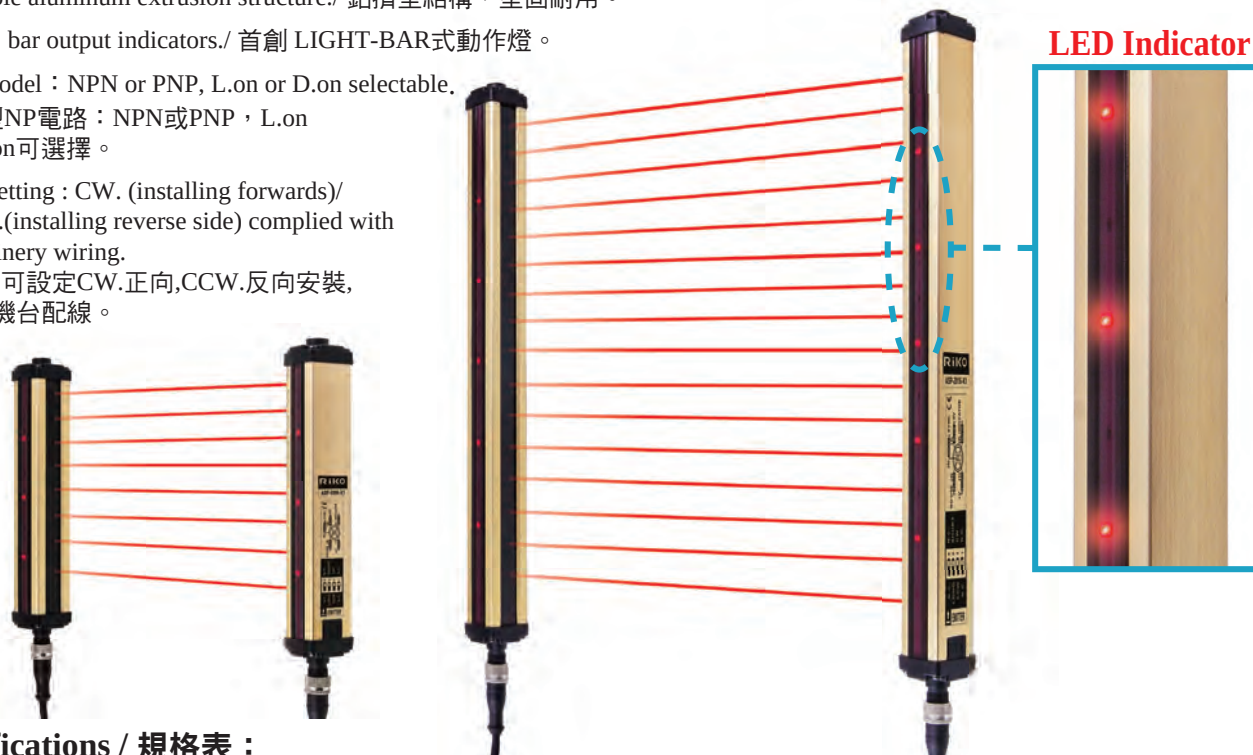


◆ Circuit Diagram / 接線圖：



◆ Characteristic / 特點：

- Durable aluminum extrusion structure./ 鋁擠型結構，堅固耐用。
- Light bar output indicators./ 首創 LIGHT-BAR式動作燈。
- NP model：NPN or PNP, L.on or D.on selectable.
/ 新型NP電路：NPN或PNP，L.on或D.on可選擇。
- DIP setting：CW. (installing forwards)/
CCW.(installing reverse side) complied with
machinery wiring.
/ DIP 可設定CW.正向,CCW.反向安裝,
配合機台配線。

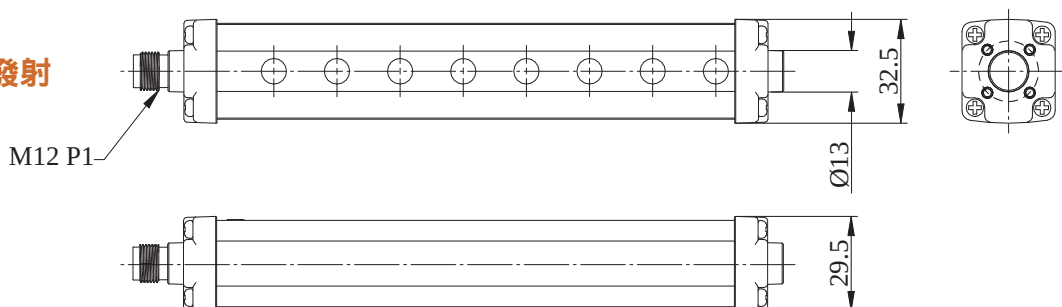


◆ Specifications / 規格表：

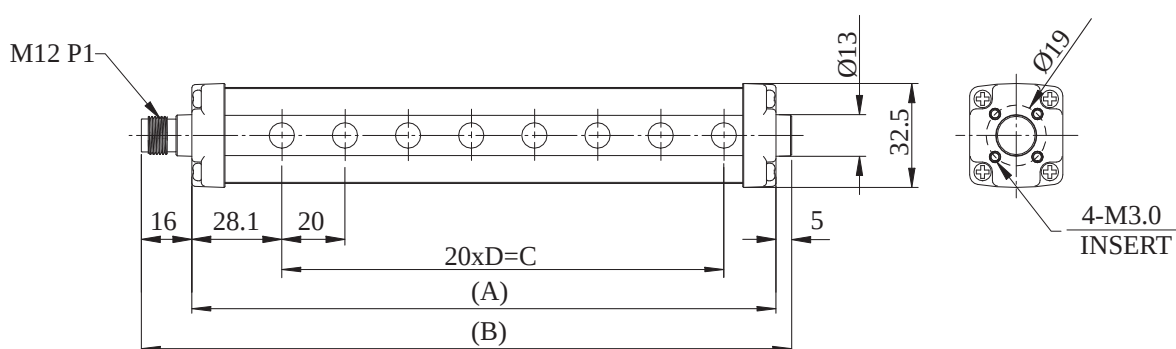
Model / 型號	NPN or PNP L.on/D.on	ASP-2008-K1	ASP-2016-K1	ASP-2024-K1	ASP-2032-K1
		ASP-2008S-K1	ASP-2016S-K1	ASP-2024S-K1	ASP-2032S-K1
No.of Beams/光軸數		8	16	24	32
Sensing Height / 檢測高度		140 mm	300 mm	460 mm	620 mm
Beam pitch / 光軸間距		20 mm			
Sensing type / 檢出方式		Through beam / 對照式			
Resolution / 分辨率		30 mm opaque object 不透明物體			
Sensing distance / 檢出距離		0.6 M ~ 5 M 0.3 M ~ 2 M	0.6 M ~ 5 M 0.3 M ~ 2 M	0.6 M ~ 5 M 0.3 M ~ 2 M	0.6 M ~ 5 M 0.3 M ~ 2 M
Emitting light / 發光源		Infrared LED(紅外線發光LED)：850 nm			
Indicating LED / LED指示燈		Blinking or shining output indicators. 動作指示燈有閃爍式、恆亮式			
Running type / 運轉方式		More than one beam is covered ON (Dark On) 任意一個光束被遮斷即輸出			
Operating voltage / 工作電壓		DC12 ~ 24 V±10% (ripple P-P：10% Max.)			
Current Consumption / 消耗電流		Transmitter：45 mA Max. Receiver：35 mA Max.	Transmitter：60 mA Max. Receiver：40 mA Max.	Transmitter：70 mA Max. Receiver：45 mA Max.	Transmitter：90 mA Max. Receiver：50 mA Max.
Load current / 負載電流		100 mA Max. at DC 24V			
Protection circuit / 保護電路		Reversed Supply circuit protection, Short circuit protection output 電源反接保護及輸出短路保護			
Response time / 反應時間		Off to On：15 ms Max. On to Off：20 ms Max.			
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)			
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.			
Operating temperature/工作溫度		- 10℃ ~ + 45℃ (No freezing allowed不可結霜,結冰)			
Ambient humidity / 工作溼度		35% ~ 85% RH 相對溼度			
Storage temperature / 儲存時溫度		- 10℃ ~ + 45℃ (No freezing allowed不可結霜,結冰)			
Storage humidity / 儲存時溼度		35% ~ 95% RH 相對溼度			
Protection degree / 防水等級		IP62			
Material / 外觀材質		Aluminum+ABS / 鋁+ABS			
Wiring method / 出線方式		Transmitter：M12 pigtailed type(5P) Receiver：M12 pigtailed type(5P)			
Option / 選購配件 (Page 256)		Connectors / 線材：M125R-PUR-2M / M125R-PUR-5M			
Weight / 重量		Approx.320g	Approx.590g	Approx.890g	Approx.1180g

◆ Dimensions / 尺寸圖 : (unit:mm)

• Emitter/ 發射

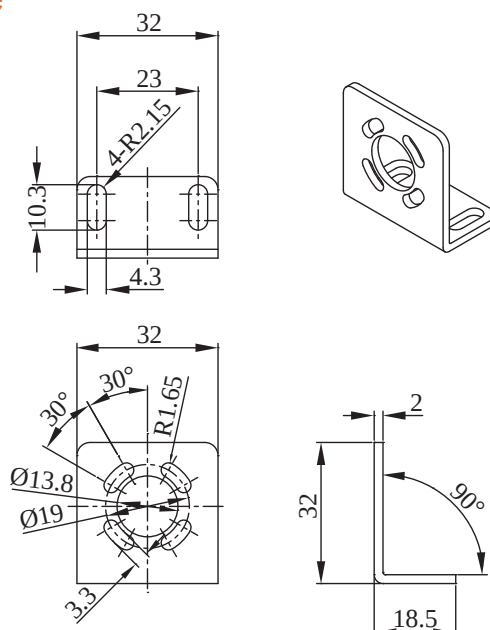


• Receiver/ 接收



Model	(A)	(B)	(C)	(D)
ASP-2008(S)-K1	184.2mm	205.2mm	140mm	7
ASP-2016(S)-K1	344.2mm	365.2mm	300mm	15
ASP-2024(S)-K1	504.2mm	525.2mm	460mm	23
ASP-2032(S)-K1	664.2mm	685.2mm	620mm	31

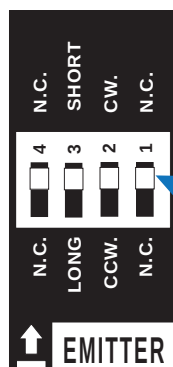
• ASP-Bracket / ASP固定架



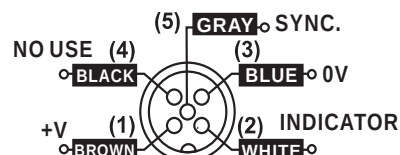
◆ DIP Switch / 指撥開關：

ASP-2008(S)-K1 / ASP-2016(S)-K1 / ASP-2024(S)-K1 / ASP-2032(S)-K1

• Emitter/ 發射



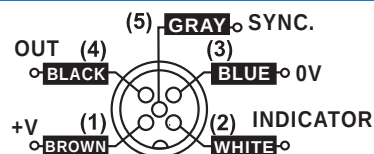
- 4.N.C./N.C.(無功能)
- 3.LONG/SHORT(長/短距)
- 2.CCW./CW.(反/正向掃描)
- 1.N.C./N.C.(無功能)



• Receiver/ 接收

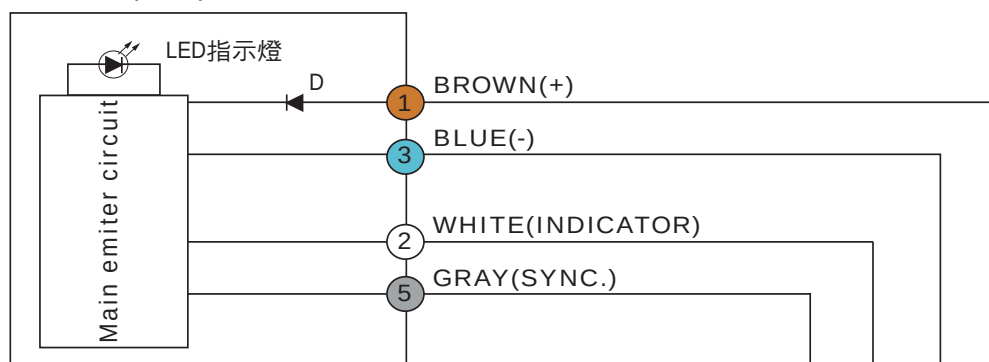


- 4.NPN/PNP OUTPUT
- 3.CCW./CW.(反/正向掃描)
- 2.FLASH/FIX(閃爍/不閃爍)
- 1.D.ON/L.ON(遮光/入光動作)

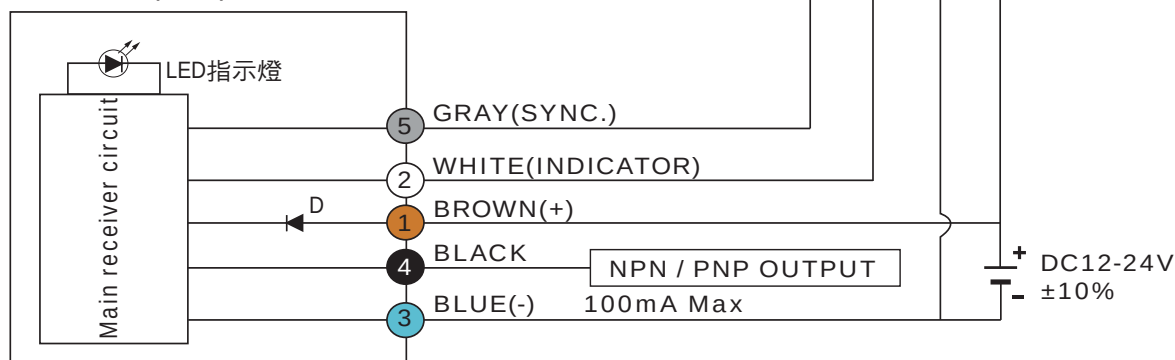


◆ Circuit Diagram / 接線圖：

Emitter(發射)



Receiver(接收)



◆ Characteristic / 特點：

- CW. and CCW. sensing options.
/ 正向(CW.) 反向(CCW.)掃描，安裝度自由。
- Big and bright LED output indicator.
/ 大面積動作指示燈，清楚明瞭。
- NPN/PNP embedded outputs.
/ 同時具備NPN/PNP，方便選擇。
- Innovative 2 types of signal pulse.
/ 業界首創，兩段功率調整。

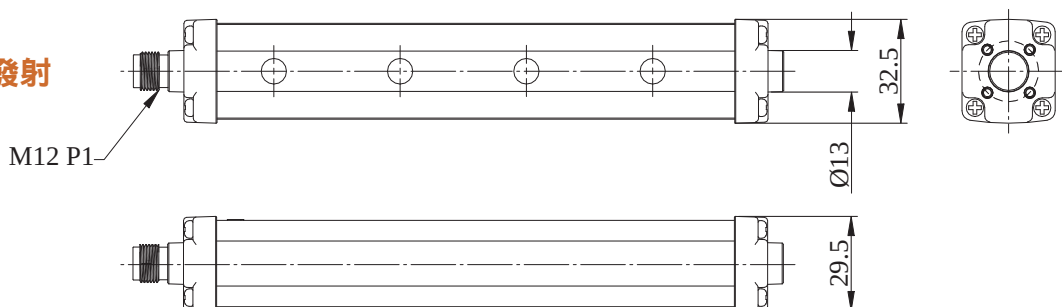


◆ Specifications / 規格表：

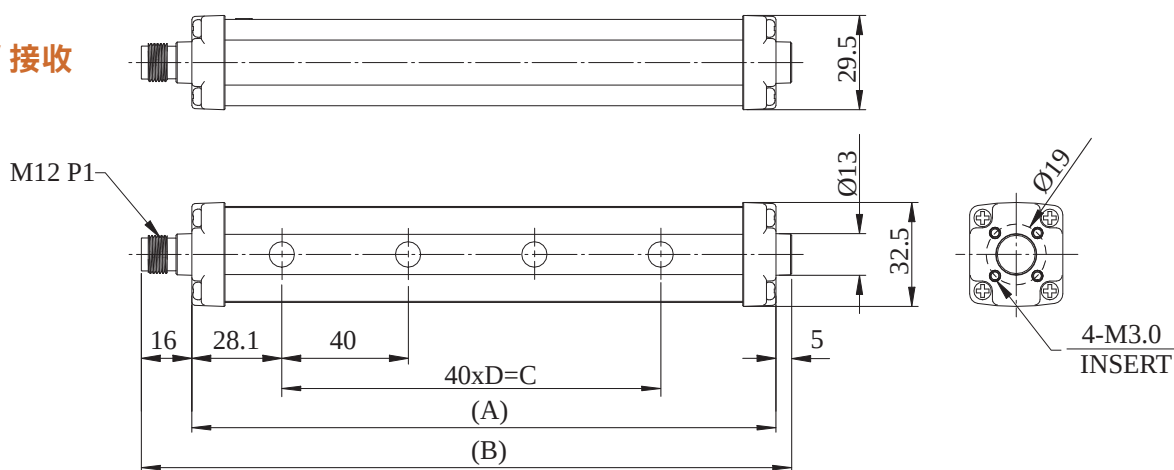
Model / 型號	NPN or PNP L.on/D.on	ASP-4004-K1	ASP-4008-K1	ASP-4012-K1	ASP-4016-K1
		ASP-4004S-K1	ASP-4008S-K1	ASP-4012S-K1	ASP-4016S-K1
No.of Beams/光軸數		4	8	12	16
Sensing Height / 檢測高度		120 mm	280 mm	440 mm	600 mm
Beam pitch / 光軸間距		40 mm			
Sensing type / 檢出方式		Through beam / 對照式			
Resolution / 分辨率		60 mm opaque object 不透明物體			
Sensing distance / 檢出距離		0.6 M ~ 5 M 0.3 M ~ 2 M	0.6 M ~ 5 M 0.3 M ~ 2 M	0.6 M ~ 5 M 0.3 M ~ 2 M	0.6 M ~ 5 M 0.3 M ~ 2 M
Emitting light / 發光源		Infrared LED(紅外線發光LED) : 850 nm			
Indicating LED / LED指示燈		Blinking or shining output indicators. 動作指示燈有閃爍式、恆亮式			
Running type / 運轉方式		More than one beam is covered ON (Dark On) 任意一個光束被遮斷即輸出			
Operating voltage / 工作電壓		DC12 ~ 24 V±10% (ripple P-P : 10% Max.)			
Current Consumption / 消耗電流		Transmitter : 35 mA Max. Receiver : 30 mA Max.	Transmitter : 45 mA Max. Receiver : 35 mA Max.	Transmitter : 55 mA Max. Receiver : 40 mA Max.	Transmitter : 60 mA Max. Receiver : 40 mA Max.
Load current / 負載電流		100 mA Max. at DC 24V			
Protection circuit / 保護電路		Reversed Supply circuit protection, Short circuit protection output 電源反接保護及輸出短路保護			
Response time / 反應時間		Off to On : 15 ms Max. On to Off : 20 ms Max.			
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)			
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.			
Operating temperature/工作溫度		- 10 °C ~ + 45°C (No freezing allowed不可結霜,結冰)			
Ambient humidity / 工作溼度		35% ~ 85% RH 相對溼度			
Storage temperature / 儲存時溫度		- 10 °C ~ + 45°C (No freezing allowed不可結霜,結冰)			
Storage humidity / 儲存時溼度		35% ~ 95% RH 相對溼度			
Protection degree / 防水等級		IP62			
Material / 外觀材質		Aluminum+ABS / 鋁+ABS			
Wiring method / 出線方式		Transmitter : M12 pigtailed type(5P) Receiver : M12 pigtailed type(5P)			
Option / 選購配件 (Page 256)		Connectors / 線材 : M125R-PUR-2M / M125R-PUR-5M			
Weight / 重量		Approx.315g	Approx.580g	Approx.875g	Approx.1160g

◆ Dimensions / 尺寸圖 : (unit:mm)

• Emitter/ 發射

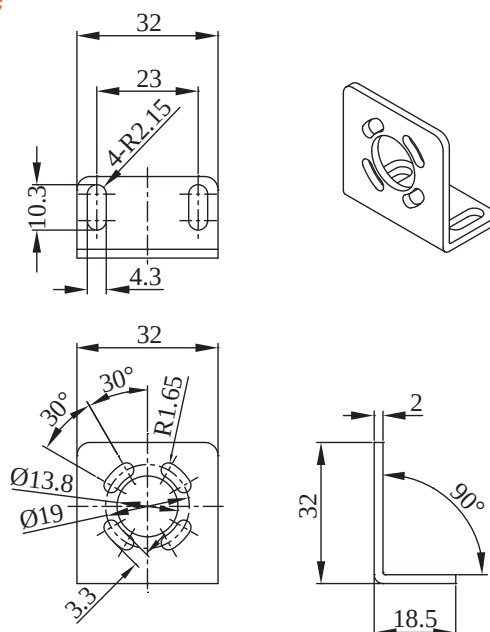


• Receiver/ 接收



Model	(A)	(B)	(C)	(D)
ASP-4004(S)-K1	184.2mm	205.2mm	120mm	3
ASP-4008(S)-K1	344.2mm	365.2mm	280mm	7
ASP-4012(S)-K1	504.2mm	525.2mm	440mm	11
ASP-4016(S)-K1	664.2mm	685.2mm	600mm	15

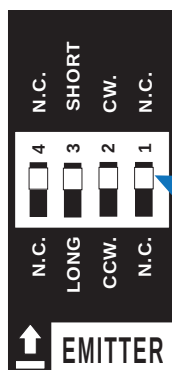
• ASP-Bracket / ASP固定架



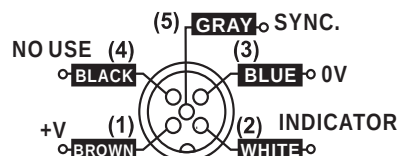
◆ DIP Switch / 指撥開關：

ASP-4004(S)-K1 / ASP-4008(S)-K1 / ASP-4012(S)-K1 / ASP-4016(S)-K1

• Emitter/ 發射



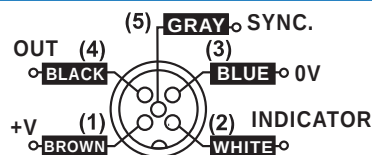
- 4.N.C./N.C.(無功能)
 3.LONG/SHORT(長/短距)
 2.CCW./CW.(反/正向掃描)
 1.N.C./N.C.(無功能)



• Receiver/ 接收

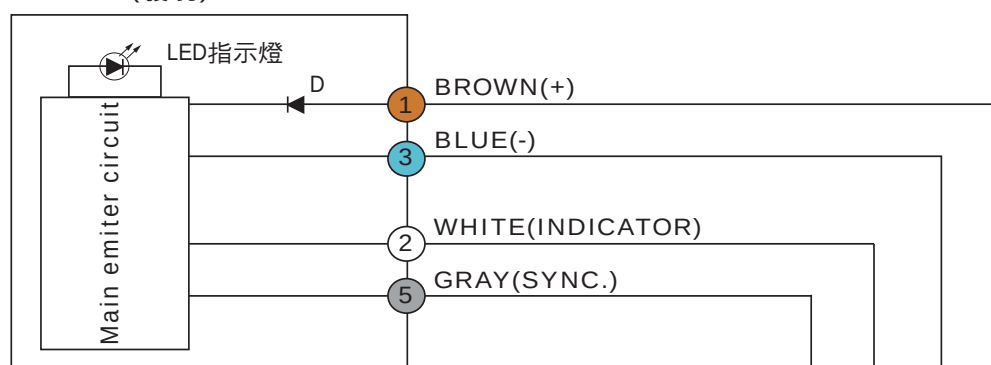


- 4.NPN/PNP OUTPUT
 3.CCW./CW.(反/正向掃描)
 2.FLASH/FIX(閃爍/不閃爍)
 1.D.ON/L.ON(遮光/入光動作)

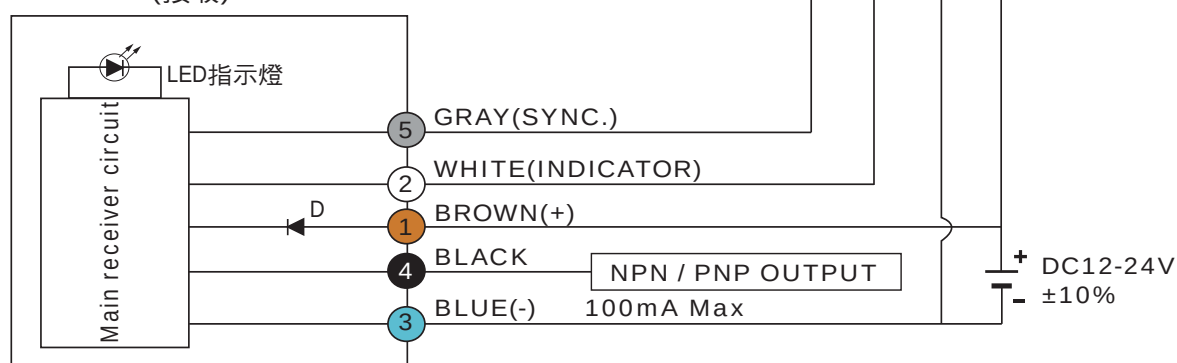


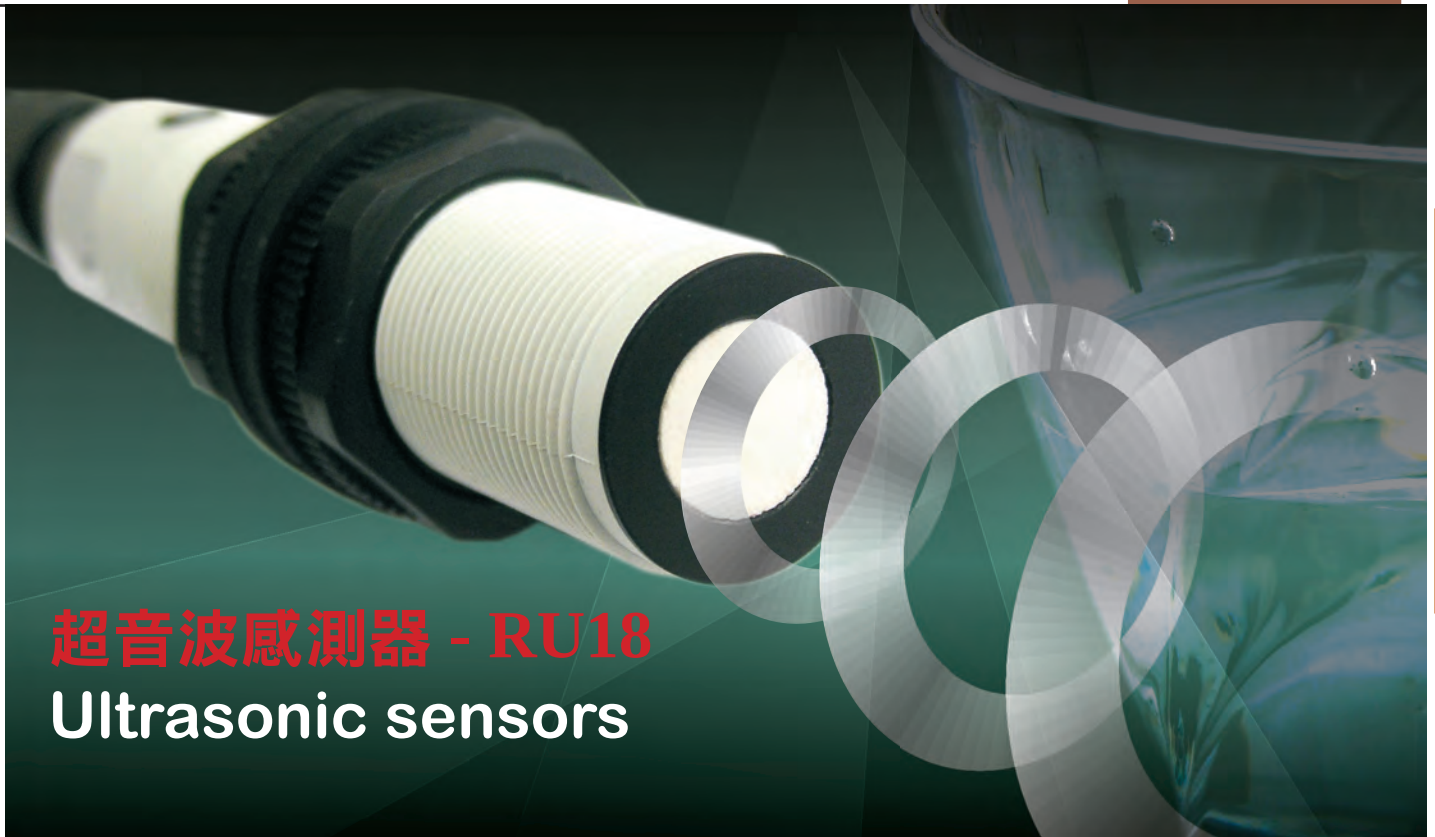
◆ Circuit Diagram / 接線圖：

Emitter(發射)



Receiver(接收)





超音波感測器 - RU18

Ultrasonic sensors

Photo / Area Photo / Ultrasonic Sensor

R5JM
/R3JK

PTQ18

PMF
/RMF
/MMF

PK3
/PK5
/PM6

SU
/SU15
/SU07
/SU30

SPR
/RX

OAP
/ASP

RU18

◆ Characteristic / 特點 :

- Working area adjusting (windows teach) by teach-in button suitable for all models for a fast coming into work. / 操作簡易，只需通過按鍵教導工作區(窗口設定),產品能夠快速的進入工作狀態。
- Multifunction LED indicator: output state, teach-in function, NO/NC configuration. / 多功能LED指示燈:LED可顯示輸出狀態,設定狀態,和NO/NC狀態等。
- Plastic housing, IP67 protection degree / 特殊塑料外殼,防水等級最高可達IP67。
- Approvals: CE / 通過CE 認證,品質可靠有保證。
- It is easy to detect transparent objects./ 最適合於透明物體的檢測。

◆ Operation chart :



Steps / 設定步驟 :

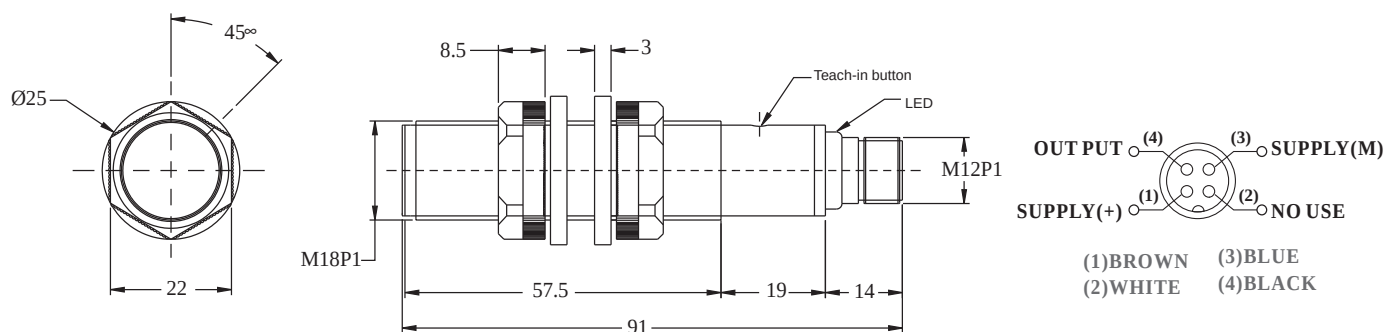
Setting A: A-1: Put the object on position A; A-2: Press teach-in button 1 second; A-3: LED twinkles once, setting A ok.
/1.設定檢測最遠距離：將被測物放置在A點，然後長按設定按鈕(約1 s),待LED燈閃爍1次，即A點設定完成；

Setting B: B-1: Put the object on position B; B-2: Press teach-in button 1 second; B-3: LED twinkles three times, all setting completed.
/2.設定檢測最近距離：將被測物放置在B點，然後長按設定按鈕(約1 s),待LED燈閃爍3次，即B點設定完成；A點到B點的距離即為感應距離。

◆ Specifications / 規格表 :

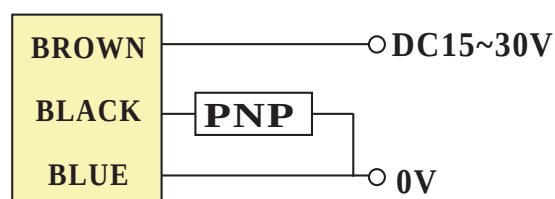
Output Method / 輸出模式	Analogue output 0~10V	RU18-DU90-VK1	RU18-DU160-VK1
	NPN - NO /NC	RU18-DU90-NK1	RU18-DU160-NK1
	PNP - NO /NC	RU18-DU90-PK1	RU18-DU160-PK1
Maximum sensing distance / 最大檢測距離	900 mm		1600 mm
Sensing ranger(Sd) / 有效距離	100 ~900 mm		150 ~ 1600 mm
Beam Angle / 發射角度	±7°		±8°
Frequency transducer / 音頻	300 KHZ		230 KHZ
Repeat accuracy / 重複精度	0.5%		
Temperature range/ 工作溫度	-10°C~+60°C		-20°C~+70°C
Temperature compensation/ 溫度補償	Yes		
Operating voltage / 工作電壓	DC 15~30 V		
Thermal drift / 熱量誤差	< 5%		
Ripple / 漣波因素	5%		
leakage current / 漏電流	<10 μA@VDC=30V		
Output current / 輸出電流	100 mA		
Minmum load resistance / 最小負載阻抗	1 KΩ (analogue voltage output / 類比電壓輸出10V)		
Adjustment set pint / 調整方式	Teach-in button / 按鍵設定		
Time delay before availability / 開機延遲時間	300ms		
Output Protection / 輸出保護	Polarity reversal; overvoltage pulses; short circuit / 極性逆接&過電壓&短路保護		
Protection degree / 防水等級	IP67		IP67
Housing material / 外殼材質	PBT		
Active Head material / 振動器材質	Epoxy resin / 環氧樹脂		
Tightening torque / 扭力	1 Nm		
Weight / 重量	35 g		
Storage temperature / 保存溫度	-35°C~+70°C (without freezer / 無結霜、結冰)		

◆ Dimensions / 尺寸圖 : (unit:mm)

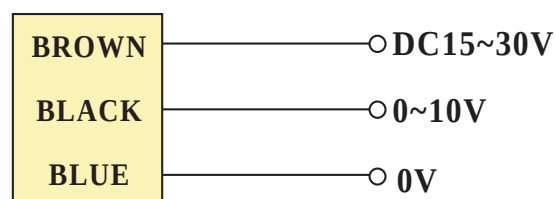


◆ Wiring diagrams / 接線圖 :

Modelli con uscita digitale PNP NO/NC
PNP NO/NC models with single digital output

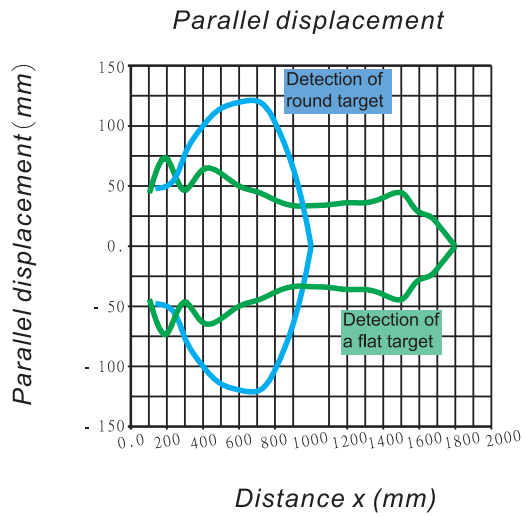


Modelli con uscita analogica in tensione
Models with single voltage analogica output

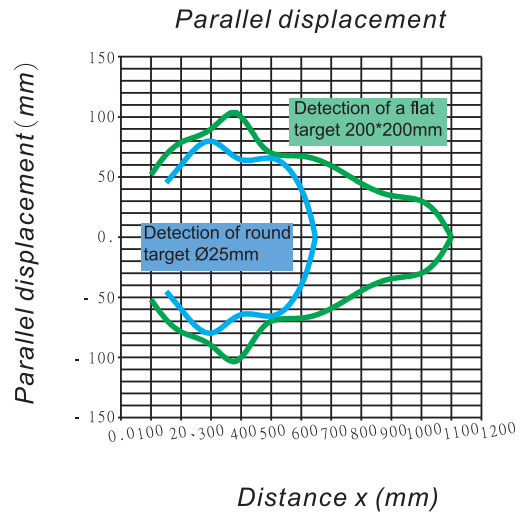


◆ Response diagram / 反應示意圖：

RU18-DU160

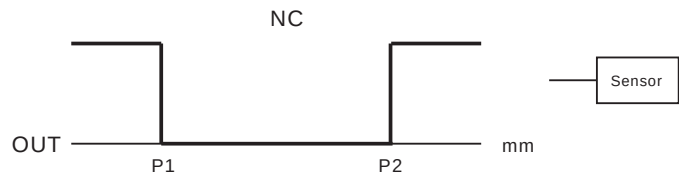
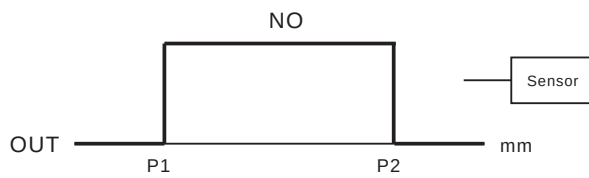


RU18-DU90



◆ Output chart / 輸出圖：

Models with single digital output



Inductive / Capacitive Proximity Sensor



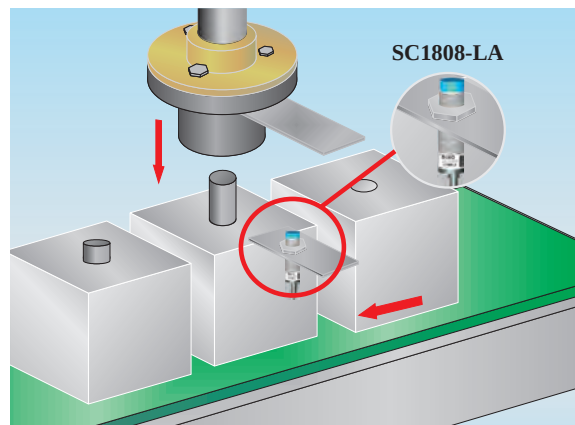
Linear Analog Output Inductive Proximity Sensor /線性近接開關	PSD1808-LA03 / LV03	154
	PSC1808-LA03 / LV03	155
	SC1808-LA / LV01	156
Heat-Resistant Inductive Proximity Sensor /耐熱型近接開關	M12	157
	M18	159
	M30	161
Tubular Inductive Proximity Sensor /圓管型近接開關	Ø4	164
	M5	165
	Ø6	166
	M8	167
	M12	171
	M18	175
	M30	179
Rectangular Inductive Proximity Sensor /方形近接開關	JN / JND	187
	KND	189
	PN	190
	PND	193
	RN	195
	SN	197
	TSN	200
Inductive Ring Sensor /環型近接感應器	SID	203
	SIR	205
	SIA	207
Capacitive Proximity Sensor /靜電容式近接開關	PKC	211
	KC	213
	KCM	216
	KCP	217

I0001 Page 203



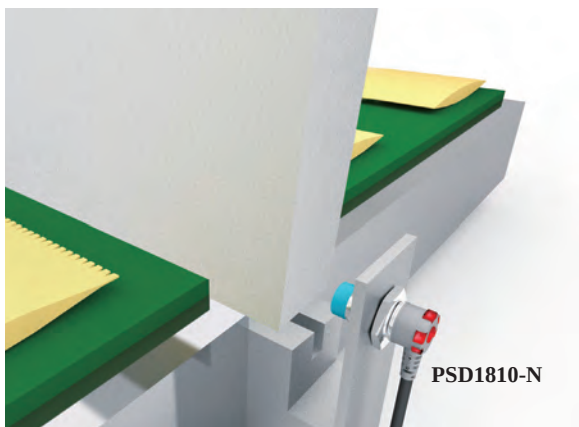
Detecting metal parts.
檢測金屬件

I0002 Page 156



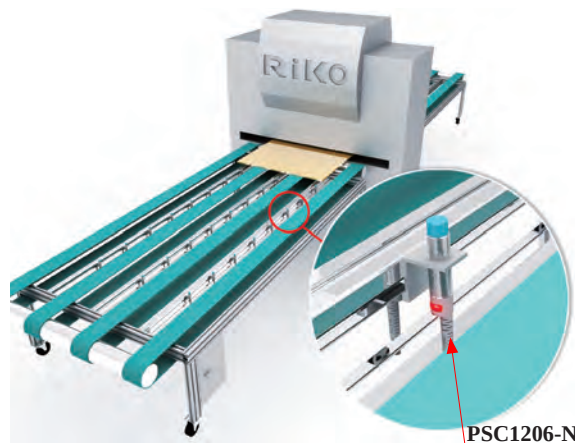
To precise examination indentation high.
壓入高度精密檢測

I0003 Page 175



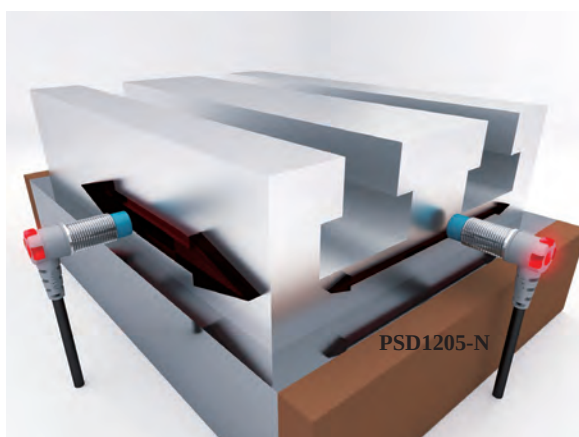
To detect packing machine.
檢測包裝機咬合

I0004 Page 172



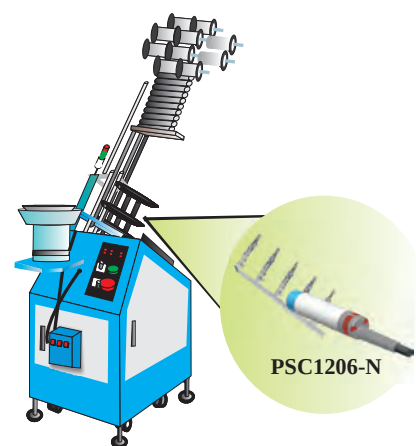
Positioning the metal cut pace.
定位金屬塊裁切位置

I0005 Page 171



Positioning the moving-part in X / Y table.
在 X / Y 平面內機構定位

I0006 Page 172



To detect if the pins is broken.
檢測金屬PIN是否有斷裂

Fiber Sensor

Photo / Area Photo / Ultrasonic Sensor

Inductive / Capacitive Proximity Sensor

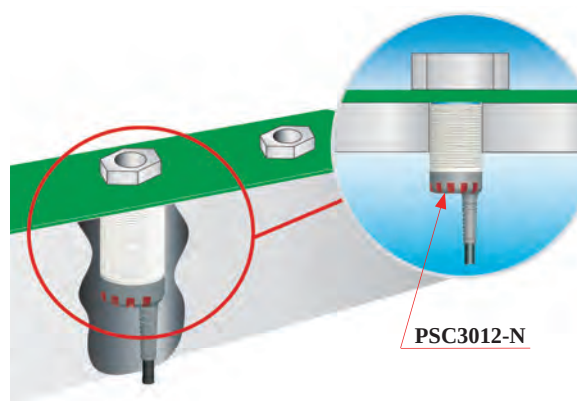
Others

I0007 Page 175



Positioning the moving-part
機構定位

I0008 Page 180



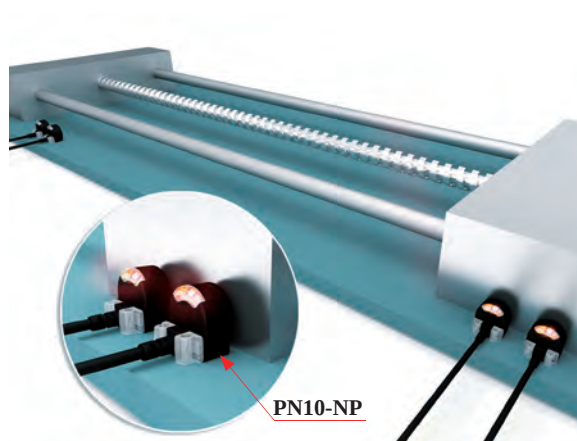
For the metal parts detection.
金屬零件通過檢測

I0009 Page 179



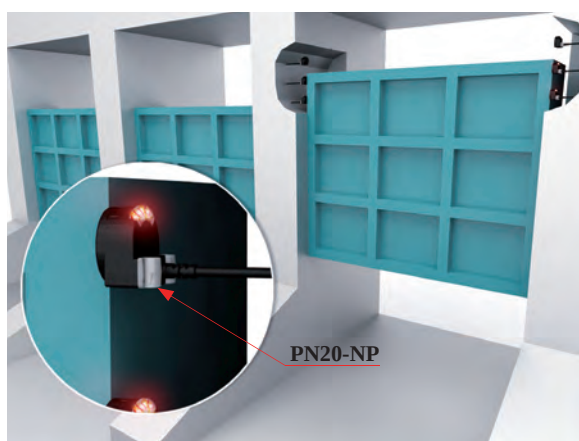
Detection of copper winding
檢測銅繞組

I0010 Page 191



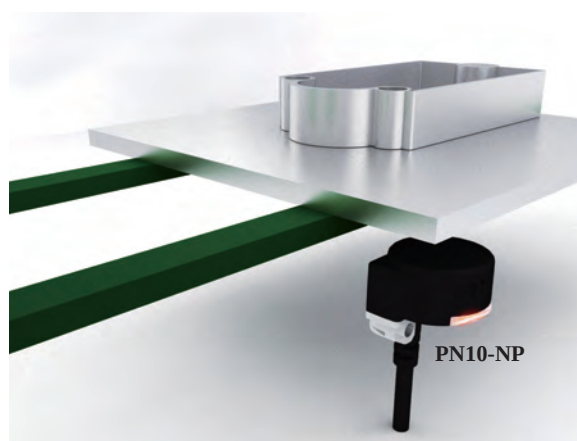
Detecting worktable positions.
檢測工作台的位置

I0011 Page 192



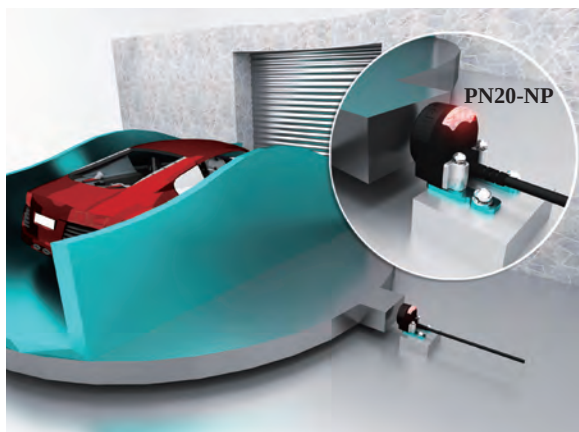
Sensing the height of a sluice gate.
閘門高度定位

I0012 Page 191



Positioning metal pad.
金屬板定位

I0013 Page 192



Sensing the rotary plate of parking building.
感應車庫的旋轉盤

I0014 Page 205



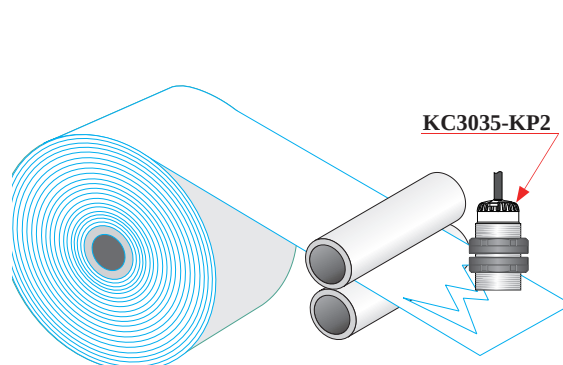
Detecting metal parts.
檢測金屬件

I0015 Page 214



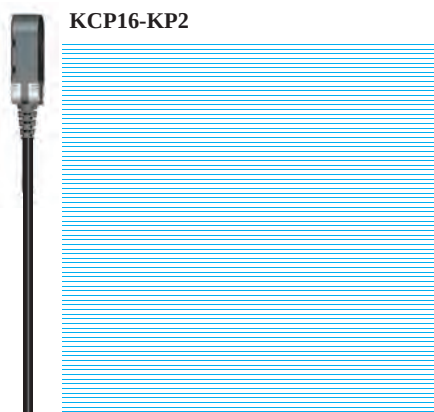
Filling control.
填充控制

I0016 Page 214



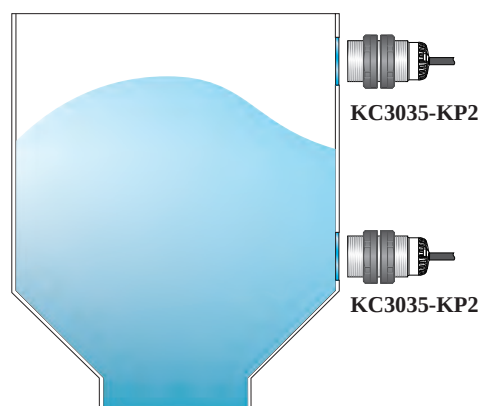
Detecting the breakage in reels of paper.
紙張破裂檢測

I0017 Page 217



Detecting the height of a paper stack.
檢測紙堆高度

I0018 Page 214



Level control for metal containers with plastic or glass windows.
料位檢測

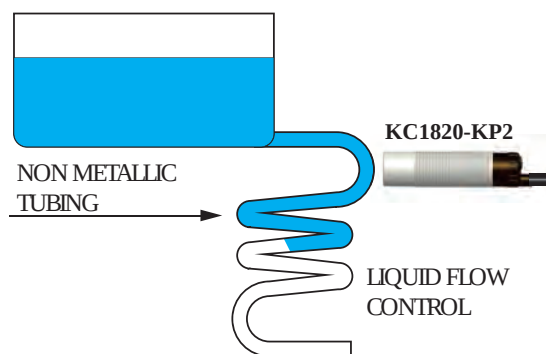
Fiber Sensor

Photo / Area Photo / Ultrasonic Sensor

Inductive / Capacitive Proximity Sensor

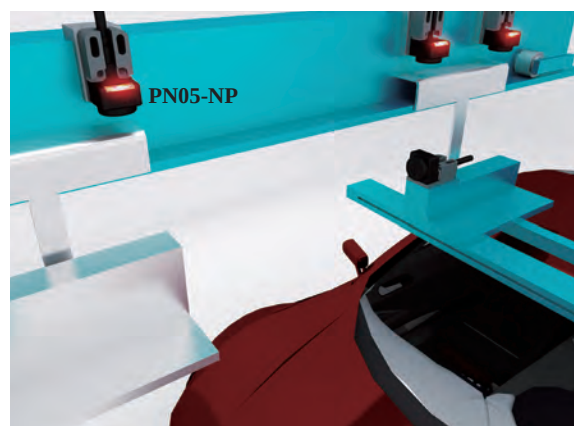
Others

I0019 Page 213



Liquid flow control.
流量控制

I0020 Page 190



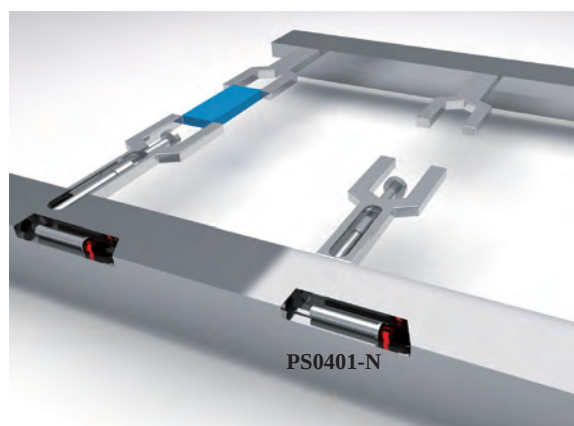
Positioning the moving-part.
機構定位

I0021 Page 154



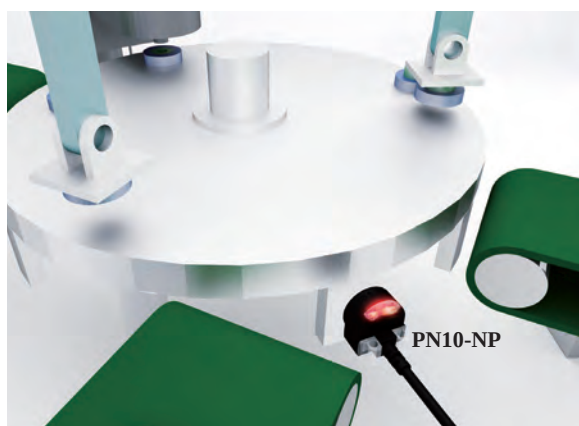
Detecting position of metal workpiece.
檢測金屬工件位置

I0022 Page 164



Detecting presence target in clippers of pad printing machine.
確定目標物處於轉印機的夾具中

I0023 Page 191



Detecting mark on the rotary platform.
檢測旋轉台上的標記位置

I0024 Page 180

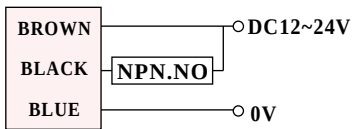


Positioning metal vehicle.
金屬載盤定位

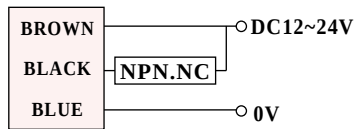
◆ Wiring diagrams / 接線圖 :

Single output / 單一輸出

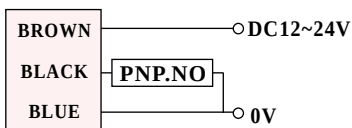
N Output



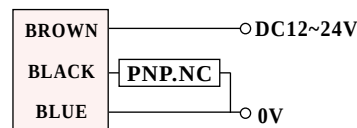
N2 Output



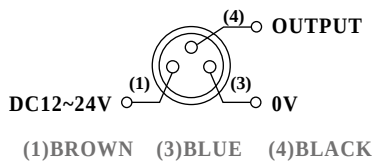
P Output



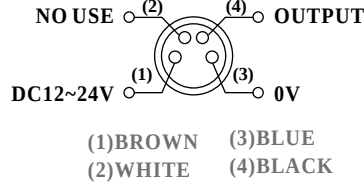
P2 Output



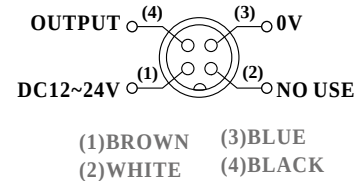
ND/ND1/PD/PD1 Output



NB1/PB1 Output

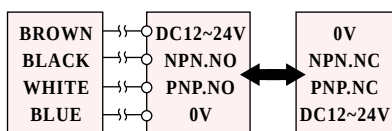


NK/NK1/NM1/PK/PK1/PM1 Output

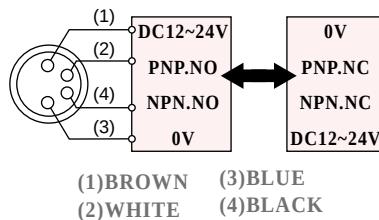


NPN/ PNP NO or NC 4-in-1 outputs

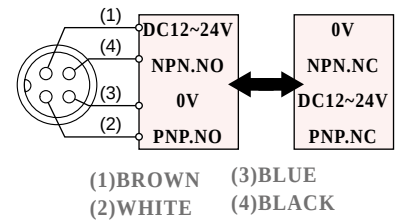
NP Output



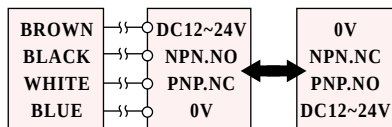
NPB Output



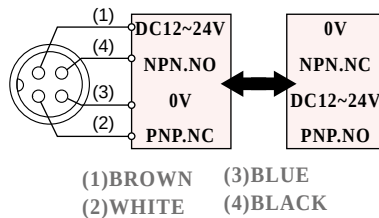
NPK/NPK1 Output



KP2 Output



KP2K/KP2K1 Output



Fiber Sensor

Photo / Area Photo / Ultrasonic Sensor

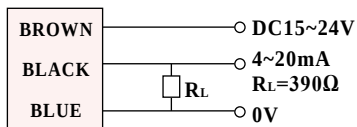
Inductive / Capacitive Proximity Sensor

Others

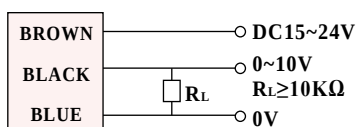
◆ Wiring diagrams / 接線圖：

Linear analog output / 線性輸出

LA Output

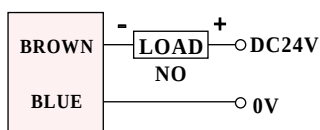


LV Output

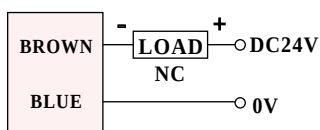


2-wires output / 二線式輸出

C Output

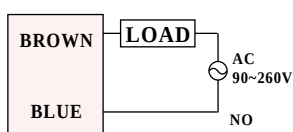


C2 Output

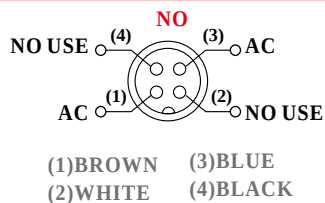


AC 90~260V

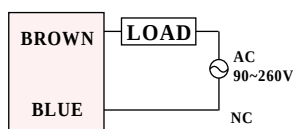
A Output



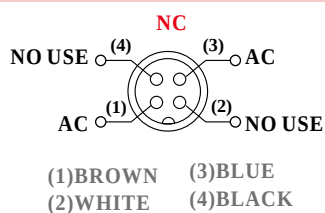
AK Output



A2 Output



A2K Output



OPTIONS

		HPD		08	01	N	D		
Heat-resistant 90° Inductive Proximity Sensor 耐熱90°圓管形近接開關	HPD							D	M8 Pigtailed type (3pin) M8接頭15cm 電線式 (3pin)
Heat-resistant Inductive Proximity Sensor 耐熱圓管形近接開關	HPS							B	M8 Pigtailed type (4pin) M8接頭15cm 電線式 (4pin)
Ø4/ M5 Inductive Proximity Sensor Ø4/ M5 近接開關	PS							B1	M8 Plug-in connector type (4pin) M8接頭式 (4pin)
Anti-Bending Inductive Proximity Sensor 耐彎抗拉型近接開關	PSC							K	M12 Pigtailed type M12接頭15cm 電線式
Anti-Bending 90° Inductive Proximity Sensor 90°耐彎抗拉型近接開關	PSD							M1	M12 Plug-in connector type (Metal) M12接頭式(金屬)
Short Body, Anti-Bending Inductive Proximity Sensor 短管耐彎抗拉型近接開關	PSS								Pre-wired 2M model 出線式 2M
Tubular type 圓管形	SC							N	Output NPN N.O.
								P	Output PNP N.O.
Standard housing 標準規格								N2	Output NPN N.C.
Short housing 短管	S							P2	Output PNP N.C.
Long housing 長管	L							NP	NPN.NO/NC& PNP.NO/NC NPN & PNP SYNC. OUT
								KP2	NPN.NO/NC& PNP.NC/NO All in one
								A	Output SCR.NO
								A2	Output SCR.NC
Tubular outside diameter 圓管外徑Ø4	04							LA	Linear 4~20 mA
Tubular outside diameter 圓管外徑M5	05							LV	Linear 0~10V
Tubular outside diameter 圓管外徑Ø6.5	06							C	2-Wires(N.O.)
Tubular outside diameter 圓管外徑M8	08							C2	2-Wires(N.C.)
Tubular outside diameter 圓管外徑M12	12								
Tubular outside diameter 圓管外徑M18	18								
Tubular outside diameter 圓管外徑M30	30								

Others

◆ Characteristic / 特點：

- 90 degree design fits for limited space.
/ 90度直角設計，合適有限空間安裝。
- Good linear output for machine stability control.
/ 良好的線性輸出，增加機台穩定的控制。
- Applications: RPM and displacement control.
/ 適合用於位移控制與轉速控制。
- Two outputs models : 0~10V/ 4~20mA.
/ 兩種輸出可選用：0-10V及4-20mA。



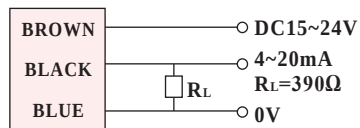
◆ Specifications / 規格表：

Model / 型號	PSD1808-LA03	PSD1808-LV03
Sensing distance / 檢出距離	8 mm	
Standard sensing object / 標準檢測物	Iron 18 x 18 x 1 mm	
Ripple / 漣波因素	≤ 20%	
Operating voltage / 工作電壓	DC 15 ~ 24V	
Current consumption / 消耗電流	35 mA Max.	
Load resistance / 負載阻抗	390 Ω 4~20 mA	> 10KΩ 0~10 V
Output Protection / 輸出保護	Input power polarity reversal protection / 電源輸入極性保護 Output power short-circuit protection / 輸出功率短路保護	
No-load supply current / 無負載電流	≤ 10 mA	
Temperature drift / 溫度誤差	≤ 15% Sr	
Insulation resistance / 隔離阻抗	20M Ω min. (DC 500V)	
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.	
Operating temperature / 工作溫度範圍	-20°C ~ +60°C	
Protection degree / 防水等級	IP67	
Wiring method / 出線方式	Pre-wired Ø5.2 x 2 M / 3wires	
Weight / 重量	Approx.86g	

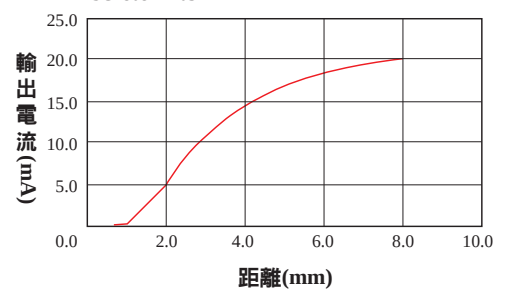
◆ Dimensions / 尺寸圖：(unit:mm)

PSD1808-LA03

◆ Wiring diagrams / 接線圖：

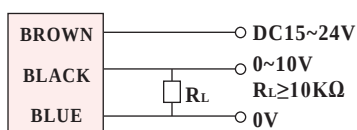


◆ Response diagrams / 曲線圖：

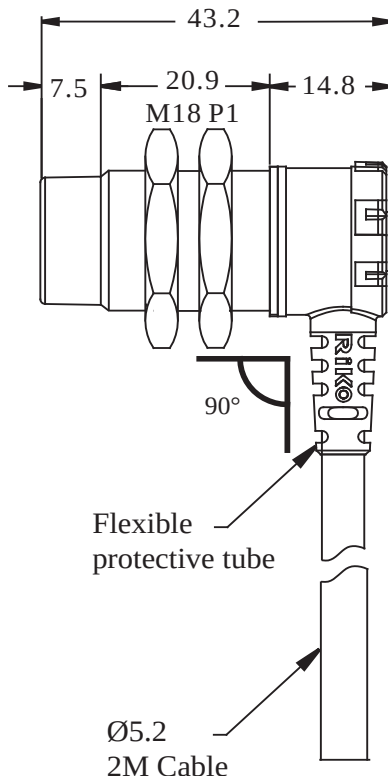
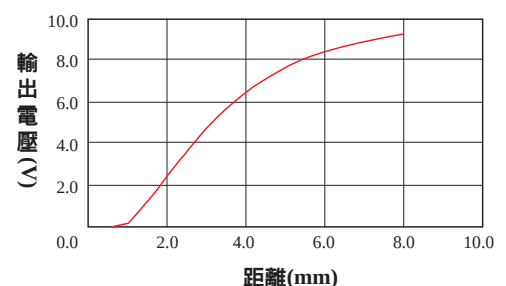


PSD1808-LV03

◆ Wiring diagrams / 接線圖：



◆ Response diagrams / 曲線圖：



Flexible protective tube

Ø5.2
2M Cable

◆ Characteristic / 特點：

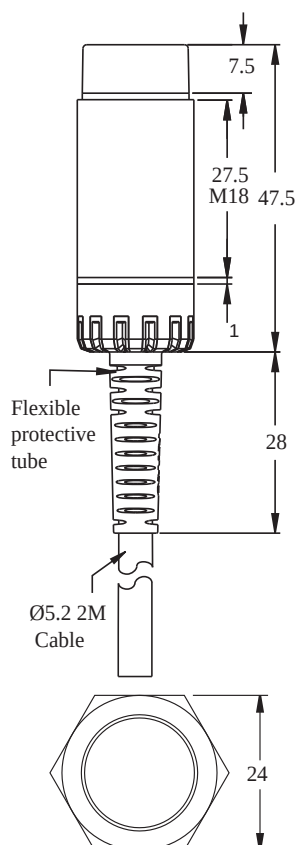
- Good linear output for machine stability control.
/ 良好的線性輸出，增加機台穩定的控制。
- Applications: RPM and displacement control.
/ 適合用於位移控制與轉速控制。
- Two outputs models : 0~10V/ 4~20mA.
/ 兩種輸出可選用：0-10V及4-20mA。



◆ Specifications / 規格表：

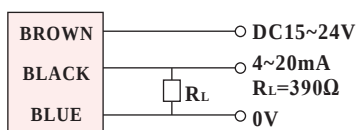
Model / 型號	PSC1808-LA03	PSC1808-LV03
Sensing distance / 檢出距離	8 mm	
Standard sensing object / 標準檢測物	Iron 18 x 18 x 1 mm	
Ripple / 漣波因素	≤ 20%	
Operating voltage / 工作電壓	DC 15 ~ 24V	
Current consumption / 消耗電流	35 mA Max.	
Load resistance / 負載阻抗	390 Ω 4~20 mA	> 10KΩ 0~10 V
Output Protection / 輸出保護	Input power polarity reversal protection / 電源輸入極性保護 Output power short-circuit protection / 輸出功率短路保護	
No-load supply current / 無負載電流	≤ 10 mA	
Temperature drift / 溫度誤差	≤ 15% Sr	
Insulation resistance / 隔離阻抗	20M Ω min. (DC 500V)	
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.	
Operating temperature / 工作溫度範圍	-20°C ~ +60°C	
Protection degree / 防水等級	IP67	
Wiring method / 出線方式	Pre-wired Ø5.2 x 2 M / 3wires	
Weight / 重量	Approx.93g	

◆ Dimensions / 尺寸圖：(unit:mm)

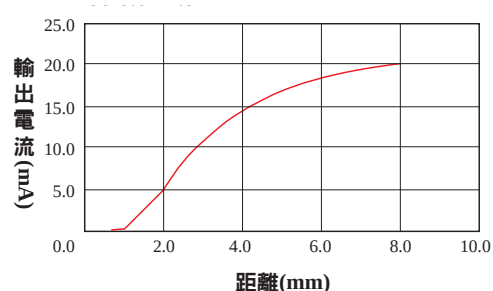


PSC1808-LA03

◆ Wiring diagrams / 接線圖：

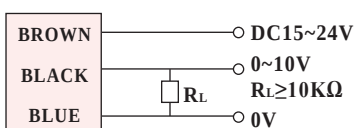


◆ Response diagrams / 曲線圖：

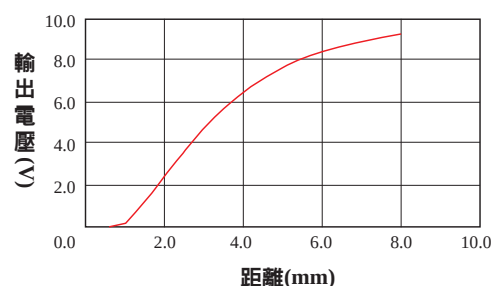


PSC1808-LV03

◆ Wiring diagrams / 接線圖：



◆ Response diagrams / 曲線圖：



◆ Characteristic / 特點：

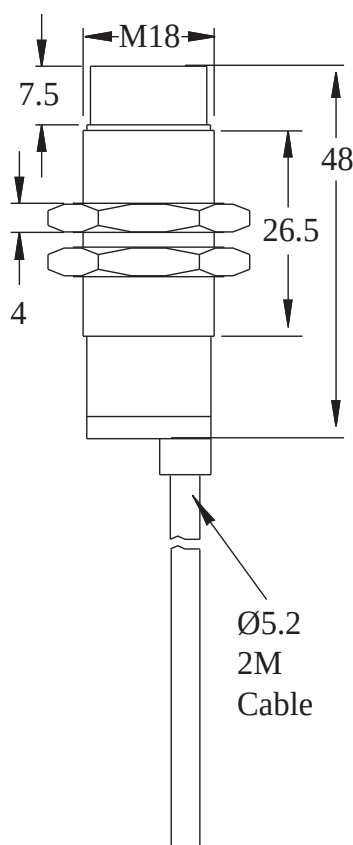
- Good linear output for machine stability control.
/ 良好的線性輸出，增加機台穩定的控制。
- Applications: RPM and displacement control.
/ 適合用於位移控制與轉速控制。
- Two outputs models : 0~10V/ 4~20mA.
/ 兩種輸出可選用：0-10V及4-20mA。



◆ Specifications / 規格表：

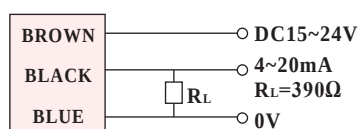
Model / 型號	SC1808-LA	SC1808-LV01
Sensing distance / 檢出距離	8 mm	
Standard sensing object / 標準檢測物	Iron 18 x 18 x 1 mm	
Ripple / 漣波因素	≤ 20%	
Operating voltage / 工作電壓	DC 15 ~ 24V	
Current consumption / 消耗電流	35 mA Max.	
Load resistance / 負載阻抗	390 Ω 4~20 mA	> 10KΩ 0~10 V
Output Protection / 輸出保護	Input power polarity reversal protection / 電源輸入極性保護 Output power short-circuit protection / 輸出功率短路保護	
No-load supply current / 無負載電流	≤ 10 mA	
Temperature drift / 溫度誤差	≤ 15% Sr	
Insulation resistance / 隔離阻抗	20M Ω min. (DC 500V)	
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.	
Operating temperature / 工作溫度範圍	-20°C ~ +60°C	
Protection degree / 防水等級	IP66	
Wiring method / 出線方式	Pre-wired Ø5.2 x 2 M / 3wires	
Weight / 重量	Approx.90g	

◆ Dimensions / 尺寸圖：(unit:mm)

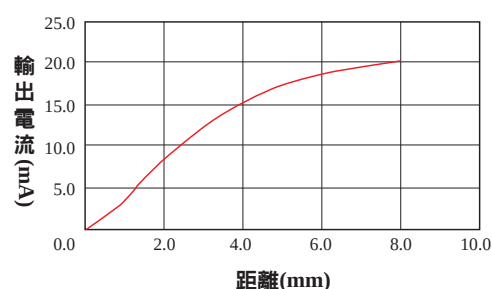


SC1808-LA

◆ Wiring diagrams / 接線圖：

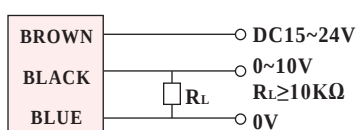


◆ Response diagrams / 曲線圖：

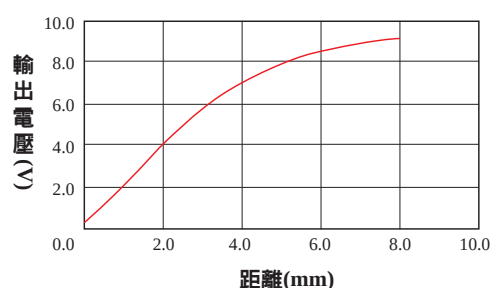


SC1808-LV01

◆ Wiring diagrams / 接線圖：



◆ Response diagrams / 曲線圖：

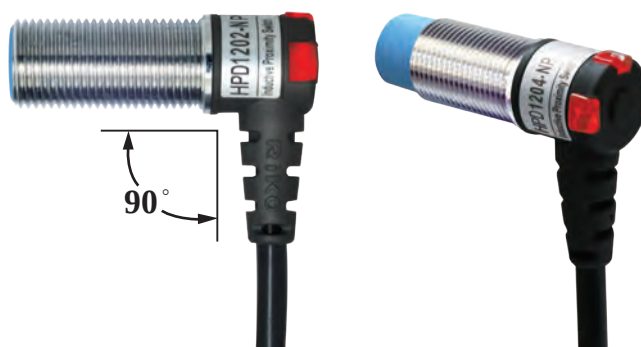


Heat-Resistant 90° Inductive Proximity Sensor

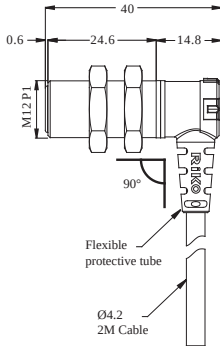
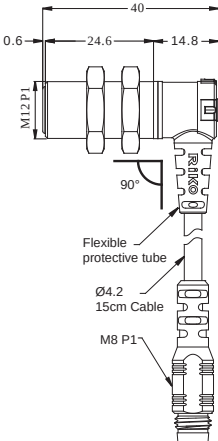
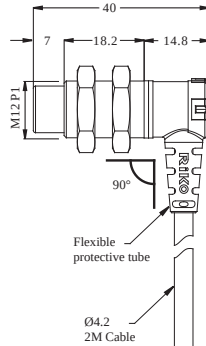
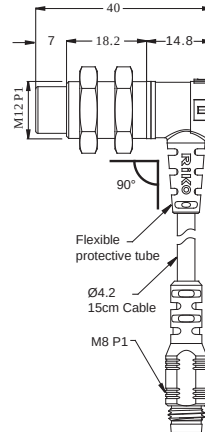
M12

◆ Characteristic / 特點：

- 110 degree C.
/ 耐高溫110℃內，合適高溫作業。
- Anti-bending design. / 耐彎包覆保護設計。
- Protection rating : IP67. / IP67防水等級。
- 90 degree wiring for easy mounting.
/ 垂直90°出線，安裝便利。



◆ Specifications / 規格表：

Output method 輸出模式	NPN N.O	HPD1202-N	HPD1202-ND	HPD1204-N	HPD1204-ND
	NPN N.C.	HPD1202-N2	HPD1202-N2D	HPD1204-N2	HPD1204-N2D
	PNP N.O.	HPD1202-P	HPD1202-PD	HPD1204-P	HPD1204-PD
	PNP N.C.	HPD1202-P2	HPD1202-P2D	HPD1204-P2	HPD1204-P2D
	NPN N.O./N.C. PNP N.O./N.C.	—	—	—	—
Sensing distance / 檢出距離		2 mm		4 mm	
Secure sensing distance / 建議距離		0 to 1.6 mm		0 to 3.2 mm	
Standard sensing object / 標準檢測物		Iron 12 × 12 × 1 mm			
Sensing type / 檢出方式		Shielded / 隔離型		Unshielded / 非隔離型	
Description / 外型		Standard M12 / 標準M12			
Hysteresis / 遲滯		≤ 10 % of sensing distance			
Response time / 反應時間		DC Type 1 ms Max.			
Operating voltage / 工作電壓		DC 12 ~ 24 V			
Current consumption / 消耗電流		DC: ≤ 14 mA no-load			
Load current / 負載電流		DC:100 mA Max. at DC 24V			
Leakage current / 漏電流		≤ 1.1 mA no-load			
Residual voltage / 殘餘電壓		≤ DC 2V			
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)			
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.			
Operating temperature / 工作溫度		-20℃ ~ + 110℃			
Protection degree / 防水等級		IP 67			
Wiring method / 出線方式		Ø4.2x2M/3-wires	M8 pigtailed type / M8接頭15cm電線式	Ø4.2x2M/3-wires	M8 pigtailed type / M8接頭15cm電線式
Weight / 重量		Approx.60g	Approx.20g	Approx.56g	Approx.16g
◆ Dimensions / 尺寸圖： (unit:mm)					
					

Inductive / Capacitive Proximity Sensor

PSD18-LA/LV
PSC18-LA/LV
SC18-LA/LV

HPD
HPS

Ø4
M5
Ø6
M8
M12
M18
M30

JN
JND
KND
PN
PND
RN
SN
TSN

SID
SIR
SIA

PKC
KC
KCM
KCP

◆ Characteristic / 特點：

- 110 degree C. / 耐高溫110℃內，合適高溫作業。
- Anti-bending design. / 耐彎包覆保護設計。
- Protection rating : IP67. / IP67防水等級。



◆ Specifications / 規格表：

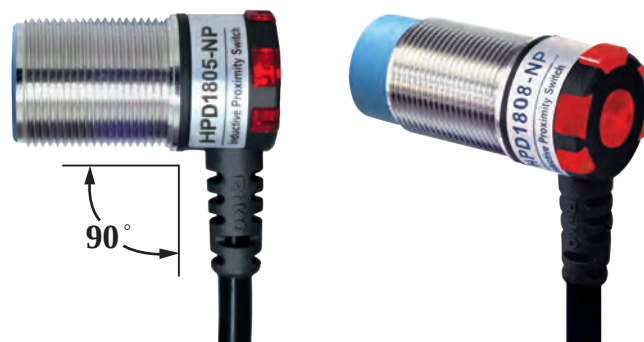
Output method 輸出模式	NPN N.O	HPS1202-N	HPS1202-ND	HPS1204-N	HPS1204-ND
	NPN N.C.	HPS1202-N2	HPS1202-N2D	HPS1204-N2	HPS1204-N2D
	PNP N.O.	HPS1202-P	HPS1202-PD	HPS1204-P	HPS1204-PD
	PNP N.C.	HPS1202-P2	HPS1202-P2D	HPS1204-P2	HPS1204-P2D
	NPN N.O./N.C. PNP N.O./N.C.	—	—	—	—
Sensing distance / 檢出距離		2 mm		4 mm	
Secure sensing distance / 建議距離		0 to 1.6 mm		0 to 3.2 mm	
Standard sensing object / 標準檢測物		Iron 12 × 12 × 1 mm			
Sensing type / 檢出方式		Shielded / 隔離型		Unshielded / 非隔離型	
Description / 外型		Standard M12 / 標準M12			
Hysteresis / 遲滯		≤ 10 % of sensing distance			
Response time / 反應時間		DC Type 1 ms Max.			
Operating voltage / 工作電壓		DC 12 ~ 24 V or			
Current consumption / 消耗電流		DC: ≤ 14 mA no-load			
Load current / 負載電流		DC:100 mA Max. at DC 24V			
Leakage current / 漏電流		≤ 1.1 mA no-load			
Residual voltage / 殘餘電壓		≤ DC 2V			
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)			
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.			
Operating temperature / 工作溫度		-20℃ ~ + 110℃			
Protection degree / 防水等級		IP 67			
Wiring method / 出線方式		Ø4.2x2M/3-wires	M8 pigtailed type / M8接頭15cm電線式	Ø4.2x2M/3-wires	M8 pigtailed type / M8接頭15cm電線式
Weight / 重量		Approx.64g	Approx.48.4g	Approx.65g	Approx.49.4g
◆ Dimensions / 尺寸圖： (unit:mm)					

Heat-Resistant 90° Inductive Proximity Sensor

M18

◆ Characteristic / 特點：

- 110 degree C. / 耐高溫110℃內，合適高溫作業。
- Anti-bending design. / 耐彎包覆保護設計。
- Protection rating : IP67. / IP67防水等級。
- 90 degree wiring for easy mounting.
/ 垂直90°出線，安裝便利。



◆ Specifications / 規格表：

Output method 輸出模式	NPN N.O	HPD1805-N	HPD1805-NK	HPD1808-N	HPD1808-NK
	NPN N.C.	HPD1805-N2	HPD1805-N2K	HPD1808-N2	HPD1808-N2K
	PNP N.O.	HPD1805-P	HPD1805-PK	HPD1808-P	HPD1808-PK
	PNP N.C.	HPD1805-P2	HPD1805-P2K	HPD1808-P2	HPD1808-P2K
	NPN N.O./N.C. PNP N.O./N.C.	—	—	—	—
Sensing distance / 檢出距離		5 mm		8 mm	
Secure sensing distance / 建議距離		0 to 4.0 mm		0 to 6.4 mm	
Standard sensing object / 標準檢測物		Iron 18× 18 × 1 mm			
Sensing type / 檢出方式		Shielded / 隔離型		Unshielded / 非隔離型	
Description / 外型		Standard M18 / 標準M18			
Hysteresis / 遲滯		≤ 10 % of sensing distance			
Response time / 反應時間		2 ms Max.			
Operating voltage / 工作電壓		DC 12 ~ 24 V			
Current consumption / 消耗電流		DC: ≤ 14 mA no-load			
Load current / 負載電流		DC:100 mA Max. at DC 24V			
Leakage current / 漏電流		≤ 1.1 mA no-load			
Residual voltage / 殘餘電壓		≤ DC 2V			
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)			
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.			
Operating temperature / 工作溫度		-20℃ ~ + 110℃			
Protection degree / 防水等級		IP 67			
Wiring method / 出線方式		Ø5.2x2M/3-wires	M12 pigtailed type / M12接頭15cm電線式	Ø5.2x2M/3-wires	M12 pigtailed type / M12接頭15cm電線式
Weight / 重量		Approx.86g	Approx.38g	Approx.86g	Approx.38g
◆ Dimensions / 尺寸圖： (unit:mm)					

Inductive / Capacitive Proximity Sensor

PSD18-LA/LV
PSC18-LA/LV
SC18-LA/LV

HPD
HPS

Ø4
M5
Ø6
M8
M12
M18
M30

JN
JND
KND
PN
PND
RN
SN
TSN

SID
SIR
SIA

PKC
KC
KCM
KCP

◆ Characteristic / 特點：

- 110 degree C. / 耐高溫110℃內，合適高溫作業。
- Anti-bending design. / 耐彎包覆保護設計。
- Protection rating : IP67. / IP67防水等級。



◆ Specifications / 規格表：

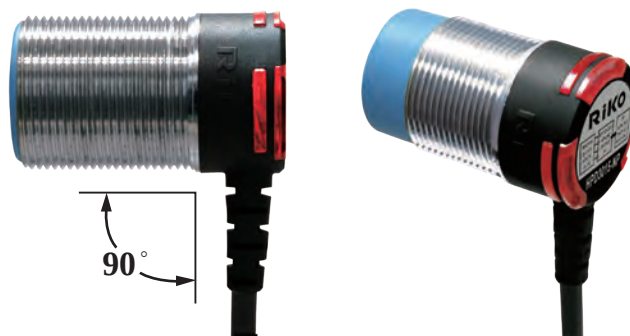
Output method 輸出模式	NPN N.O	HPS1805-N	HPS1805-NK	HPS1808-N	HPS1808-NK
	NPN N.C.	HPS1805-N2	HPS1805-N2K	HPS1808-N2	HPS1808-N2K
	PNP N.O.	HPS1805-P	HPS1805-PK	HPS1808-P	HPS1808-PK
	PNP N.C.	HPS1805-P2	HPS1805-P2K	HPS1808-P2	HPS1808-P2K
	NPN N.O./N.C. PNP N.O./N.C.	—	—	—	—
Sensing distance / 檢出距離		5 mm		8 mm	
Secure sensing distance / 建議距離		0 to 4 mm		0 to 6.4 mm	
Standard sensing object / 標準檢測物		Iron 18× 18 × 1 mm			
Sensing type / 檢出方式		Shielded / 隔離型		Unshielded / 非隔離型	
Description / 外型		Standard M18 / 標準M18			
Hysteresis / 遲滯		≤ 10 % of sensing distance			
Response time / 反應時間		2 ms Max.			
Operating voltage / 工作電壓		DC 12 ~ 24 V			
Current consumption / 消耗電流		DC: ≤ 14 mA no-load			
Load current / 負載電流		DC:100 mA Max. at DC 24V			
Leakage current / 漏電流		≤ 1.1 mA no-load			
Residual voltage / 殘餘電壓		≤ DC 2V			
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)			
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.			
Operating temperature / 工作溫度		-20℃ ~ + 110℃			
Protection degree / 防水等級		IP 67			
Wiring method / 出線方式		Ø5.2x2M/3-wires	M12 pigtailed type / M12接頭15cm電線式	Ø5.2x2M/3-wires	M12 pigtailed type / M12接頭15cm電線式
Weight / 重量		Approx.93g	Approx.40.5g	Approx.92g	Approx.39.5g
◆ Dimensions / 尺寸圖： (unit:mm)					

Heat-Resistant 90° Inductive Proximity Sensor

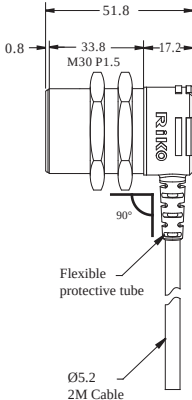
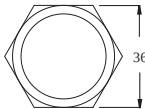
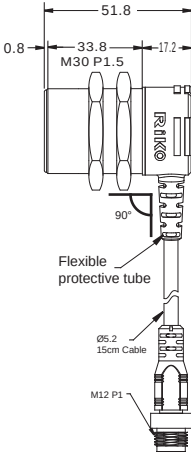
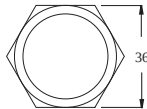
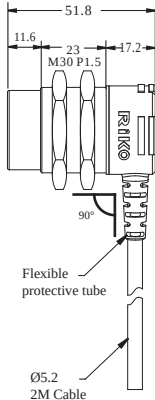
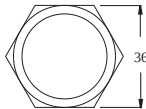
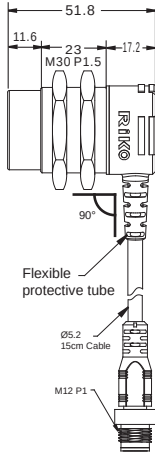
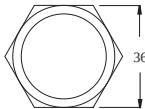
M30

◆ Characteristic / 特點：

- 110 degree C. / 耐高溫110℃內，合適高溫作業。
- Anti-bending design. / 耐彎包覆保護設計。
- Protection rating : IP67. / IP67防水等級。
- 90 degree wiring for easy mounting.
/ 垂直90°出線，安裝便利。



◆ Specifications / 規格表：

Output method 輸出模式	NPN N.O	HPD3010-N	HPD3010-NK	HPD3015-N	HPD3015-NK
	NPN N.C.	HPD3010-N2	HPD3010-N2K	HPD3015-N2	HPD3015-N2K
	PNP N.O.	HPD3010-P	HPD3010-PK	HPD3015-P	HPD3015-PK
	PNP N.C.	HPD3010-P2	HPD3010-P2K	HPD3015-P2	HPD3015-P2K
	NPN N.O./N.C. PNP N.O./N.C.	—	—	—	—
Sensing distance / 檢出距離		10 mm		15 mm	
Secure sensing distance / 建議距離		0 to 8 mm		0 to 12 mm	
Standard sensing object / 標準檢測物		Iron 30× 30 × 1 mm			
Sensing type / 檢出方式		Shielded / 隔離型		Unshielded / 非隔離型	
Description / 外型		Standard M30 / 標準M30			
Hysteresis / 遲滯		≤ 10 % of sensing distance			
Response time / 反應時間		3.3 ms Max.			
Operating voltage / 工作電壓		DC 12 ~ 24 V			
Current consumption / 消耗電流		DC: ≤ 14 mA no-load			
Load current / 負載電流		DC:100 mA Max. at DC 24V			
Leakage current / 漏電流		≤ 1.1 mA no-load			
Residual voltage / 殘餘電壓		≤ DC 2V			
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)			
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.			
Operating temperature / 工作溫度		-20℃ ~ + 110℃			
Protection degree / 防水等級		IP 67			
Wiring method / 出線方式		Ø5.2x2M/3-wires	M12 pigtailed type / M12接頭15cm電線式	Ø5.2x2M/3-wires	M12 pigtailed type / M12接頭15cm電線式
Weight / 重量		Approx.145g	Approx.95g	Approx.145g	Ap prox.95g
◆ Dimensions / 尺寸圖： (unit:mm)		 	 	 	 

Inductive / Capacitive Proximity Sensor

PSD18-
LA/LV
PSC18-
LA/LV
SC18-
LA/LV

HPD
HPS

Ø4
M5
Ø6
M8
M12
M18
M30

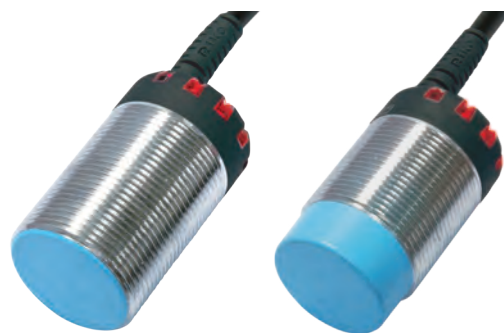
JN
JND
KND
PN
PND
RN
SN
TSN

SID
SIR
SIA

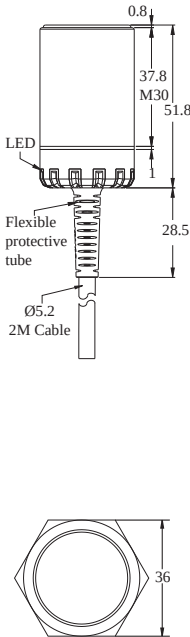
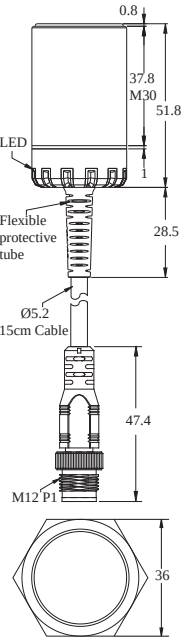
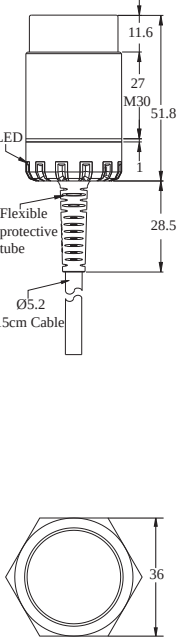
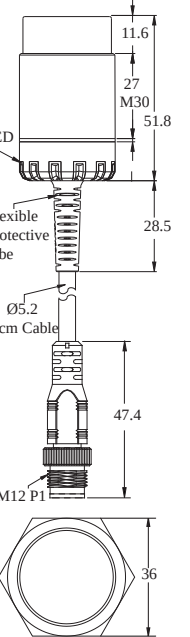
PKC
KC
KCM
KCP

◆ Characteristic / 特點：

- 110 degree C. / 耐高溫110℃內，合適高溫作業。
- Anti-bending design. / 耐彎包覆保護設計。
- Protection rating : IP67. / IP67防水等級。



◆ Specifications / 規格表：

Output method /輸出模式	NPN N.O	HPS3010-N	HPS3010-NK	HPS3015-N	HPS3015-NK
	NPN N.C.	HPS3010-N2	HPS3010-N2K	HPS3015-N2	HPS3015-N2K
	PNP N.O.	HPS3010-P	HPS3010-PK	HPS3015-P	HPS3015-PK
	PNP N.C.	HPS3010-P2	HPS3010-P2K	HPS3015-P2	HPS3015-P2K
	NPN N.O./N.C. PNP N.O./N.C.	—	—	—	—
Sensing distance / 檢出距離		10mm		15mm	
Secure sensing distance / 建議距離		0 to 8mm		0 to 12 mm	
Standard sensing object / 標準檢測物		Iron 30×30×1 mm			
Sensing type / 檢出方式		Shielded / 隔離型		Unshielded / 非隔離型	
Description / 外型		Standard M30 / 標準M30			
Hysteresis / 遲滯		≤10 % of sensing distance			
Response time / 反應時間		3.3 ms Max.			
Operating voltage / 工作電壓		DC 12 ~ 24 V			
Current consumption / 消耗電流		DC: ≤ 16 mA no-load			
Load current / 負載電流		DC:100 mA Max. at DC 24V			
Leakage current / 漏電流		≤ 1.1 mA no-load			
Residual voltage / 殘餘電壓		≤ DC 2V			
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)			
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.			
Operating temperature / 工作溫度		-20℃ ~ + 110℃			
Protection degree / 防水等級		IP 67			
Wiring method / 出線方式		Ø5.2x2M/3-wires	M12 pigtailed type / M12接頭15cm電線式	Ø5.2x2M/3-wires	M12 pigtailed type / M12接頭15cm電線式
Weight / 重量		Approx.141g	Approx.88.5g	Approx.129g	Approx.76.5g
◆ Dimensions / 尺寸圖： (unit:mm)					

Heat-Resistant Inductive Proximity Sensor

HPD/HPS

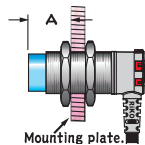
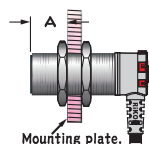
◆ Precautions proper installation / 安裝注意事項：

• HPD系列

Mounting with nut. / 螺母安裝

Shielded / 隔離型

Unshielded / 非隔離型

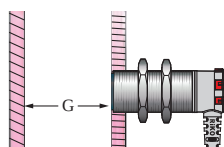
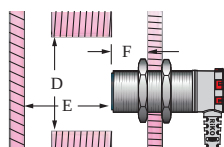


Sensing surface	Model	A (mm)
Shielded / 隔離型	HPD1202	≥ 0
	HPD1805	≥ 0
	HPD3010	≥ 0
Unshielded / 非隔離型	HPD1204	≥ 15
	HPD1808	≥ 22
	HPD3015	≥ 30

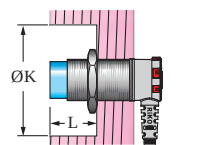
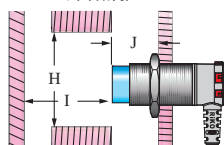
Influenced by surrounding metals. / 周圍金屬影響

The surrounding metals will influence the sensing performance. Please keep the minimum sensing distance according to the table below.

Shielded / 隔離型

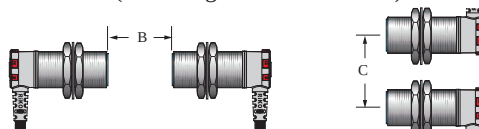


Unshielded / 非隔離型



Crosstalk prevention. / 相互干擾

When two sensors are mounted in parallel or face to face, keep the minimum distance (according to the table below) to avoid crosstalk.



Sensing surface	Model	B (mm)	C (mm)
Shielded / 隔離型	HPD1202	≥ 10	≥ 20
	HPD1805	≥ 12	≥ 30
	HPD3010	≥ 50	≥ 45
Unshielded / 非隔離型	HPD1204	≥ 10	≥ 20
	HPD1808	≥ 16	≥ 30
	HPD3015	≥ 60	≥ 45

Model	D (mm)	E (mm)	F (mm)	G (mm)
HPD1202	≥ 20	≥ 8	≥ 0	≥ 8
HPD1805	≥ 30	≥ 20	≥ 0	≥ 20
HPD3010	≥ 50	≥ 40	≥ 0	≥ 40

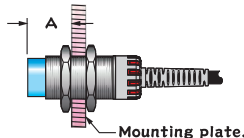
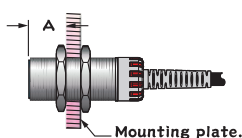
Model	H (mm)	I (mm)	J (mm)	K (mm)	L (mm)
HPD1204	≥ 36	≥ 20	≥ 15	≥ 40	≥ 15
HPD1808	≥ 54	≥ 40	≥ 22	≥ 55	≥ 22
HPD3015	≥ 90	≥ 70	≥ 30	≥ 90	≥ 30

• HPS/系列

Mounting with nut. / 螺母安裝

Shielded / 隔離型

Unshielded / 非隔離型

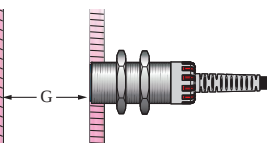
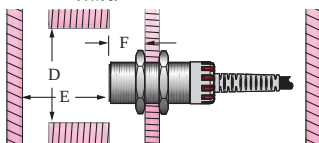


Sensing surface	Model	A (mm)
Shielded / 隔離型	HPS1202	≥ 0
	HPS1805	≥ 0
	HPS3010	≥ 0
Unshielded / 非隔離型	HPS1204	≥ 15
	HPS1808	≥ 22
	HPS3015	≥ 30

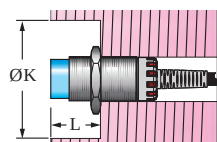
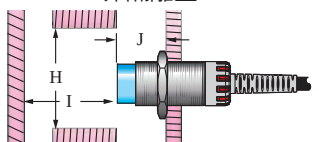
Influenced by surrounding metals. / 周圍金屬影響

The surrounding metals will influence the sensing performance. Please keep the minimum sensing distance according to the table below.

Shielded / 隔離型

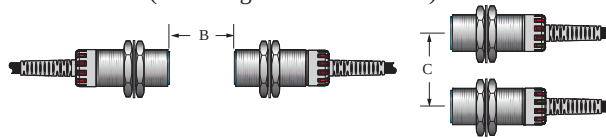


Unshielded / 非隔離型



Crosstalk prevention. / 相互干擾

When two sensors are mounted in parallel or face to face, keep the minimum distance (according to the table below) to avoid crosstalk.



Sensing surface	Model	B (mm)	C (mm)
Shielded / 隔離型	HPS1202	≥ 10	≥ 20
	HPS1805	≥ 15	≥ 30
	HPS3010	≥ 50	≥ 45
Unshielded / 非隔離型	HPS1204	≥ 20	≥ 20
	HPS1808	≥ 25	≥ 30
	HPS3015	≥ 60	≥ 45

Model	D (mm)	E (mm)	F (mm)	G (mm)
HPS1202	≥ 20	≥ 8	≥ 0	≥ 8
HPS1805	≥ 30	≥ 20	≥ 0	≥ 20
HPS3010	≥ 50	≥ 40	≥ 0	≥ 40

Model	H (mm)	I (mm)	J (mm)	K (mm)	L (mm)
HPS1204	≥ 36	≥ 20	≥ 15	≥ 40	≥ 15
HPS1805	≥ 54	≥ 40	≥ 22	≥ 55	≥ 22
HPS3015	≥ 90	≥ 70	≥ 30	≥ 90	≥ 30

Ø4

Tubular Inductive Proximity Sensor

◆ Characteristic / 特點：

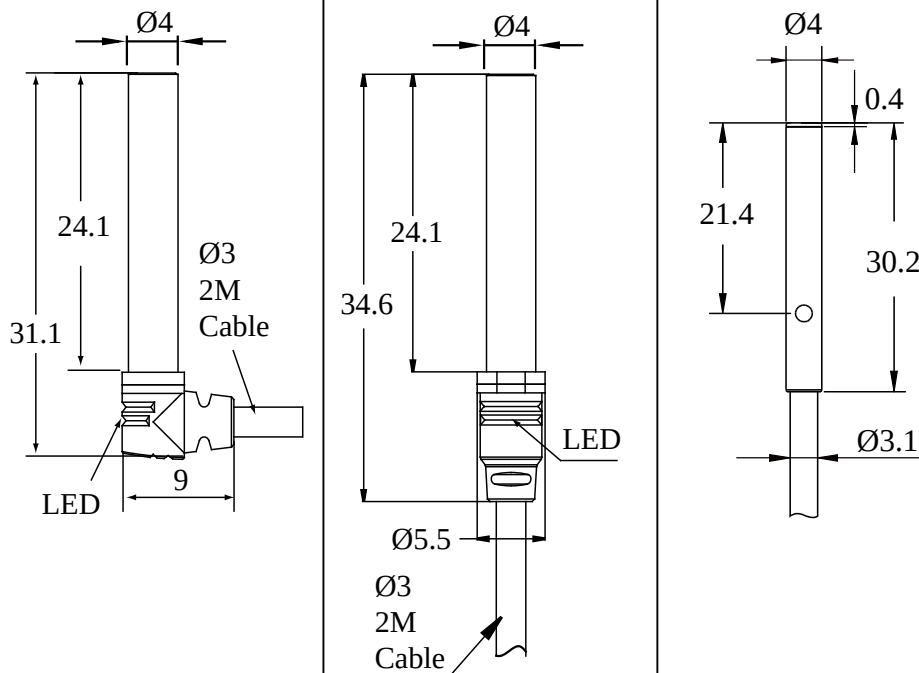
- Large LED indicator, clearly checking working operation.
/ 大面積動作燈，可清晰了解感測器的動作。
- 90 degree wiring, saving space.
/ 專利90度出線設計，節省空間。



◆ Specifications / 規格表：

Output method /輸出模式	NPN N.O.	PSD0401-N	PS0401-N	SC0401-N
	PNP N.O.	—	—	SC0401-P
Sensing distance / 檢出距離	0.8 mm			
Secure sensing distance / 建議距離	0 to 0.5 mm			
Standard sensing object / 標準檢測物	Iron 4 x 4 x 1mm			
Sensing type / 檢出方式	Shielded / 隔離型			
Description / 外型	Standard Ø4 / 標準Ø4			
Hysteresis / 遲滯	≤ 10 % of sensing distance			
Response time / 反應時間	0.5 ms Max.			0.2 ms Max.
Operating voltage / 工作電壓	DC10 ~ 30 V			
Current consumption / 消耗電流	≤ 10 mA no-load			
Load current / 負載電流	100 mA Max.			
Leakage current / 漏電流	≤ 0.1 mA no-load			
Residual voltage / 殘餘電壓	≤ DC 1.5V (100mA)			
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.			
Operating temperature / 工作溫度	-20℃ ~ + 60℃			-25℃ ~ + 70℃
Protection degree / 防水等級	IP 66			IP 67
Wiring method / 出線方式	Ø3 x 2M / 3 wires			Ø3.1 x 2M x 3 wires
Weight / 重量	Approx. 30g			Approx. 26g

◆ Dimensions / 尺寸圖： (unit:mm)



◆ Characteristic / 特點：

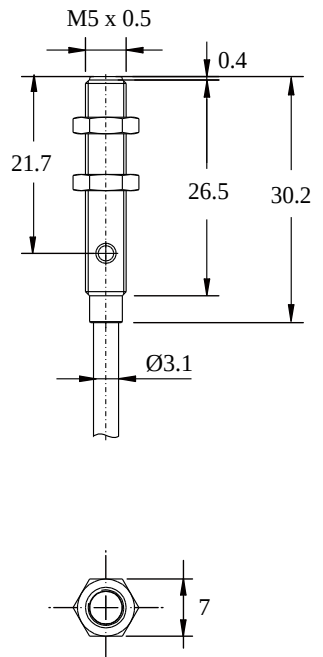
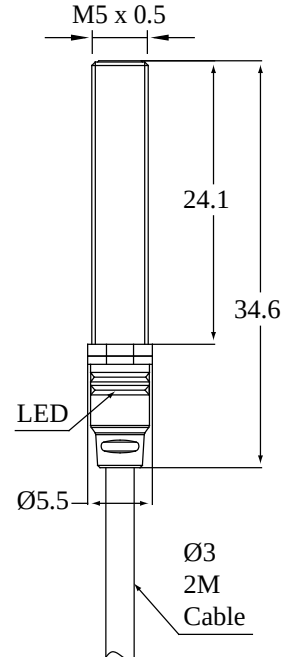
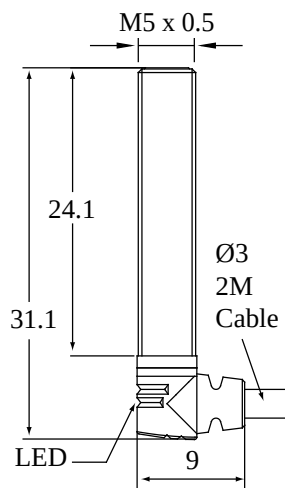
- Large LED indicator, clearly checking working operation.
/ 大面積動作燈，可清晰了解感測器的動作。
- 90 degree wiring, saving space.
/ 專利90度出線設計，節省空間。



◆ Specifications / 規格表：

Output method / 輸出模式	NPN N.O. PNP N.O.	PSD0501-N —	PS0501-N —	SC0501-N SC0501-P
Sensing distance / 檢出距離		0.8 mm		
Secure sensing distance / 建議距離		0 to 0.5 mm		
Standard sensing object / 標準檢測物		Iron 5 x 5 x 1mm		
Sensing type / 檢出方式		Shielded / 隔離型		
Description / 外型		Standard M5 / 標準M5		
Hysteresis / 遲滯		≤ 10 % of sensing distance		
Response time / 反應時間		0.5 ms Max.		0.2 ms Max.
Operating voltage / 工作電壓		DC10 ~ 30 V		
Current consumption / 消耗電流		≤ 10 mA no-load		
Load current / 負載電流		100 mA Max.		
Leakage current / 漏電流		≤ 0.1 mA no-load		
Residual voltage / 殘餘電壓		≤ DC 1.5V (100mA)		
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.		
Operating temperature / 工作溫度		-20°C ~ + 60°C		-25°C ~ + 70°C
Protection degree / 防水等級		IP 66		IP 67
Wiring method / 出線方式		Ø3 x 2M / 3 wires		Ø3.1 x 2M x 3 wires
Weight / 重量		Approx. 35g		Approx. 26g

◆ Dimensions / 尺寸圖： (unit:mm)



◆ Characteristic / 特點：

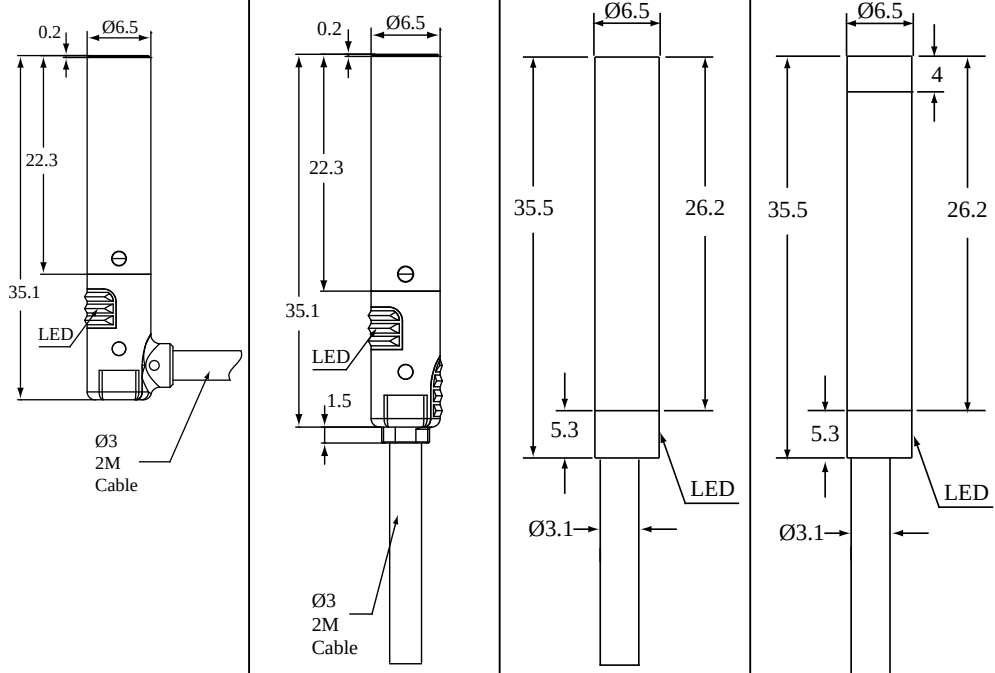
- Large LED indicator, clearly checking working operation.
/ 大面積動作燈，可清晰了解感測器的動作。
- 90 degree wiring, saving space.
/ 專利90度出線設計，節省空間。



◆ Specifications / 規格表：

Output method /輸出模式	NPN N.O.	PSD0601-N	PSC0601-N	SC0601-N	SC0602-N
	PNP N.O.	PSD0601-P	PSC0601-P	SC0601-P	SC0602-P
Sensing distance / 檢出距離	1.5 mm				2.5 mm
Secure sensing distance / 建議距離	0 to 1.2 mm				2.0 mm
Standard sensing object / 標準檢測物	Iron 8 x 8 x1mm				
Sensing type / 檢出方式	Shielded / 隔離型				Unshielded / 非隔離型
Description / 外型	Standard Ø6.5 / 標準Ø6.5				
Hysteresis / 遲滯	≤ 10 % of sensing distance			≤ 20 % of sensing distance	
Response time / 反應時間	1 ms Max.			0.2 ms Max.	
Operating voltage / 工作電壓	DC10 ~ 30 V				
Current consumption / 消耗電流	≤ 8 mA no-load			≤ 10 mA no-load	
Load current / 負載電流	100 mA Max. at DC24V			200 mA Max.	
Leakage current / 漏電流	≤ 1.1 mA no-load			≤ 10 μ A no-load	
Residual voltage / 殘餘電壓	≤ DC 2V			≤ DC 1.8V 200mA	
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.			AC1000V 60Hz for 60 Sec.	
Operating temperature / 工作溫度	-20℃ ~ + 60℃			-25℃ ~ + 70℃	
Protection degree / 防水等級	IP 66			IP 67	
Wiring method / 出線方式	Ø3 x 2M / 3 wires			Ø3.1 x 2M x 3 wires	
Weight / 重量	Approx. 40g			Approx. 32g	

◆ Dimensions / 尺寸圖： (unit:mm)

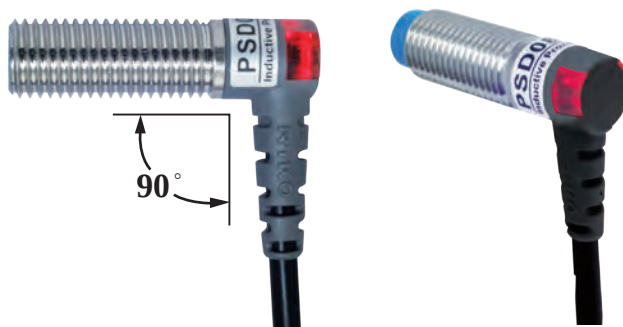


Tubular Inductive Proximity Sensor

M8

◆ Characteristic / 特點：

- 90 degree wiring, saving space.
/ 專利90度出線設計，節省空間。
- Anti-bending connection design.
/ 專利包覆設計，耐彎保護佳。
- DC 2-wire output model available.
/ DC二線式輸出，省配線。
- IP 67 protection rating./ IP67防水等級。
- NP model：NPN+PNP NO/NC 4-in-1 outputs.
/ 新型NP電路：NPN/PNP NO/NC All in one.



◆ Specifications / 規格表：

Output method / 輸出模式	NPN N.O.	PSD0801-N	PSD0801-ND	PSD0803-N	PSD0803-ND
	PNP N.O.	PSD0801-P	PSD0801-PD	PSD0803-P	PSD0803-PD
	NPN N.O./N.C. PNP N.O./N.C.	PSD0801-NP PSS0801-NP	PSD0801-NPB PSS0801-NPB	PSD0803-NP PSS0803-NP	PSD0803-NPB PSS0803-NPB
	2 WIRES N.O.	PSD0801-C	—	PSD0802-C	—
	2 WIRES N.C.	PSD0801-C2	—	PSD0802-C2	—
Sensing distance / 檢出距離		1 mm		3 mm / 2mm	
Secure sensing distance / 建議距離		0 to 0.8 mm		0 to 2.4 mm / 0 to 1.6mm	
Standard sensing object / 標準檢測物		Iron 8 × 8 × 1 mm			
Sensing type / 檢出方式		Shielded / 隔離型		Unshielded / 非隔離型	
Description / 外型		Standard M8 / 標準M8			
Hysteresis / 遲滯		≤ 10 % of sensing distance			
Response time / 反應時間		1 ms Max.			
Operating voltage / 工作電壓		DC12 ~ 24 V / DC24 V±10%			
Current consumption / 消耗電流		≤ 8 mA no-load (Not for C/ C2)			
Load current / 負載電流		100 mA Max. at DC 24V			
Leakage current / 漏電流		≤ 1.1 mA no-load / ≤ 0.7 mA no-active			
Residual voltage / 殘餘電壓		≤ DC 2V / ≤ DC 7V			
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)			
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.			
Operating temperature / 工作溫度		-20°C ~ + 60°C			
Protection degree / 防水等級		IP 67			
Wiring method / 出線方式		N/P:Ø3x2M/3-wires NP:Ø3x2M /4-wires 2W:Ø3x2M/2-wires	M8 pigtailed type / M8接頭15cm電線式	N/P:Ø3x2M/3-wires NP:Ø3x2M /4-wires 2W:Ø3x2M/2-wires	M8 pigtailed type / M8接頭15cm電線式
Weight / 重量	PSD	Approx.28g	Approx.12g	Approx.28g	Approx.12g
	PSS	Approx.28g	Approx.12g	Approx.28g	Approx.12g
◆ Dimensions / 尺寸圖： (unit:mm)					
◆ Wiring diagrams / 接線圖：					

Inductive / Capacitive Proximity Sensor

PSD18-LA/LV
PSC18-LA/LV
SC18-LA/LV

HPD
HPS

Ø4
M5
Ø6
M8
M12
M18
M30

JN
JND
KND
PN
PND
RN
SN
TSN

SID
SIR
SIA

PKC
KC
KCM
KCP

◆ Characteristic / 特點：

- Special line-out design for bending resistance and tensile. it will upgrade the durability and life.
/ 獨特的出線包覆設計，抗拉、耐彎曲，提升耐用度和壽命。
- The IP67 rating is designed to the effective waterproof.
/ 保護結構達到IP67的規格，能有效的防水。
- DC 2-wire output model available.
/ DC二線式輸出，省配線。
- NP model: NPN+PNP NO/NC 4-in-1 outputs.
/ 新型NP電路：NPN/PNP NO/NC All in one.



◆ Specifications / 規格表：

Output method /輸出模式	NPN N.O.	PSC0801-N	PSC0801-ND	PSC0802-N	PSC0802-ND
	PNP N.O.	PSC0801-P	PSC0801-PD	PSC0802-P	PSC0802-PD
	NPN N.O./N.C. PNP N.O./N.C.	PSC0801-NP	PSC0801-NPB	PSC0802-NP	PSC0802-NPB
	2 WIRES N.O.	PSC0801-C	—	PSC0802-C	—
	2 WIRES N.C.	PSC0801-C2	—	PSC0802-C2	—
Sensing distance / 檢出距離		1 mm		2 mm	
Secure sensing distance / 建議距離		0 to 0.8 mm		0 to 1.6 mm	
Standard sensing object / 標準檢測物		Iron 8 × 8 × 1 mm			
Sensing type / 檢出方式		Shielded / 隔離型		Unshielded / 非隔離	
Description / 外型		Standard M8 / 標準M8			
Hysteresis / 遲滯		≤ 10 % of sensing distance			
Response time / 反應時間		1 ms Max.			
Operating voltage / 工作電壓		DC12 ~ 24 V / DC24 V±10%			
Current consumption / 消耗電流		≤ 8 mA no-load (Not for C/ C2)			
Load current / 負載電流		100 mA Max. at DC 24V			
Leakage current / 漏電流		≤ 1.1 mA no-load / ≤ 0.7 mA no-active			
Residual voltage / 殘餘電壓		≤ DC 2V / ≤ DC 7V			
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)			
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.			
Operating temperature / 工作溫度		-20℃ ~ + 60℃			
Protection degree / 防水等級		IP 67			
Wiring method / 出線方式		N/P:Ø3x2M/3-wires NP:Ø3x2M/4-wires 2W:Ø3x2M/2-wires	M8 pigtailed type / M8接頭15cm電線式	N/P:Ø3x2M/3-wires NP:Ø3x2M/4-wires 2W:Ø3x2M/2-wires	M8 pigtailed type / M8接頭15cm電線式
Weight / 重量		Approx.30g	Approx.12g	Approx.30g	Approx.12g
◆ Dimensions / 尺寸圖： (unit:mm)					
◆ Wiring diagrams / 接線圖：		-NP BROWN BLACK WHITE BLUE DC12~24V NPN.NO PNP.NO 0V 0V NPN.NC PNP.NC DC12~24V -NPB (1) (2) (4) (3) DC12~24V PNP.NO NPN.NO 0V 0V PNP.NC NPN.NC DC12~24V (1)BROWN (2)WHITE (3)BLUE (4)BLACK			

Tubular Inductive Proximity Sensor

M8

◆ Characteristic / 特點：

- Standard models for metal detection.
/ 標準型含鐵金屬檢測有無。
- Assorted variety：Short body/ Long body available.
/ 廣泛的選擇性，短本體、長本體皆具備。



◆ Specifications / 規格表：

Output method 輸出模式	NPN N.O.	SC0801-N	SC0801-ND	SC0802-N	SC0802-ND
	PNP N.O.	SC0801-P	SC0801-PD	SC0802-P	SC0802-PD
	NPN N.O./N.C. PNP N.C./N.O.	—	—	—	—
	SCR N.O.	—	—	—	—
	SCR N.C.	—	—	—	—
Sensing distance / 檢出距離		1 mm		2 mm	
Secure sensing distance / 建議距離		0 to 0.8 mm		0 to 1.6 mm	
Standard sensing object / 標準檢測物		Iron 8 × 8 × 1 mm			
Sensing type / 檢出方式		Shielded / 隔離型		Unshielded / 非隔離型	
Description / 外型		Standard M8 / 標準M8			
Hysteresis / 遲滯		≤ 10 % of sensing distance			
Response time / 反應時間		1 ms Max.			
Operating voltage / 工作電壓		DC12 ~ 24 V			
Current consumption / 消耗電流		≤ 8 mA no-load			
Load current / 負載電流		100 mA Max at DC 24V			
Leakage current / 漏電流		≤ 1.1 mA no-load			
Residual voltage / 殘餘電壓		≤ DC 1.5V			
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)			
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.			
Operating temperature / 工作溫度		-20℃ ~ + 60℃			
Protection degree / 防水等級		IP 66			
Wiring method / 出線方式		Pre-wired Ø3 x 2M / 3-wires	M8 pigtailed type / M8接頭15cm電線式	Pre-wired Ø3 x 2M / 3-wires	M8 pigtailed type / M8接頭15cm電線式
Weight / 重量		Approx.30g	Approx.12g	Approx.30g	Approx.12g
◆ Dimensions / 尺寸圖： (unit:mm)		M8 P1 0.2 4 40 51.7 LED Ø3 2M Cable 13 M8 P1 0.2 4 40 51.7 LED Ø3 15cm Cable 30 6.4 M8 P1 13 M8 P1 3 4 37 51.5 LED Ø3 2M Cable 13 M8 P1 3 4 37 51.5 LED Ø3 15cm Cable 30 6.4 M8 P1 13			

Inductive / Capacitive Proximity Sensor

PSD18-LA/LV
PSC18-LA/LV
SC18-LA/LV

HPD
HPS

Ø4
M5
Ø6
M8
M12
M18
M30

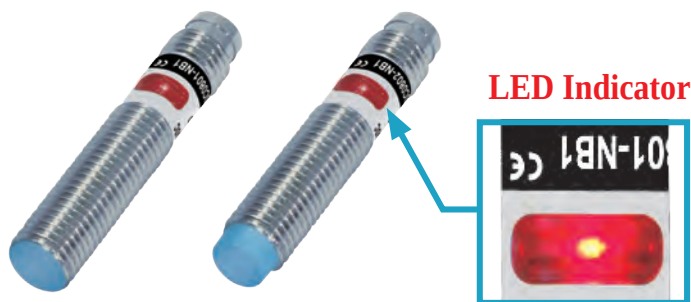
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JND
KND
PN
PND
RN
SN
TSN

SID
SIR
SIA

PKC
KC
KCM
KCP

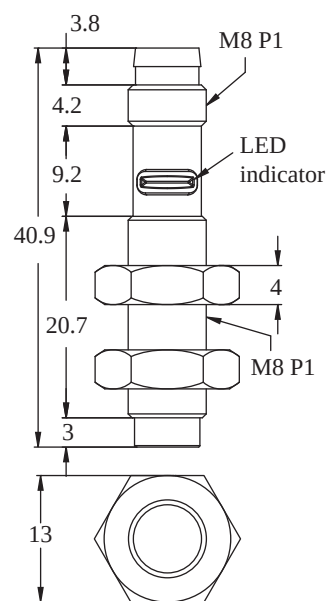
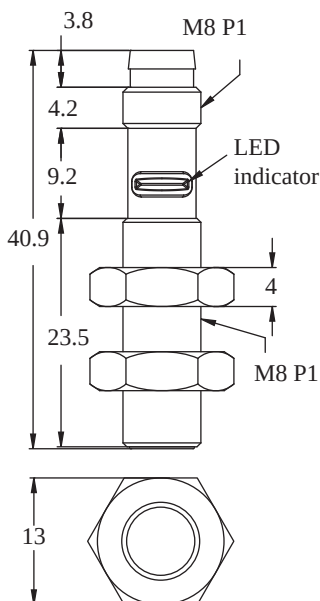
◆ Characteristic / 特點：

- Large LED indicator, clearly checking working operation.
/ 專利大面積動作燈，可清晰了解感測器的動作。
- M8 4pin connector model available.
/ M8 4pin接頭外型，同步於歐、美、日。

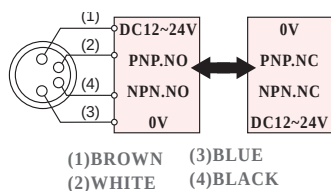


◆ Specifications / 規格表：

Output method / 輸出模式	NPN N.O.	PSC0801-NB1	PSC0802-NB1
	PNP N.O.	PSC0801-PB1	PSC0802-PB1
	NPN N.O./N.C. PNP N.O./N.C.	PSC0801-NPB1	PSC0802-NPB1
	2 WIRES N.O.	—	—
	2 WIRES N.C.	—	—
Sensing distance / 檢出距離	1 mm		2 mm
Secure sensing distance / 建議距離	0 to 0.8 mm		0 to 1.6 mm
Standard sensing object / 標準檢測物	Iron 8 × 8 × 1 mm		
Sensing type / 檢出方式	Shielded / 隔離型		Unshielded / 非隔離型
Description / 外型	Standard M8 / 標準M8		
Hysteresis / 遲滯	≤ 10 % of sensing distance		
Response time / 反應時間	1 ms Max.		
Operating voltage / 工作電壓	DC12 ~ 24 V		
Current consumption / 消耗電流	≤ 8 mA no-load		
Load current / 負載電流	100 mA Max. at DC 24V		
Leakage current / 漏電流	≤ 1.1 mA no-load		
Residual voltage / 殘餘電壓	≤ DC 2V		
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)		
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.		
Operating temperature / 工作溫度	-20°C ~ + 60°C		
Protection degree / 防水等級	IP 66		
Wiring method / 出線方式	M8 plug-in connector type / M8接頭		
Weight / 重量	Approx.6g		Approx.6g

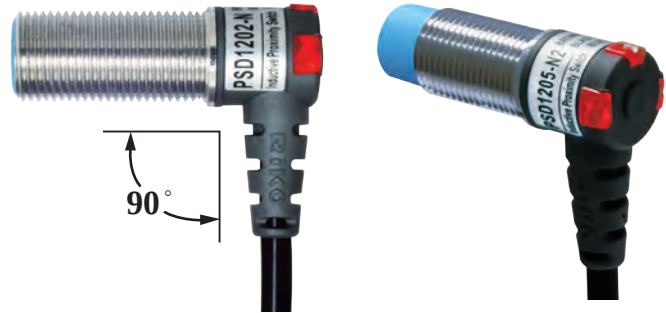
◆ Dimensions / 尺寸圖：
(unit:mm)

-NPB1



◆ Characteristic / 特點：

- 90 degree wiring, saving space.
/ 專利90度出線設計，節省空間。
- Anti-bending connection design.
/ 專利包覆設計，耐彎保護佳。
- DC 2-wire output model available.
/ DC二線式輸出，省配線。
- IP 67 protection rating./ IP67防水等級。
- NP model：NPN+PNP NO/NC 4-in-1 outputs.
/ 新型NP電路：NPN/PNP NO/NC All in one.

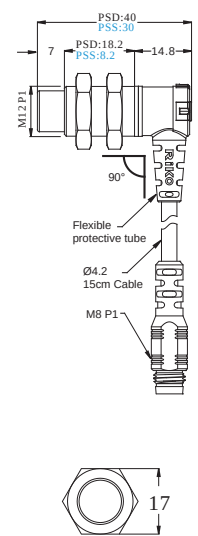
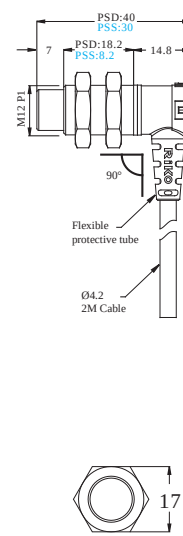
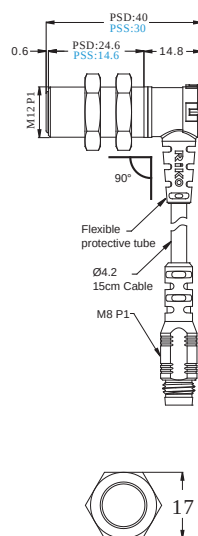
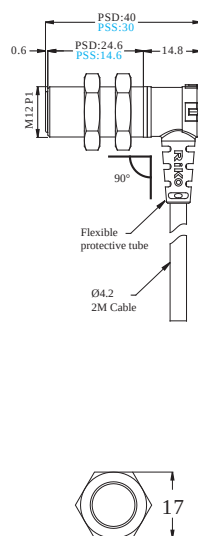
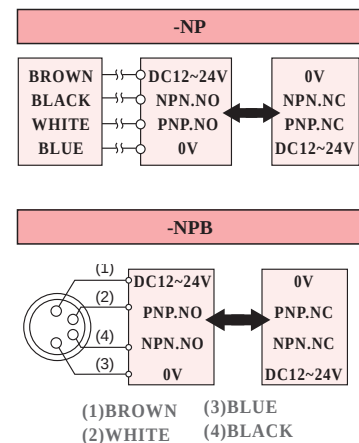


◆ Specifications / 規格表：

Output method 輸出模式	NPN N.O.	PSD1202-N	PSD1202-ND	PSD1205-N	PSD1205-ND
	PNP N.O.	PSD1202-P	PSD1202-PD	PSD1205-P	PSD1205-PD
	NPN N.O./N.C. PNP N.O./N.C.	PSD1202-NP PSS1202-NP	PSD1202-NPB PSS1202-NPB	PSD1205-NP PSS1205-NP	PSD1205-NPB PSS1205-NPB
	2 WIRES N.O.	PSD1202-C	—	PSD1205-C	—
	2 WIRES N.C.	PSD1202-C2	—	PSD1205-C2	—
Sensing distance / 檢出距離		2 mm		5 mm	
Secure sensing distance / 建議距離		0 to 1.6 mm		0 to 4.0 mm	
Standard sensing object / 標準檢測物		Iron 12 × 12 × 1 mm			
Sensing type / 檢出方式		Shielded / 隔離型		Unshielded / 非隔離型	
Description / 外型		Standard M12 / 標準M12			
Hysteresis / 遲滯		≤ 10 % of sensing distance			
Response time / 反應時間		1 ms Max.			
Operating voltage / 工作電壓		DC 12 ~ 24 V / DC 24 V ±10%			
Current consumption / 消耗電流		≤ 14 mA no-load (Not for C/ C2)			
Load current / 負載電流		100 mA Max. at DC 24V			
Leakage current / 漏電流		≤ 1.1 mA no-load / ≤ 0.7 mA no-active			
Residual voltage / 殘餘電壓		≤ DC 2V / ≤ DC 7V			
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)			
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.			
Operating temperature / 工作溫度		-20℃ ~ + 60℃			
Protection degree / 防水等級		IP 67			
Wiring method / 出線方式		N/P:Ø4.2x2M/3-wires NP:Ø4.2x2M /4-wires 2W:Ø4.2x2M/2-wires	M8 pigtailed type / M8接頭15cm電線式	N/P:Ø4.2x2M/3-wires NP:Ø4.2x2M /4-wires 2W:Ø4.2x2M/2-wires	M8 pigtailed type / M8接頭15cm電線式
Weight / 重量		Approx.60g	Approx.20g	Approx.56g	Approx.16g

◆ Dimensions / 尺寸圖： (unit:mm)

◆ Wiring diagrams / 接線圖：



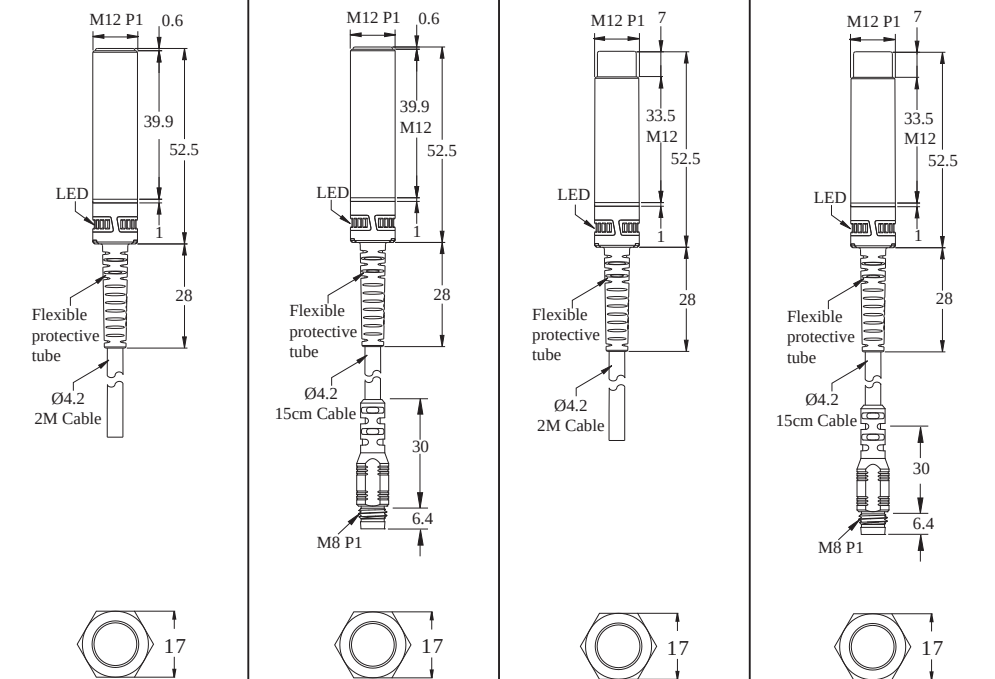
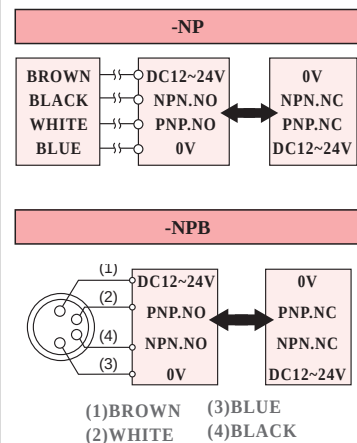
◆ Characteristic / 特點：

- Special line-out design for bending resistance and tensile. it will upgrade the durability and life.
/ 獨特的出線包覆設計，抗拉、耐彎曲，提升耐用度和壽命。
- The IP67 rating is designed to the effective waterproof.
/ 保護結構達到IP67的規格，能有效的防水。
- DC 2-wire output model available.
/ DC二線式輸出，省配線。
- NP model: NPN+PNP NO/NC 4-in-1 outputs.
/ 新型NP電路：NPN/PNP NO/NC All in one.



◆ Specifications / 規格表：

Output method 輸出模式	NPN N.O.	PSC1203-N	PSC1203-ND	PSC1206-N	PSC1206-ND
	PNP N.O.	PSC1203-P	PSC1203-PD	PSC1206-P	PSC1206-PD
	NPN N.O./N.C. PNP N.O./N.C.	PSC1202-NP	PSC1202-NPB	PSC1205-NP	PSC1205-NPB
	2 WIRES N.O.	PSC1202-C	—	PSC1205-C	—
	2 WIRES N.C.	PSC1202-C2	—	PSC1205-C2	—
Sensing distance / 檢出距離		3 mm / 2 mm / 2 mm		6 mm / 5 mm / 5 mm	
Secure sensing distance / 建議距離		0 to 2.4 mm / 0 to 1.6 mm / 0 to 1.6 mm		0 to 4.8 mm / 0 to 4 mm / 0 to 4 mm	
Standard sensing object / 標準檢測物		Iron 12 × 12 × 1 mm			
Sensing type / 檢出方式		Shielded / 隔離型		Unshielded / 非隔離	
Description / 外型		Standard M12 / 標準M12			
Hysteresis / 遲滯		≤ 10 % of sensing distance			
Response time / 反應時間		1 ms Max.			
Operating voltage / 工作電壓		DC 12 ~ 24 V / DC 24 V±10%			
Current consumption / 消耗電流		≤ 14 mA no-load (Not for C/ C2)			
Load current / 負載電流		100 mA Max. at DC 24V			
Leakage current / 漏電流		≤ 1.1 mA no-load / ≤ 0.7 mA no-active			
Residual voltage / 殘餘電壓		≤ DC 2V / ≤ DC 7V			
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)			
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.			
Operating temperature / 工作溫度		-20℃ ~ + 60℃			
Protection degree / 防水等級		IP 67			
Wiring method / 出線方式		N/P:Ø4.2x2M/3-wires NP:Ø4.2x2M/4-wires 2W:Ø4.2x2M/2-wires	M8 pigtailed type / M8接頭15cm電線式	N/P:Ø4.2x2M/3-wires NP:Ø4.2x2M/4-wires 2W:Ø4.2x2M/2-wires	M8 pigtailed type / M8接頭15cm電線式
Weight / 重量		Approx.64g	Approx.48.4g	Approx.65g	Approx.49.4g

◆ Dimensions / 尺寸圖：
(unit:mm)◆ Wiring diagrams
/ 接線圖：

Tubular Inductive Proximity Sensor

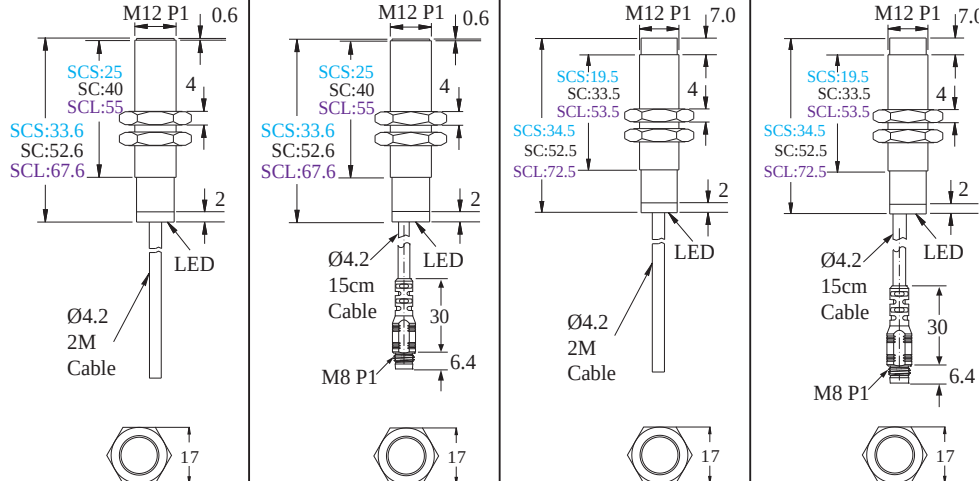
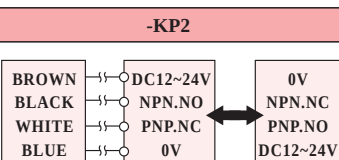
M12

◆ Characteristic / 特點：

- Standard models for metal detection.
/ 標準型含鐵金屬檢測有無。
- Assorted variety: Short body/ Long body/
AC or DC available.
/ 廣泛的選擇性，短本體、長本體、直流、
交流型皆具備。



◆ Specifications / 規格表：

Output method /輸出模式	NPN N.O.	SC1202-N SCS1202-N SCL1202-N	SC1202-ND SCS1202-ND SCL1202-ND	SC1204-N SCS1204-N SCL1204-N	SC1204-ND SCS1204-ND SCL1204-ND
	PNP N.O.	SC1202-P SCS1202-P SCL1202-P	SC1202-PD SCS1202-PD SCL1202-PD	SC1204-P SCS1204-P SCL1204-P	SC1204-PD SCS1204-PD SCL1204-PD
	NPN N.O./N.C. PNP N.C./N.O.	SC1202-KP2	—	SC1204-KP2	—
	SCR N.O.	SC1202-A	—	SC1204-A	—
	SCR N.C.	SC1202-A2	—	SC1204-A2	—
Sensing distance / 檢出距離		2 mm		4 mm	
Secure sensing distance / 建議距離		0 to 1.6 mm		0 to 3.2 mm	
Standard sensing object / 標準檢測物		Iron 12 x 12 x 1 mm			
Sensing type / 檢出方式		Shielded / 隔離型		Unshielded / 非隔離型	
Description / 外型		Standard M12 / 標準M12			
Hysteresis / 遲滯		≤ 10 % of sensing distance			
Response time / 反應時間		DC Type 1 ms Max. or AC Type 50ms			
Operating voltage / 工作電壓		DC 12 ~ 24V or AC90 ~ 260 V			
Current consumption / 消耗電流		DC : ≤ 8 mA no-load or AC : 2 mA Max.			
Load current / 負載電流		DC : 100 mA Max. at DC 24V or AC : 5 ~ 300 mA Max.			
Leakage current / 漏電流		≤ 1.1 mA no-load			
Residual voltage / 殘餘電壓		≤ DC 1.5V			
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)			
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60Sec.			
Operating temperature / 工作溫度		-20℃ ~ + 60℃			
Protection degree / 防水等級		IP 66			
Wiring method / 出線方式		N/P : Ø4.2x 2M /3-wires KP2 : Ø4.2x2M /4-wires AC : Ø4.2x2M /-wires	M8 pigtailed type / M8接頭15cm電線式	N/P : Ø4.2x 2M /3-wire KP2 : Ø4.2x2M /4-wires AC : Ø4.2x2M /2-wires	M8 pigtailed type / M8接頭15cm電線式
Weight / 重量	SC	Approx. 65g	Approx. 15g	Approx. 65g	Approx. 15g
	SCL	Approx. 70g	Approx. 20g	Approx. 70g	Approx. 20g
	SCS	Approx. 60g	Approx. 15g	Approx. 60g	Approx. 15g
◆ Dimensions / 尺寸圖： (unit:mm)					
◆ Wiring diagrams / 接線圖：					

Inductive / Capacitive Proximity Sensor

PSD18-LA/LV
PSC18-LA/LV
SC18-LA/LV

HPD
HPS

Ø4
M5
Ø6
M8
M12
M18
M30

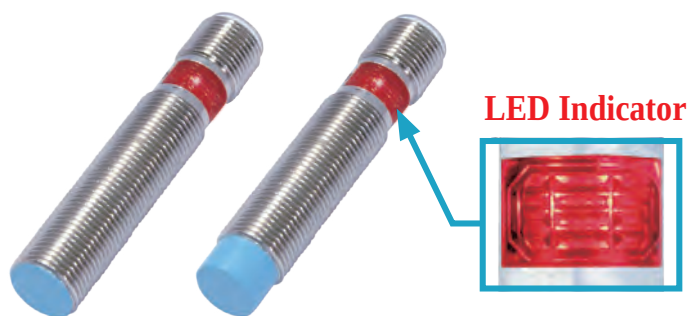
JN
JND
KND
PN
PND
RN
SN
TSN

SID
SIR
SIA

PKC
KC
KCM
KCP

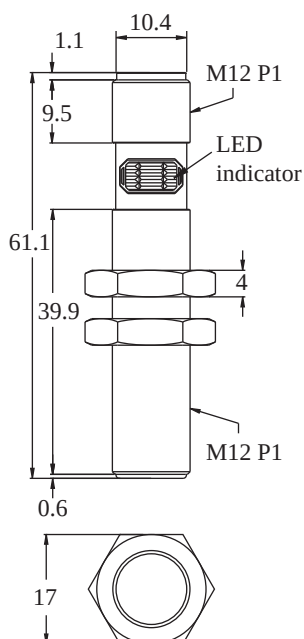
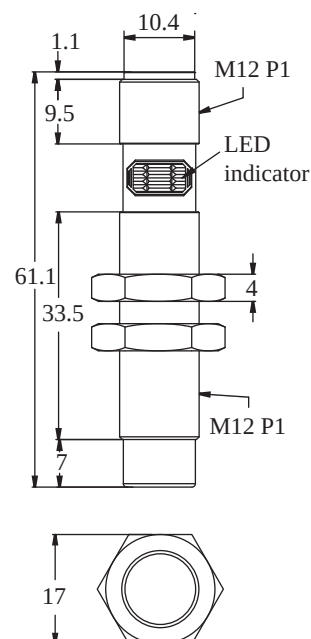
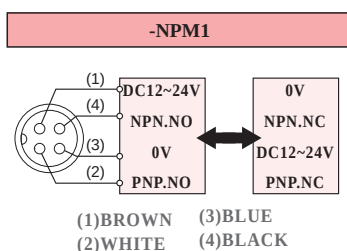
◆ Characteristic / 特點：

- Large LED indicator, clearly checking working operation.
/ 專利大面積動作燈，可清晰了解感測器的動作。
- M12 4pin connector model available.
/ M12 4pin接頭外型，同步於歐、美、日。
- NP model：NPN+PNP NO/NC 4-in-1 outputs.
/ 新型NP電路：NPN/PNP NO/NC All in one.



◆ Specifications / 規格表：

Output method /輸出模式	NPN N.O.	PSC1203-NM1	PSC1206-NM1
	PNP N.O.	PSC1203-PM1	PSC1206-PM1
	NPN N.O./N.C. PNP N.O./N.C.	PSC1203-NPM1	PSC1206-NPM1
	2 WIRES N.O.	—	—
	2 WIRES N.C.	—	—
Sensing distance / 檢出距離	3 mm		6 mm
Secure sensing distance / 建議距離	0 to 2.4 mm		0 to 4.8 mm
Standard sensing object / 標準檢測物	Iron 12 × 12 × 1 mm		
Sensing type / 檢出方式	Shielded / 隔離型		Unshielded / 非隔離型
Description / 外型	Standard M12 / 標準M12		
Hysteresis / 遲滯	≤ 10 % of sensing distance		
Response time / 反應時間	1 ms Max.		
Operating voltage / 工作電壓	DC12 ~ 24 V		
Current consumption / 消耗電流	≤ 14 mA no-load		
Load current / 負載電流	100 mA Max. at DC 24V		
Leakage current / 漏電流	≤ 1.1 mA no-load		
Residual voltage / 殘餘電壓	≤ DC 2V		
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)		
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.		
Operating temperature / 工作溫度	-20℃ ~ + 60℃		
Protection degree / 防水等級	IP 66		
Wiring method / 出線方式	M12 plug-in connector type / M12 接頭		
Weight / 重量	Approx.18g		Approx.16g

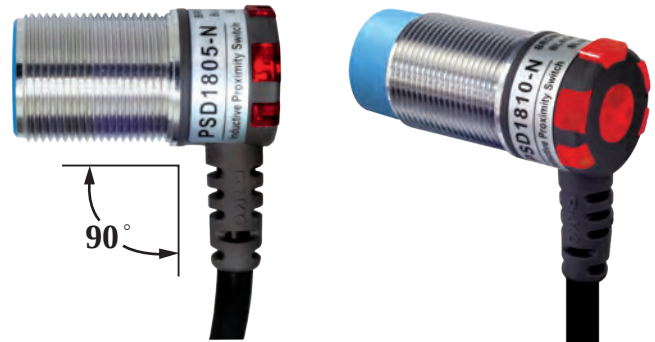
◆ Dimensions / 尺寸圖：
(unit:mm)◆ Wiring diagrams
/ 接線圖：

Tubular Inductive Proximity Sensor

M18

◆ Characteristic / 特點：

- 90 degree wiring, saving space.
/ 專利90度出線設計，節省空間。
- Large LED indicator, clearly checking working operation.
/ 大面積動作燈，可清晰了解感測器的動作。
- IP 67 protection rating./ IP67防水等級。
- NP model：NPN+PNP NO/NC 4-in-1 outputs.
/ 新型NP電路：NPN/PNP NO/NC All in one.
- Anti-bending connection design.
/ 專利包覆設計，耐彎保護佳。



◆ Specifications / 規格表：

Output method /輸出模式	NPN N.O.	PSD1805-N	PSD1805-NK	PSD1810-N	PSD1810-NK
	PNP N.O.	PSD1805-P	PSD1805-PK	PSD1810-P	PSD1810-PK
	NPN N.O./N.C. PNP N.O./N.C.	PSD1805-NP	PSD1805-NPK	PSD1808-NP	PSD1808-NPK
	2 WIRES N.O.	—	—	—	—
	2 WIRES N.C.	—	—	—	—
Sensing distance / 檢出距離		5 mm / 5 mm		9 mm / 8 mm	
Secure sensing distance / 建議距離		0 to 4.0 mm / 0 to 4.0 mm		0 to 7.2 mm / 0 to 6.4 mm	
Standard sensing object / 標準檢測物		Iron 18× 18 × 1 mm			
Sensing type / 檢出方式		Shielded / 隔離型		Unshielded / 非隔離型	
Description / 外型		Standard M18 / 標準M18			
Hysteresis / 遲滯		≤ 10 % of sensing distance			
Response time / 反應時間		2 ms Max.			
Operating voltage / 工作電壓		DC 12 ~ 24 V			
Current consumption / 消耗電流		≤ 14 mA no-load			
Load current / 負載電流		100 mA Max. at DC 24V			
Leakage current / 漏電流		≤ 1.1 mA no-load			
Residual voltage / 殘餘電壓		≤ DC 2V			
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)			
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.			
Operating temperature / 工作溫度		-20℃ ~ + 60℃			
Protection degree / 防水等級		IP 67			
Wiring method / 出線方式		N/P:Ø5.2x2M/3-wires NP:Ø5.2x2M /4-wires	M12 pigtailed type / M12接頭15cm電線式	N/P:Ø5.2x2M/3-wires NP:Ø5.2x2M /4-wires	M12 pigtailed type / M12接頭15cm電線式
Weight / 重量		Approx.86g	Approx.38g	Approx.86g	Ap prox.38g
◆ Dimensions / 尺寸圖： (unit:mm)					
◆ Wiring diagrams / 接線圖：					

Inductive / Capacitive Proximity Sensor

PSD18-LA/LV
PSC18-LA/LV
SC18-LA/LV

HPD
HPS

Ø4
M5
Ø6
M8
M12
M18
M30

JN
JND
KND
PN
PND
RN
SN
TSN

SID
SIR
SIA

PKC
KC
KCM
KCP

◆ Characteristic / 特點：

- Special line-out design for bending resistance and tensile.it will upgrade the durability and life.
/ 獨特的出線包覆設計，抗拉、耐彎曲，提升耐用度和壽命。
- The IP67 rating is designed to the effective waterproof.
/ 保護結構達到IP67的規格，能有效的防水。
- NP model：NPN+PNP NO/NC 4-in-1 outputs.
/ 新型NP電路：NPN/PNP NO/NC All in one.

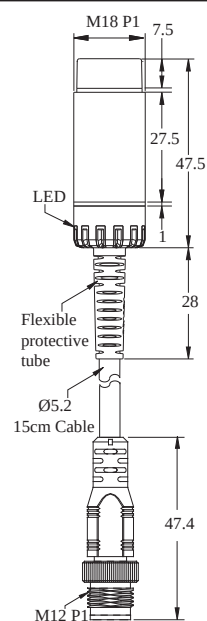
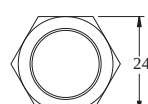
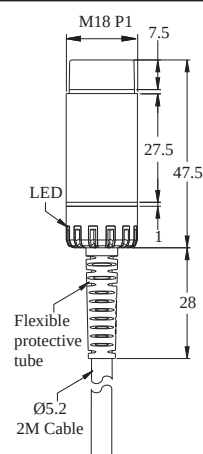
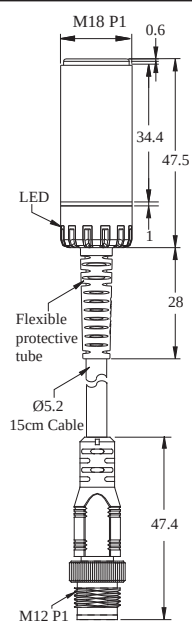
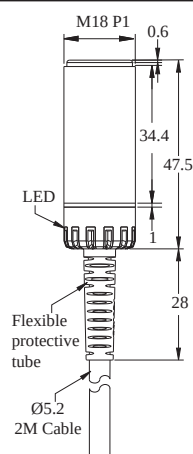
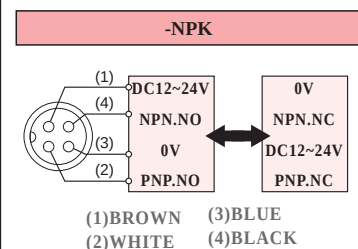
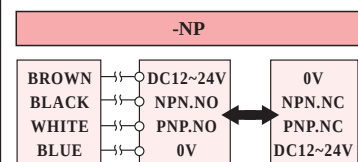


◆ Specifications / 規格表：

Output method 輸出模式	NPN N.O.	PSC1806-N	PSC1806-NK	PSC1812-N	PSC1812-NK
	PNP N.O.	PSC1806-P	PSC1806-PK	PSC1812-P	PSC1812-PK
	NPN N.O./N.C. PNP N.O./N.C.	PSC1805-NP	PSC1805-NPK	PSC1808-NP	PSC1808-NPK
	2 WIRES N.O.	—	—	—	—
	2 WIRES N.C.	—	—	—	—
Sensing distance / 檢出距離		6 mm / 5 mm		12 mm / 8 mm	
Secure sensing distance / 建議距離		0 to 4.8 mm / 0 to 4.0 mm		0 to 9.6 mm / 0 to 6.4 mm	
Standard sensing object / 標準檢測物		Iron 18× 18 × 1 mm			
Sensing type / 檢出方式		Shielded / 隔離型		Unshielded / 非隔離	
Description / 外型		Standard M18 / 標準M18			
Hysteresis / 遲滯		≤ 10 % of sensing distance			
Response time / 反應時間		2 ms Max.			
Operating voltage / 工作電壓		DC 12 ~ 24 V			
Current consumption / 消耗電流		≤ 14 mA no-load			
Load current / 負載電流		100 mA Max. at DC 24V			
Leakage current / 漏電流		≤ 1.1 mA no-load			
Residual voltage / 殘餘電壓		≤ DC 2V			
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)			
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.			
Operating temperature / 工作溫度		-20℃ ~ + 60℃			
Protection degree / 防水等級		IP 67			
Wiring method / 出線方式		N/P:Ø5.2x2M/3-wires NP:Ø5.2x2M/4-wires	M12 pigtailed type / M12接頭15cm電線式	N/P:Ø5.2x2M/3-wires NP:Ø5.2x2M/4-wires	M12 pigtailed type / M12接頭15cm電線式
Weight / 重量		Approx.93g	Approx.40.5g	Approx.92g	Ap prox.39.5g

◆ Dimensions / 尺寸圖：
(unit:mm)

◆ Wiring diagrams / 接線圖：



◆ Characteristic / 特點：

- Standard models for metal detection.
/ 標準型含鐵金屬檢測有無。
- Assorted variety: Short body/ Long body/
AC or DC available.
/ 廣泛的選擇性，短本體、長本體、直流、
交流型皆具備。

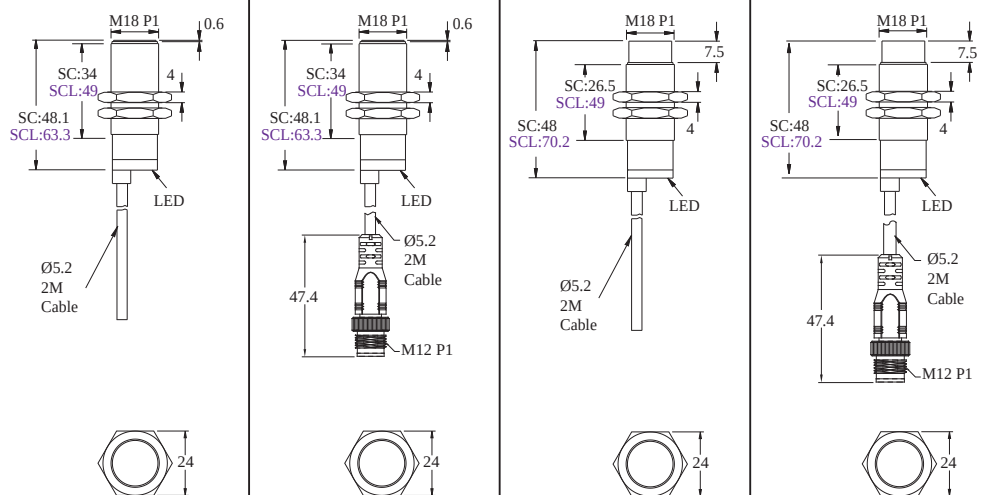
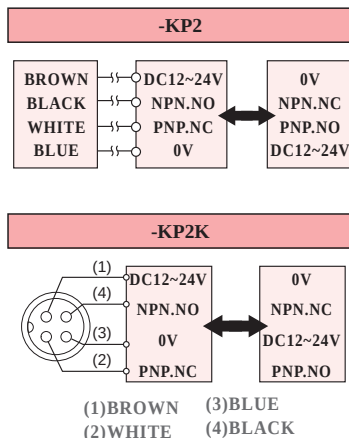


◆ Specifications / 規格表：

Output method /輸出模式	NPN N.O.	SC1805-N SCL1805-N	SC1805-NK SCL1805-NK	SC1808-N SCL1808-N	SC1808-NK SCL1808-NK
	PNP N.O.	SC1805-P SCL1805-P	SC1805-PK SCL1805-PK	SC1808-P SCL1808-P	SC1808-PK SCL1808-PK
	NPN N.O./N.C. PNP N.C./N.O.	SC1805-KP2	SC1805-KP2K	SC1808-KP2	SC1808-KP2K
	SCR N.O.	SC1805-A	SC1805-AK	SC1808-A	SC1808-AK
	SCR N.C.	SC1805-A2	SC1805-A2K	SC1808-A2	SC1808-A2K
Sensing distance / 檢出距離		5 mm		8 mm	
Secure sensing distance / 建議距離		0 to 4.0 mm		0 to 6.4 mm	
Standard sensing object / 標準檢測物		Iron 18 x 18 x 1 mm			
Sensing type / 檢出方式		Shielded / 隔離型		Unshielded / 非隔離型	
Description / 外型		Standard M18 / 標準M18			
Hysteresis / 遲滯		≤ 10 % of sensing distance			
Response time / 反應時間		DC Type 2 ms Max. or AC Type 50ms			
Operating voltage / 工作電壓		DC 12 ~ 24V or AC 90 ~ 260V			
Current consumption / 消耗電流		DC : ≤ 8 mA no-load / AC : 2 mA Max.			
Load current / 負載電流		DC : 100 mA Max. at DC 24V or AC : 5 ~ 300 mA Max.			
Leakage current / 漏電流		≤ 1.1 mA no-load			
Residual voltage / 殘餘電壓		≤ DC 1.5V			
Insulation resistance / 隔離阻抗		20M Ω min. (DC500V)			
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.			
Operating temperature / 工作溫度		-20℃ ~ + 60℃			
Protection degree / 防水等級		IP 66			
Wiring method / 出線方式		N/P : Ø5.2x 2M /3-wires KP2 :Ø5.2x2M /4-wires AC :Ø5.2x2M /-wires	M12 pigtailed type / M12接頭15cm電線 式	N/P : Ø5.2x 2M /3-wire KP2 :Ø5.2x2M /4-wires AC :Ø5.2x2M /2-wires	M12 pigtailed type / M12接頭15cm電線 式
Weight / 重量	SC	Approx. 90g	Approx. 30g	Approx. 96g	Approx. 35g
	SCL	Approx. 115g	Approx. 55g	Approx. 116g	Approx. 55g

◆ Dimensions / 尺寸圖：

◆ Wiring diagrams / 接線圖：



◆ Characteristic / 特點：

- Large LED indicator, clearly checking working operation.
/ 專利大面積動作燈，可清晰了解感測器的動作。
- Longer sensing distance.
/ 檢測距離加長，方便使用。
- NP model：NPN+PNP NO/NC 4-in-1 outputs.
/ 新型NP電路：NPN/PNP NO/NC All in one. ◦

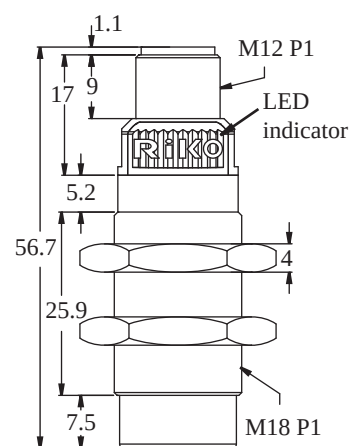
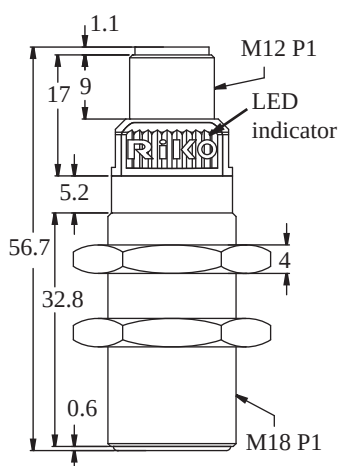


LED Indicator

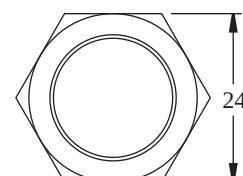
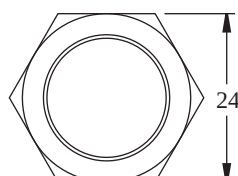
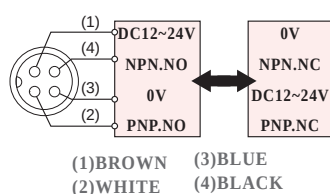


◆ Specifications / 規格表：

Output method /輸出模式	NPN N.O.	PSC1805-NM1	PSC1812-NM1
	PNP N.O.	PSC1805-PM1	PSC1812-PM1
	NPN N.O./N.C. PNP N.O./N.C.	PSC1805-NPM1	PSC1812-NPM1
	2 WIRES N.O.	—	—
	2 WIRES N.C.	—	—
Sensing distance / 檢出距離	5 mm		12 mm
Secure sensing distance / 建議距離	0 to 4 mm		0 to 9.6 mm
Standard sensing object / 標準檢測物	Iron 18 × 18 × 1 mm		
Sensing type / 檢出方式	Shielded / 隔離型		Unshielded / 非隔離型
Description / 外型	Standard M18 / 標準M18		
Hysteresis / 遲滯	≤ 10 % of sensing distance		
Response time / 反應時間	2 ms Max.		
Operating voltage / 工作電壓	DC12 ~ 24 V		
Current consumption / 消耗電流	≤ 14 mA no-load		
Load current / 負載電流	100 mA Max. at DC 24V		
Leakage current / 漏電流	≤ 1.1 mA no-load		
Residual voltage / 殘餘電壓	≤ DC 2V		
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)		
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.		
Operating temperature / 工作溫度	-20℃ ~ + 60℃		
Protection degree / 防水等級	IP 66		
Wiring method / 出線方式	M12 plug-in connector type / M12 接頭		
Weight / 重量	Approx.30g		Approx.30g

◆ Dimensions / 尺寸圖：
(unit:mm)◆ Wiring diagrams
/ 接線圖：

-NPM1



Tubular Inductive Proximity Sensor

M30

◆ Characteristic / 特點：

- 90 degree wiring, saving space.
/ 專利90度出線設計，節省空間。
- Large LED indicator, clearly checking working operation.
/ 大面積動作燈，可清晰了解感測器的動作。
- IP 67 protection rating./ IP67防水等級。
- NP model：NPN+PNP NO/NC 4-in-1 outputs.
/ 新型NP電路：NPN/PNP NO/NC All in one.
- Anti-bending connection design.
/ 專利包覆設計，耐彎保護佳。

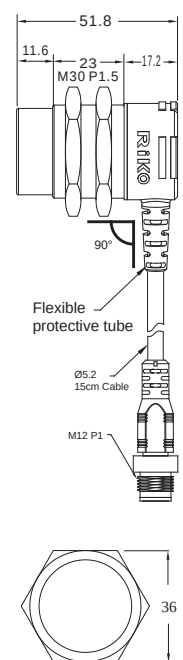
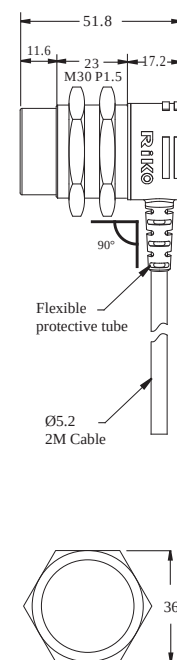
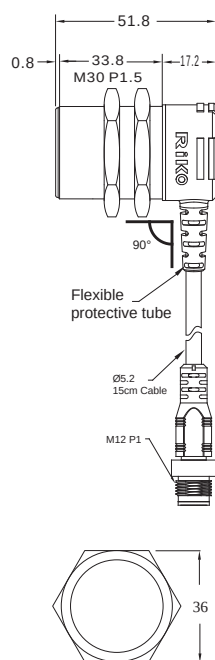
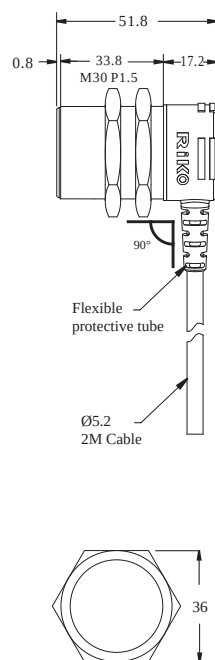
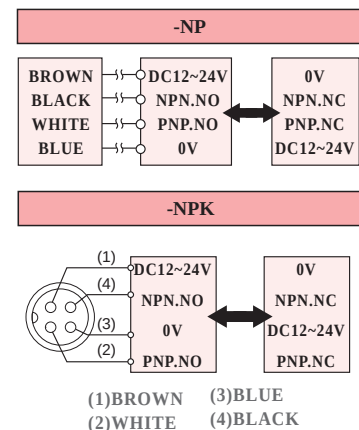


◆ Specifications / 規格表：

Output method /輸出模式	NPN N.O.	PSD3010-N	PSD3010-NK	PSD3018-N	PSD3018-NK
	PNP N.O.	PSD3010-P	PSD3010-PK	PSD3018-P	PSD3018-PK
	NPN N.O./N.C. PNP N.O./N.C.	PSD3010-NP	PSD3010-NPK	PSD3018-NP	PSD3018-NPK
	2 WIRES N.O.	—	—	—	—
	2 WIRES N.C.	—	—	—	—
Sensing distance / 檢出距離		10 mm		18 mm	
Secure sensing distance / 建議距離		0 to 8 mm		0 to 14.4 mm	
Standard sensing object / 標準檢測物		Iron 30× 30 × 1 mm			
Sensing type / 檢出方式		Shielded / 隔離型		Unshielded / 非隔離型	
Description / 外型		Standard M30 / 標準M30			
Hysteresis / 遲滯		≤ 10 % of sensing distance			
Response time / 反應時間		3.3 ms Max.			
Operating voltage / 工作電壓		DC 12 ~ 24 V			
Current consumption / 消耗電流		≤ 14 mA no-load			
Load current / 負載電流		100 mA Max. at DC 24V			
Leakage current / 漏電流		≤ 1.1 mA no-load			
Residual voltage / 殘餘電壓		≤ DC 2V			
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)			
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.			
Operating temperature / 工作溫度		-20℃ ~ + 60℃			
Protection degree / 防水等級		IP 67			
Wiring method / 出線方式		N/P:Ø5.2x2M/3-wires NP:Ø5.2x2M /4-wires	M12 pigtailed type / M12接頭15cm電線式	N/P:Ø5.2x2M/3-wires NP:Ø5.2x2M /4-wires	M12 pigtailed type / M12接頭15cm電線式
Weight / 重量		Approx.145g	Approx.95g	Approx.145g	Ap prox.95g

◆ Dimensions / 尺寸圖： (unit:mm)

◆ Wiring diagrams / 接線圖：



Inductive / Capacitive Proximity Sensor

PSD18-LA/LV
PSC18-LA/LV
SC18-LA/LV

HPD
HPS

Ø4
M5
Ø6
M8
M12
M18
M30

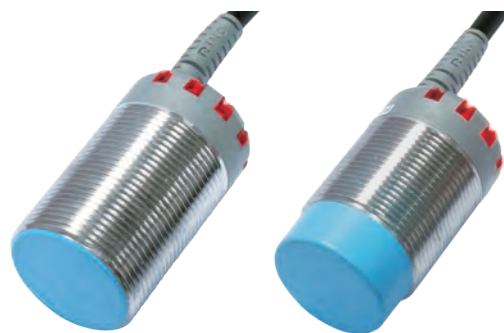
JN
JND
KND
PN
PND
RN
SN
TSN

SID
SIR
SIA

PKC
KC
KCM
KCP

◆ Characteristic / 特點：

- Special line-out design for bending resistance and tensile.it will upgrade the durability and life.
/ 獨特的出線包覆設計，抗拉、耐彎曲，提升耐用度和壽命。
- M30 sensing distance up to 25mm.
/ M30型超長檢測距離達25mm。
- The IP67 rating is designed to the effective waterproof.
/ 保護結構達到IP67的規格，能有效的防水。
- NP model：NPN+PNP NO/NC 4-in-1 outputs.
/ 新型NP電路：NPN/PNP NO/NC All in one.



◆ Specifications / 規格表：

Output method /輸出模式	NPN N.O.	PSC3012-N	PSC3012-NK	PSC3018-N	PSC3018-NK
	PNP N.O.	PSC3012-P	PSC3012-PK	PSC3018-P	PSC3018-PK
	NPN N.O./N.C. PNP N.O./N.C.	PSC3010-NP	PSC3010-NPK	PSC3018-NP PSC3025-NP	PSC3018-NPK PSC3025-NPK
	2 WIRES N.O.	—	—	—	—
	2 WIRES N.C.	—	—	—	—
Sensing distance / 檢出距離		12mm / 10mm		18mm / 18mm / 25mm	
Secure sensing distance / 建議距離		0 to 9.6mm / 0 to 8mm		0 to 14.4 mm / 0 to 14.4mm / 0 to 20mm	
Standard sensing object / 標準檢測物		Iron 30× 30 × 1 mm			
Sensing type / 檢出方式		Shielded / 隔離型		Unshielded / 非隔離	
Description / 外型		Standard M30 / 標準M30			
Hysteresis / 遲滯		≤ 10 % of sensing distance / ≤ 15 % of sensing distance			
Response time / 反應時間		3.3 ms Max. / 5 ms Max.			
Operating voltage / 工作電壓		DC 12 ~ 24 V			
Current consumption / 消耗電流		≤ 16 mA no-load / ≤ 8 mA no-load			
Load current / 負載電流		100 mA Max. at DC 24V			
Leakage current / 漏電流		≤ 1.1 mA no-load			
Residual voltage / 殘餘電壓		≤ DC 2V / ≤ DC 1.5V			
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)			
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.			
Operating temperature / 工作溫度		-20℃ ~ + 60℃			
Protection degree / 防水等級		IP 67			
Wiring method / 出線方式		N/P:Ø5.2x2M/3-wires NP:Ø5.2x2M/4-wires	M12 pigtailed type / M12接頭15cm電線式	N/P:Ø5.2x2M/3-wires NP:Ø5.2x2M/4-wires	M12 pigtailed type / M12接頭15cm電線式
Weight / 重量		Approx.141g	Approx.88.5g	Approx.129g	Approx.76.5g

◆ Dimensions / 尺寸圖：
(unit:mm)

◆ Wiring diagrams
/ 接線圖：

-NP

BROWN

BLACK

WHITE

BLUE

DC12~24V

NPN.NO

PNP.NO

0V

0V

NPN.NC

PNP.NC

DC12~24V

-NPK

(1)

(4)

(3)

(2)

DC12~24V

NPN.NO

0V

PNP.NO

0V

NPN.NC

DC12~24V

PNP.NC

(1)BROWN

(2)WHITE

(3)BLUE

(4)BLACK

M30 P1.5

0.8

37.8

51.8

28.5

Ø5.2

2M Cable

LED

Flexible protective tube

M30 P1.5

0.8

37.8

51.8

28.5

Ø5.2

15cm Cable

LED

Flexible protective tube

M12 P1

47.4

M30 P1.5

11.6

27

51.8

28.5

Ø5.2

15cm Cable

LED

Flexible protective tube

M30 P1.5

11.6

27

51.8

28.5

Ø5.2

15cm Cable

LED

Flexible protective tube

M12 P1

47.4

36

36

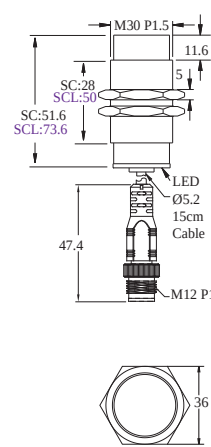
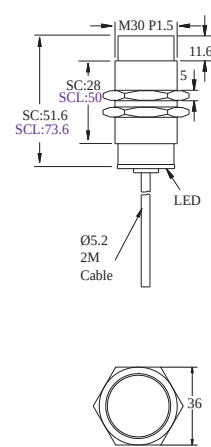
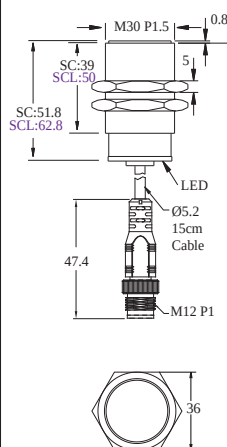
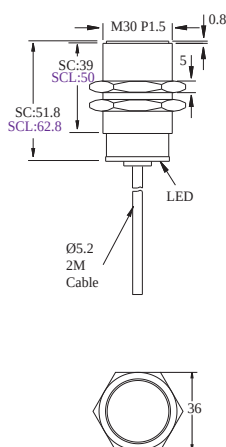
36

36

M30



PKC
KC
KCM
KCP



◆ Characteristic / 特點：

- Large LED indicator, clearly checking working operation.
/ 專利大面積動作燈，可清晰了解感測器的動作。
- M12 4pin connector model available.
/ M12 4pin接頭外型，同步於歐、美、日。
- NP model：NPN+PNP NO/NC 4-in-1 outputs.
/ 新型NP電路：NPN/PNP NO/NC All in one.

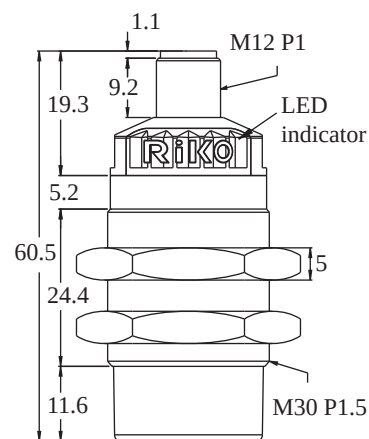
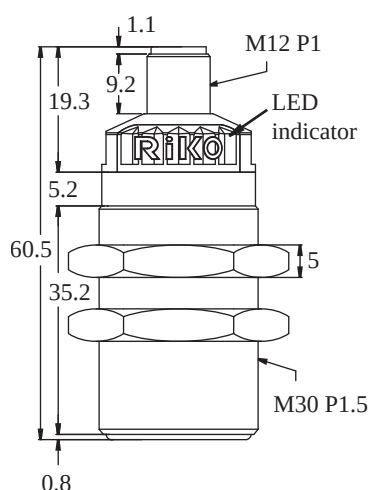


LED Indicator



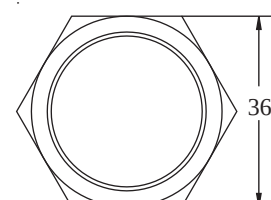
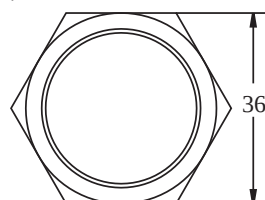
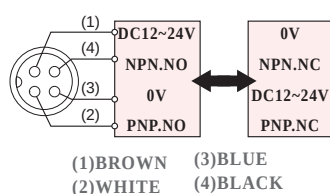
◆ Specifications / 規格表：

Output method / 輸出模式	NPN N.O.	PSC3012-NM1	PSC3018-NM1
	PNP N.O.	PSC3012-PM1	PSC3018-PM1
	NPN N.O./N.C. PNP N.O./N.C.	PSC3012-NPM1	PSC3018-NPM1
	2 WIRES N.O.	—	—
	2 WIRES N.C.	—	—
Sensing distance / 檢出距離	12 mm		18 mm
Secure sensing distance / 建議距離	0 to 9.6 mm		0 to 14.4 mm
Standard sensing object / 標準檢測物	Iron 30 × 30 × 1 mm		
Sensing type / 檢出方式	Shielded / 隔離型		Unshielded / 非隔離型
Description / 外型	Standard M30/ 標準M30		
Hysteresis / 遲滯	≤ 10 % of sensing distance		
Response time / 反應時間	3.3 ms Max.		
Operating voltage / 工作電壓	DC12 ~ 24 V		
Current consumption / 消耗電流	≤ 16 mA no-load		
Load current / 負載電流	100 mA Max. at DC 24V		
Leakage current / 漏電流	≤ 1.1 mA no-load		
Residual voltage / 殘餘電壓	≤ DC 2V		
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)		
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.		
Operating temperature / 工作溫度	-20℃ ~ + 60℃		
Protection degree / 防水等級	IP 66		
Wiring method / 出線方式	M12 plug-in connector type / M12 接頭		
Weight / 重量	Approx.70g		Approx.66g

◆ Dimensions / 尺寸圖：
(unit:mm)

◆ Wiring diagrams / 接線圖：

-NPM1



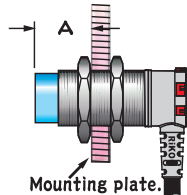
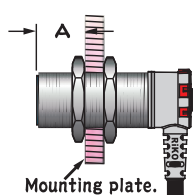
◆ Precautions proper installation / 安裝注意事項：

• PSD系列

Mounting with nut. / 螺母安裝

Shielded / 隔離型

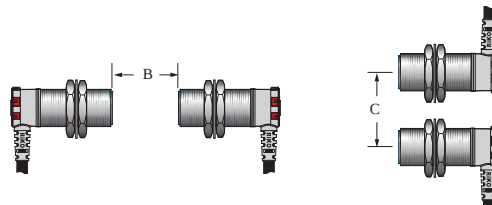
Unshielded / 非隔離型



Sensing surface	Model	A (mm)
Shielded / 隔離型	PSD0801	≥ 0
	PSD1202	≥ 0
	PSD1805	≥ 0
	PSD3010	≥ 0
Unshielded / 非隔離型	PSD0803	≥ 6
	PSD1205	≥ 15
	PSD1808	≥ 22
	PSD1810	≥ 22
	PSD3015	≥ 30
	PSD3018	≥ 30

Crosstalk prevention. / 相互干擾

When two sensors are mounted in parallel or face to face, keep the minimum distance (according to the table below) to avoid crosstalk.

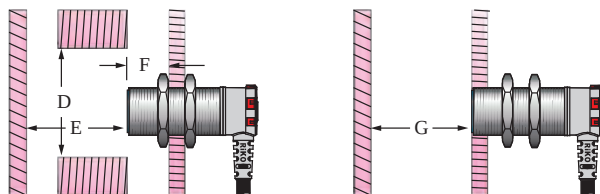


Sensing surface	Model	B (mm)	C (mm)
Shielded / 隔離型	PSD0801	≥ 5	≥ 15
	PSD1202	≥ 10	≥ 20
	PSD1805	≥ 12	≥ 30
	PSD3010	≥ 50	≥ 45
Unshielded / 非隔離型	PSD0803	≥ 8	≥ 15
	PSD1205	≥ 10	≥ 20
	PSD1808	≥ 16	≥ 30
	PSD1810	≥ 16	≥ 30
	PSD3015	≥ 60	≥ 45
	PSD3018	≥ 60	≥ 45

Influenced by surrounding metals. / 周圍金屬影響

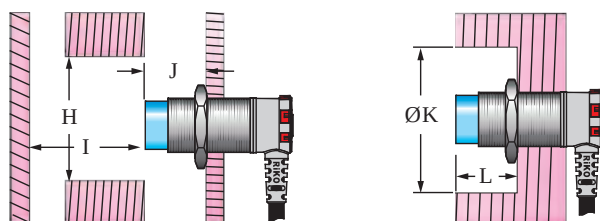
The surrounding metals will influence the sensing performance. Please keep the minimum sensing distance according to the table below.

Shielded / 隔離型



Model	D (mm)	E (mm)	F (mm)	G (mm)
PSD0801	≥ 12	≥ 4	≥ 0	≥ 4
PSD1202	≥ 20	≥ 8	≥ 0	≥ 8
PSD1805	≥ 30	≥ 20	≥ 0	≥ 20
PSD3010	≥ 50	≥ 40	≥ 0	≥ 40

Unshielded / 非隔離型



Model	H (mm)	I (mm)	J (mm)	K (mm)	L (mm)
PSD0803	≥ 22	≥ 8	≥ 6	≥ 22	≥ 6
PSD1205	≥ 36	≥ 20	≥ 15	≥ 40	≥ 15
PSD1808	≥ 54	≥ 40	≥ 22	≥ 40	≥ 15
PSD1810	≥ 54	≥ 40	≥ 22	≥ 55	≥ 22
PSD3015	≥ 90	≥ 70	≥ 30	≥ 90	≥ 30
PSD3018	≥ 90	≥ 70	≥ 30	≥ 90	≥ 30

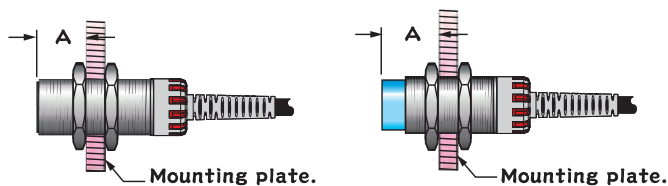
◆ Precautions proper installation / 安裝注意事項：

• PSC/系列

Mounting with nut. / 螺母安裝

Shielded / 隔離型

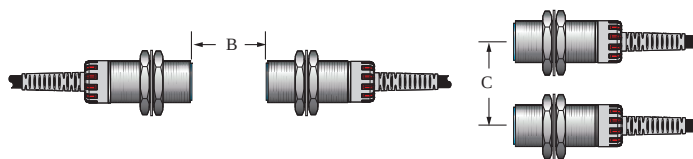
Unshielded / 非隔離型



Sensing surface	Model	A (mm)
Shielded / 隔離型	PSC0801	≥ 0
	PSC1202	≥ 0
	PSC1203	≥ 0
	PSC1805	≥ 0
	PSC1806	≥ 0
	PSC3010	≥ 0
	PSC3012	≥ 0
	PSC3025	≥ 40
Unshielded / 非隔離型	PSC0802	≥ 6
	PSC1205	≥ 15
	PSC1206	≥ 15
	PSC1808	≥ 22
	PSC1812	≥ 22
	PSC3018	≥ 30
	PSC3025	≥ 40

Crosstalk prevention. / 相互干擾

When two sensors are mounted in parallel or face to face, keep the minimum distance (according to the table below) to avoid crosstalk.

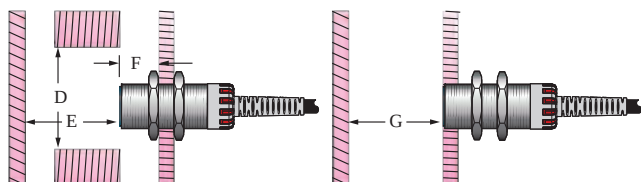


Sensing surface	Model	B (mm)	C (mm)
Shielded / 隔離型	PSC0801	≥ 5	≥ 15
	PSC1202	≥ 10	≥ 20
	PSC1203	≥ 10	≥ 20
	PSC1805	≥ 12	≥ 30
	PSC1806	≥ 15	≥ 30
	PSC3010	≥ 50	≥ 45
	PSC3012	≥ 50	≥ 45
	PSC3025	≥ 70	≥ 60
Unshielded / 非隔離型	PSC0802	≥ 6	≥ 15
	PSC1205	≥ 20	≥ 20
	PSC1206	≥ 20	≥ 20
	PSC1808	≥ 25	≥ 30
	PSC1812	≥ 25	≥ 30
	PSC3018	≥ 60	≥ 45
	PSC3025	≥ 70	≥ 60

Influenced by surrounding metals. / 周圍金屬影響

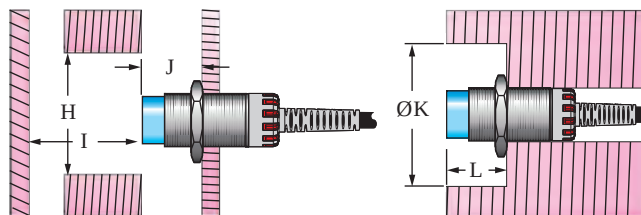
The surrounding metals will influence the sensing performance. Please keep the minimum sensing distance according to the table below.

Shielded / 隔離型



Model	D (mm)	E (mm)	F (mm)	G (mm)
PSC0801	≥ 12	≥ 4	≥ 0	≥ 4
PSC1202	≥ 20	≥ 8	≥ 0	≥ 8
PSC1203	≥ 20	≥ 10	≥ 0	≥ 10
PSC1805	≥ 30	≥ 20	≥ 0	≥ 20
PSC1806	≥ 30	≥ 30	≥ 0	≥ 30
PSC3010	≥ 50	≥ 40	≥ 0	≥ 40
PSC3012	≥ 50	≥ 50	≥ 0	≥ 50

Unshielded / 非隔離型



Model	H (mm)	I (mm)	J (mm)	K (mm)	L (mm)
PSC0802	≥ 22	≥ 8	≥ 6	≥ 22	≥ 6
PSC1205	≥ 36	≥ 20	≥ 15	≥ 40	≥ 15
PSC1206	≥ 36	≥ 20	≥ 15	≥ 40	≥ 15
PSC1808	≥ 54	≥ 40	≥ 22	≥ 55	≥ 22
PSC1812	≥ 60	≥ 45	≥ 25	≥ 60	≥ 25
PSC3018	≥ 90	≥ 70	≥ 30	≥ 90	≥ 30
PSC3025	≥ 105	≥ 85	≥ 45	≥ 105	≥ 45

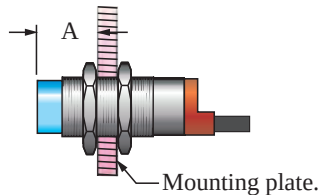
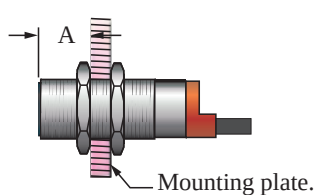
◆Precautions proper installation / 安裝注意事項：

• SC系列

Mounting with nut. / 螺母安裝

Shielded / 隔離型

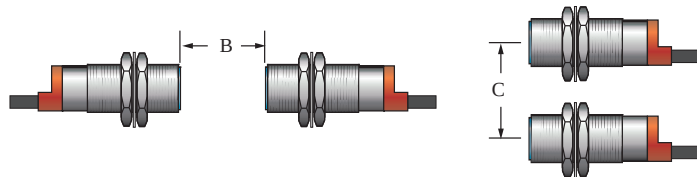
Unshielded / 非隔離型



Sensing surface	Model	A (mm)
Shielded /隔離型	SC0801	≥ 0
	SC1202	≥ 0
	SC1805	≥ 0
	SC3010	≥ 0
Unshielded /非隔離型	SC0802	≥ 6
	SC1204	≥ 15
	SC1808	≥ 22
	SC3015	≥ 30

Crosstalk prevention. / 相互干擾

When two sensors are mounted in parallel or face to face, keep the minimum distance (according to the table below) to avoid crosstalk.

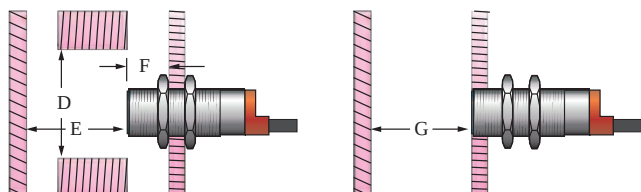


Sensing surface	Model	B (mm)	C (mm)
Shielded /隔離型	SC0801	≥ 20	≥ 15
	SC1202	≥ 30	≥ 20
	SC1805	≥ 50	≥ 35
	SC3010	≥ 100	≥ 70
Unshielded /非隔離型	SC0802	≥ 80	≥ 60
	SC1204	≥ 120	≥ 100
	SC1808	≥ 200	≥ 110
	SC3015	≥ 300	≥ 200

Influenced by surrounding metals. / 周圍金屬影響

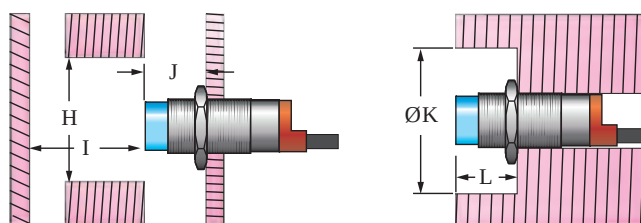
The surrounding metals will influence the sensing performance. Please keep the minimum sensing distance according to the table below.

Shielded / 隔離型



Model	D (mm)	E (mm)	F (mm)	G (mm)
SC0801	≥ 12	≥ 4	≥ 0	≥ 4
SC1202	≥ 18	≥ 8	≥ 0	≥ 8
SC1805	≥ 27	≥ 20	≥ 0	≥ 20
SC3010	≥ 45	≥ 40	≥ 0	≥ 40

Unshielded / 非隔離型



Model	H (mm)	I (mm)	J (mm)	K (mm)	L (mm)
SC0802	≥ 22	≥ 8	≥ 6	≥ 22	≥ 6
SC1204	≥ 36	≥ 20	≥ 15	≥ 40	≥ 15
SC1808	≥ 54	≥ 40	≥ 22	≥ 55	≥ 22
SC3015	≥ 90	≥ 70	≥ 30	≥ 90	≥ 30

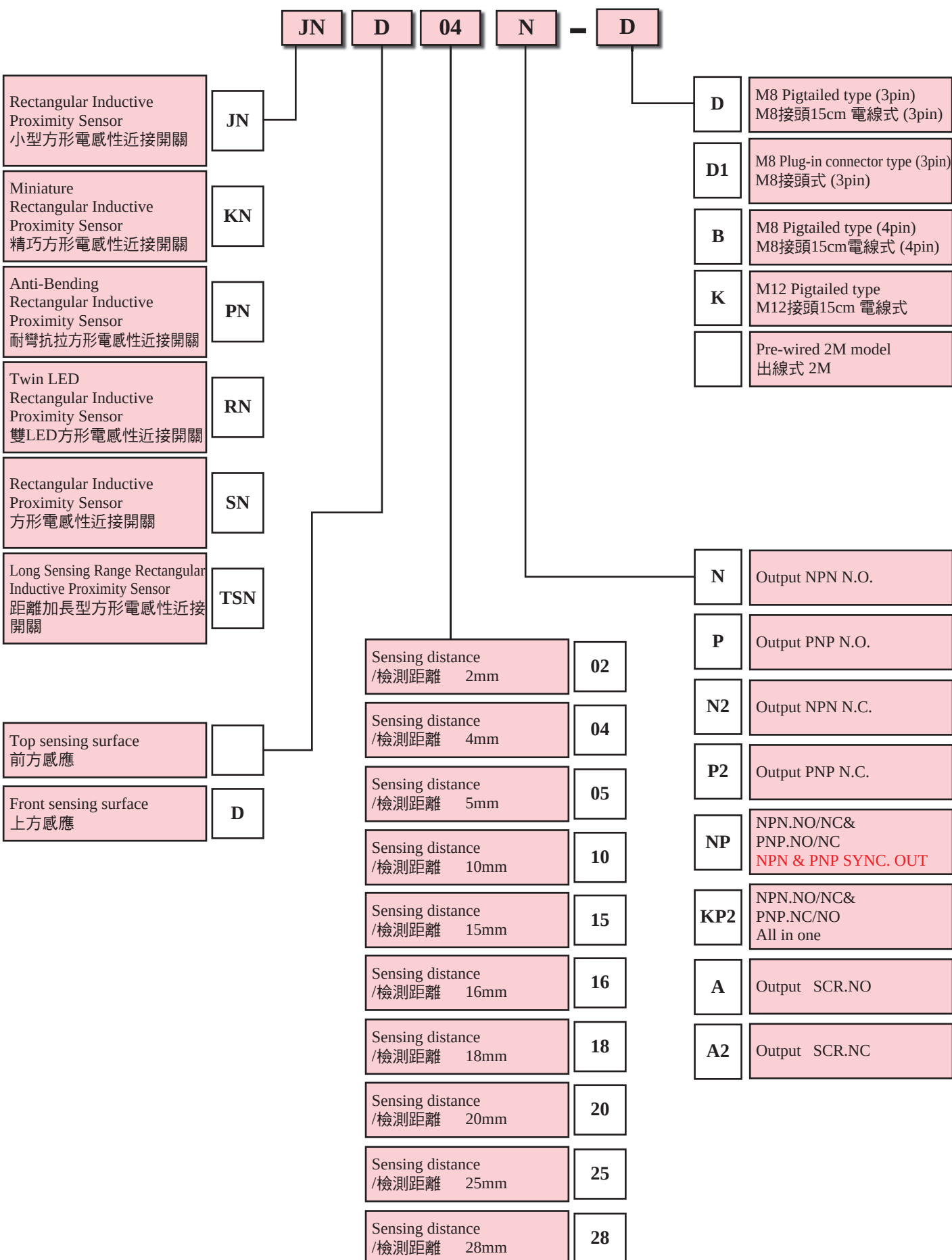
◆ Order Information / 訂貨索引 :

Fiber Sensor

Photo / Area Photo / Ultrasonic Sensor

Inductive / Capacitive Proximity Sensor

Others



◆ Characteristic / 特點：

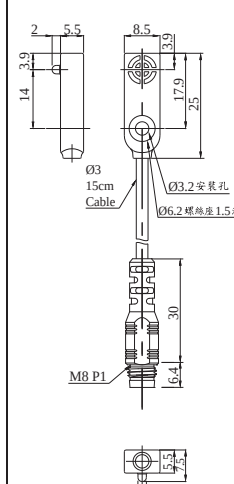
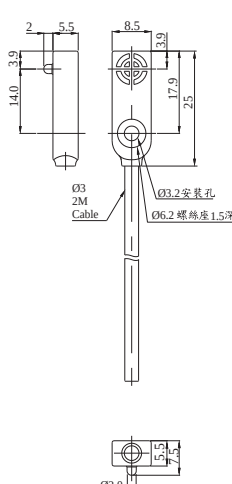
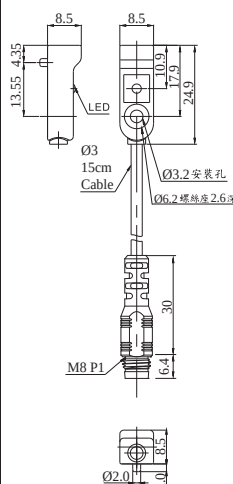
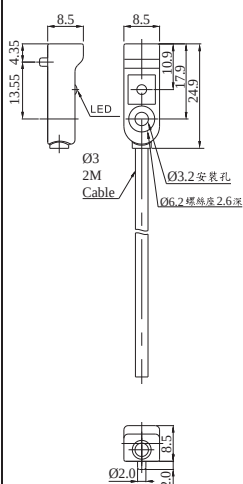
- Small dimension : 8.5x5.5x25mm.
/ 尺寸迷你，僅8.5x5.5x25mm。
- Front/ Upside sensing available.
/ 規格齊全：前方感應、上方感應。
- M8 3pin connector model available.
/ M8 3pin 接頭式，配線方便。
- Single screw hole fixing.
/ 單螺絲方便固定。



◆ Specifications / 規格表：

Output method /輸出模式	NPN N.O.	JN02-N	JN02-ND	JND02-N	JND02-ND
	NPN N.C.	—	—	—	—
	PNP N.O.	JN02-P	JN02-PD	JND02-P	JND02-PD
	PNP N.C.	—	—	—	—
Sensing distance / 檢出距離	2 mm		2 mm		
Secure sensing distance / 建議距離	0 to 1.6 mm		0 to 1.6 mm		
Standard sensing object / 標準檢測物	Iron 8 x 8 x 1mm		Iron 8 x 8 x 1mm		
Sensing Surface / 檢測方向	Top surface / 前方		Front surface / 上方		
Hysteresis / 遲滯	≤ 10 % of sensing distance		≤ 10 % of sensing distance		
Response time / 反應時間	1 ms Max.		1 ms Max.		
Operating voltage / 工作電壓	DC 10 ~ 30V		DC 10 ~ 30V		
Current consumption / 消耗電流	≤ 8 mA no-load		≤ 8 mA no-load		
Load current / 負載電流	100 mA Max. at DC 30V		100 mA Max. at DC 30V		
Leakage current / 漏電流	≤ 1.1 mA no-load		≤ 1.1 mA no-load		
Residual voltage / 殘餘電壓	≤ DC 1.5V		≤ DC 1.5V		
Insulation resistance / 隔離阻抗	20M Ω min. (DC500V)		20M Ω min. (DC500V)		
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.		AC1000V 60Hz for 60 Sec.		
Operating temperature / 工作溫度範圍	-20 °C ~ + 60 °C		-20 °C ~ + 60 °C		
Protection degree / 防水等級	IP 64		IP 64		IP 64
Wiring method / 出線方式	Pre-wire Ø3 x 2M/3-wires		M8 pigtailed type /M8 接頭15cm 電線式		M8 pigtailed type /M8 接頭15cm 電線式
Weight / 重量	Approx.30g		Approx.10g		Approx.10g

◆ Dimensions / 尺寸圖： (unit:mm)



JN/JND Rectangular Inductive Proximity Sensor

◆ Characteristic / 特點：

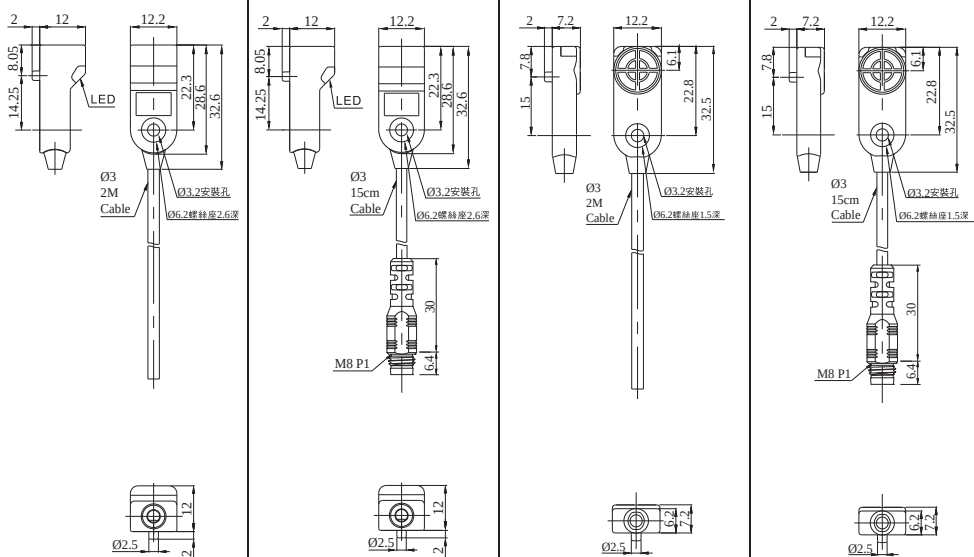
- Small dimension : 12x7x32mm.
/ 尺寸迷你，僅12x7x32mm。
- Front/ Upside sensing available.
/ 規格齊全：前方感應、上方感應。
- M8 3pin connector model available.
/ M8 3pin 接頭式，配線方便。
- Sensing distance up to 4mm./ 檢測距離4mm。
- Single screw hole fixing./ 單螺絲方便固定。



◆ Specifications / 規格表：

Output method /輸出模式	NPN N.O.	JN04-N	JN04-ND	JND04-N	JND04-ND
	NPN N.C.	JN04-N2	JN04-N2D	JND04-N2	JND04-N2D
	PNP N.O.	JN04-P	JN04-PD	JND04-P	JND04-PD
	PNP N.C.	JN04-P2	JN04-P2D	JND04-P2	JND04-P2D
Sensing distance / 檢出距離	4 mm			4 mm	
Secure sensing distance / 建議距離	0 to 3.2 mm			0 to 3.2 mm	
Standard sensing object / 標準檢測物	Iron 12 x 12 x 1mm			Iron 12 x 12 x 1mm	
Sensing Surface / 檢測方向	Top surface / 前方			Front surface / 上方	
Hysteresis / 遲滯	≤ 10 % of sensing distance			≤ 10 % of sensing distance	
Response time / 反應時間	1 ms Max.			1 ms Max.	
Operating voltage / 工作電壓	DC 12 ~ 24V			DC 12 ~ 24V	
Current consumption / 消耗電流	≤ 8 mA no-load			≤ 8 mA no-load	
Load current / 負載電流	100 mA Max. at DC 24V			100 mA Max. at DC 24V	
Leakage current / 漏電流	≤ 1.1 mA no-load			≤ 1.1 mA no-load	
Residual voltage / 殘餘電壓	≤ DC 1.5V			≤ DC 1.5V	
Insulation resistance / 隔離阻抗	20M Ω min. (DC500V)			20M Ω min. (DC500V)	
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.			AC1000V 60Hz for 60 Sec.	
Operating temperature / 工作溫度範圍	-20°C ~ + 60°C			-20°C ~ + 60°C	
Protection degree / 防水等級	IP 64			IP 64	
Wiring method / 出線方式	Pre-wire Ø3 x 2M/3-wires			Pre-wire Ø3 x 2M/3-wires	
Weight / 重量	Approx.26g			Approx.26g	

◆ Dimensions / 尺寸圖： (unit:mm)



◆ Characteristic/特點：

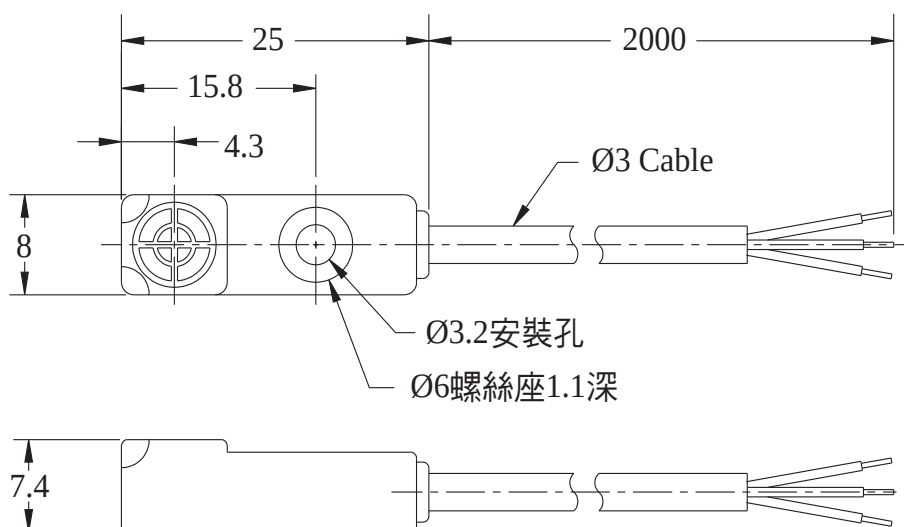
- The IP67 rating is designed to the effective waterproof.
/ 保護結構達到IP67的規格，能有效的防水。
- Body-hole type is easy to installation, anyone can replace the new sensor in a minute.
/ 自帶安裝孔，安裝更換很容易。
- Small size (25 X 8 X 7.4 mm),so can well mounted in narrow space.
/ 體積微小（25 X 8 X 7.4 mm），可在狹小的空間安裝。



◆ Specifications / 規格表：

Output method /輸出模式	NPN N.O.	KND02-N
	NPN N.C.	KND02-N2
	PNP N.O.	KND02-P
	PNP N.C.	KND02-P2
Sensing distance / 檢出距離	2.5 mm ± 20%	
Secure sensing distance / 建議距離	0 to 1.8mm	
Standard sensing object / 標準檢測物	Iron 15 x 15 x 1.5 mm	
Sensing Surface / 檢測方向	Front surface / 上方	
Hysteresis / 遲滯	≤ 10% of sensing distance	
Response time / 反應時間	2 ms Max.	
Operating voltage / 工作電壓	DC 12 ~ 24V	
Current consumption / 消耗電流	≤ 8 mA no-load	
Output current / 輸出電流	DC:24V 100 mA Max.	
Leakage current / 漏電流	≤ 1.1 mA no-load	
Residual voltage / 殘餘電壓	≤ DC 1.5V	
Insulation resistance / 隔離阻抗	50M Ω min. (DC500V)	
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.	
Operating temperature / 工作溫度範圍	-20℃ ~ +60℃	
Protection degree / 防水等級	IP67	
Wiring method / 出線方式	Pre-wired Ø3 x 2M / 3wires	
Weight / 重量	Approx.15g	

◆ Dimensions / 尺寸圖：(unit:mm)



Inductive / Capacitive Proximity Sensor

PSD18-LA/LV
PSC18-LA/LV
SC18-LA/LV

HPD
HPS

Ø4
M5
Ø6
M8
M12
M18
M30

JN
JND
KND
PN
PND
RN
SN
TSN

SID
SIR
SIA

PKC
KC
KCM
KCP

◆ Characteristic/特點：

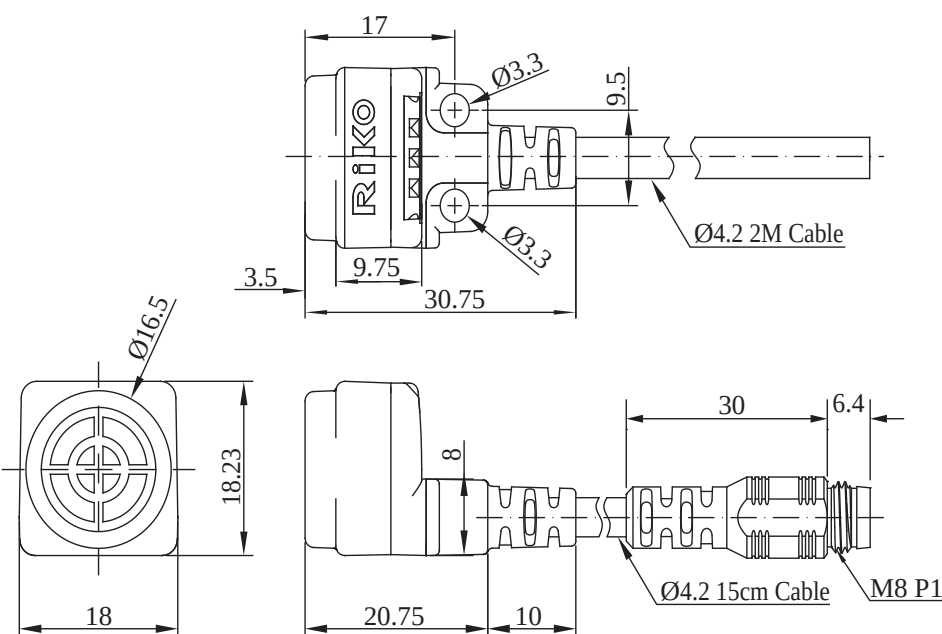
- 1/2 smaller dimension than old models.
/ 尺寸迷你，僅傳統型的1/2體積。
- Dual LED motion indicators.
/ 雙LED動作指示燈。
- NPN /PNP NO or NC 4-in-1 outputs.
/ 多功能四種輸出模式：NPN NO./NC及PNP NO/NC。
- Protection rating IP67.
/ IP67防水等級。



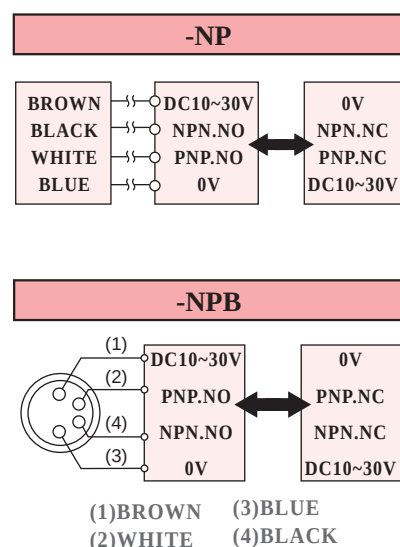
◆ Specifications / 規格表：

Output method / 輸出模式	NPN N.O./N.C. PNP N.O./N.C.	PN05-NP	PN05-NPB
Sensing distance / 檢出距離		5mm	
Secure sensing distance / 建議距離		0 to 4 mm	
Standard sensing object / 標準檢測物		Iron 18x18x1mm	
Sensing Surface / 檢測方向		Top surface / 前方	
Hysteresis / 遲滯		≤ 10% of sensing distance	
Response time / 反應時間		2ms Max.	
Operating voltage / 工作電壓		DC 10 ~ 30V	
Current consumption / 消耗電流		≤ 8 mA no-load	
Load current / 負載電流		100 mA Max. at DC 24V	
Leakage current / 漏電流		≤ 1.1 mA no-load	
Residual voltage / 殘餘電壓		≤ DC 1.5V	
Insulation resistance / 隔離阻抗		20M Ω min. (DC500V)	
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.	
Operating temperature / 工作溫度範圍		-20°C ~ +60°C	
Protection degree / 防水等級		IP67	
Wiring method / 出線方式		Ø4.2x2M / 4-wires	M8 pigtailed type /M8 接頭15cm 電線式
Option / 選購配件 (Page 251)		Bracket / 固定架：PN05-M001 / PN05-M002	
Weight / 重量		Approx.60g	Approx.20g

◆ Dimensions / 尺寸圖：(unit:mm)



◆ Wiring diagrams / 接線圖：



◆ Characteristic/特點：

- 1/2 smaller dimension than old models.
/ 尺寸迷你，僅傳統型的1/2體積。
- Dual LED motion indicators.
/ 雙LED動作指示燈。
- NPN /PNP NO or NC 4-in-1 outputs.
/ 多功能四種輸出模式：NPN NO./NC及PNP NO/NC。
- Protection rating IP67.
/ IP67防水等級。

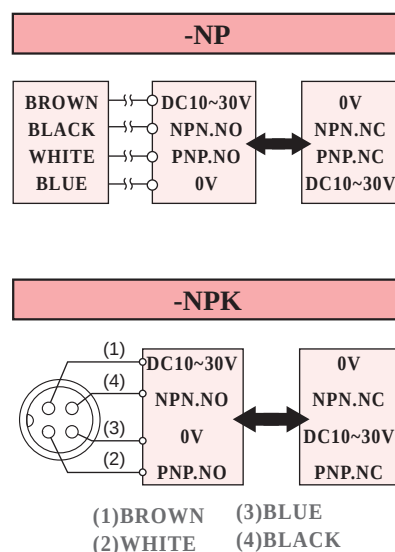
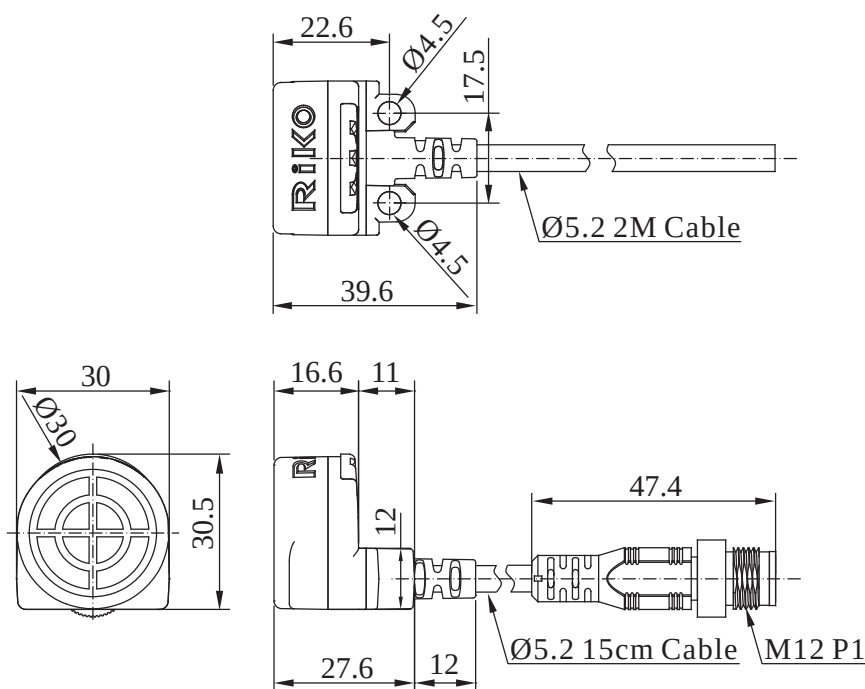


◆ Specifications / 規格表：

Output method /輸出模式	NPN N.O./N.C. PNP N.O./N.C.	PN10-NP	PN15-NP	PN10-NPK	PN15-NPK
Sensing distance / 檢出距離		10 mm	15 mm	10 mm	15 mm
Secure sensing distance / 建議距離		0 to 8 mm	0 to 12 mm	0 to 8 mm	0 to 12 mm
Standard sensing object / 標準檢測物		Iron 30 x 30 x 1mm			
Sensing Surface / 檢測方向		Top surface / 前方			
Hysteresis / 遲滯		≤ 10 % of sensing distance			
Response time / 反應時間		3.3 ms Max.			
Operating voltage / 工作電壓		DC 10 ~ 30V			
Current consumption / 消耗電流		≤ 16 mA no-load			
Load current / 負載電流		100 mA Max. at DC 24V			
Leakage current / 漏電流		≤ 1.1 mA no-load			
Residual voltage / 殘餘電壓		≤ DC 1.5V			
Insulation resistance / 隔離阻抗		20M Ω min. (DC500V)			
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.			
Operating temperature / 工作溫度範圍		-20 °C ~ + 60 °C			
Protection degree / 防水等級		IP 67		IP 67	
Wiring method / 出線方式		Ø5.2x2M / 4-wires		M12 pigtailed type /M12 接頭15cm 電線式	
Option / 選購配件 (Page 251)		Bracket / 固定架：PN10-M001 / PN10-M002			
Weight / 重量		Approx.92g		Approx.40g	

◆ Dimensions / 尺寸圖：(unit:mm)

◆ Wiring diagrams / 接線圖：



◆ Characteristic / 特點：

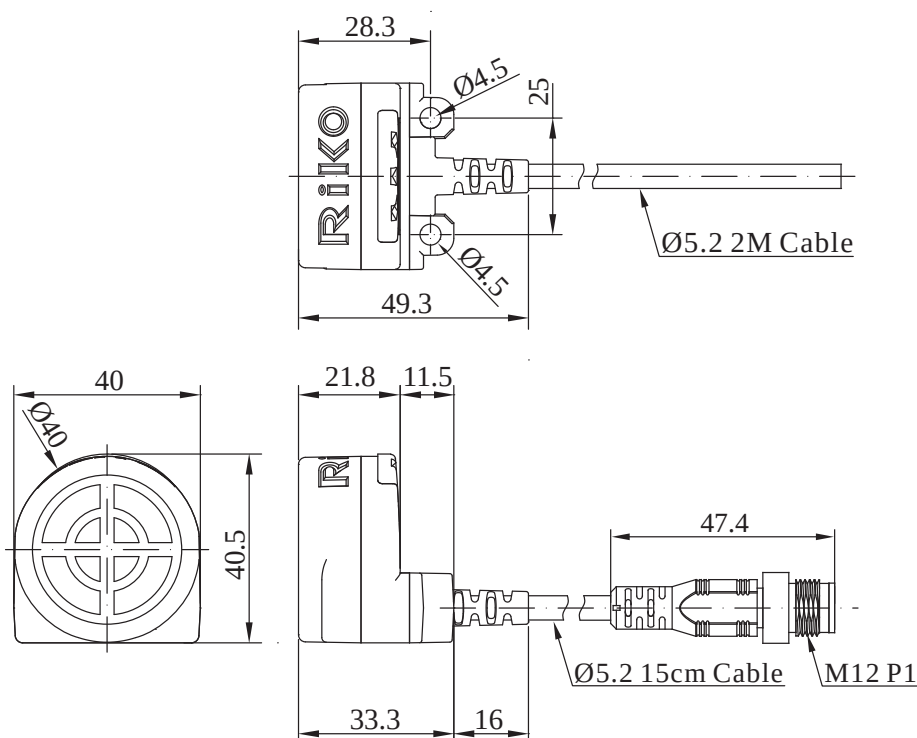
- 1/2 smaller dimension than old models.
/ 尺寸迷你，僅傳統型的1/2體積。
- Dual LED motion indicators.
/ 雙LED動作指示燈。
- NPN /PNP NO or NC 4-in-1 outputs.
/ 多功能四種輸出模式：NPN NO./NC及PNP NO/NC。
- Protection rating IP67.
/ IP67防水等級。



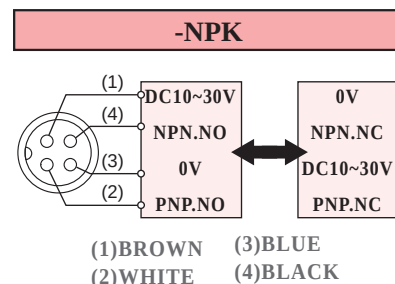
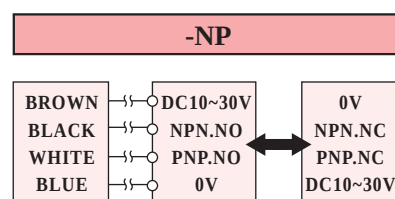
◆ Specifications / 規格表：

Output method /輸出模式	NPN N.O./N.C. PNP N.O./N.C.	PN20-NP	PN25-NP	PN20-NPK	PN25-NPK
Sensing distance / 檢出距離		20 mm	25 mm	20 mm	25 mm
Secure sensing distance / 建議距離		0 to 16 mm	0 to 20 mm	0 to 16 mm	0 to 20 mm
Standard sensing object / 標準檢測物		Iron 40 x 40 x 1mm			
Sensing Surface / 檢測方向		Top surface / 前方			
Hysteresis / 遲滯		≤ 10 % of sensing distance			
Response time / 反應時間		20 ms Max.			
Operating voltage / 工作電壓		DC 10 ~ 30V			
Current consumption / 消耗電流		≤ 16 mA no-load			
Load current / 負載電流		100 mA Max. at DC 24V			
Leakage current / 漏電流		≤ 1.1 mA no-load			
Residual voltage / 殘餘電壓		≤ DC 1.5V			
Insulation resistance / 隔離阻抗		20M Ω min. (DC500V)			
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.			
Operating temperature / 工作溫度範圍		-20 °C ~ + 60°C			
Protection degree / 防水等級		IP 67		IP 67	
Wiring method / 出線方式		Ø5.2x2M / 4-wires		M12 pigtailed type /M12 接頭15cm 電線式	
Option / 選購配件 (Page 251)		Bracket / 固定架：PN20-M001 / PN20-M002			
Weight / 重量		Approx.128g		Approx.80g	

◆ Dimensions / 尺寸圖：(unit:mm)



◆ Wiring diagrams / 接線圖：



◆ Characteristic / 特點：

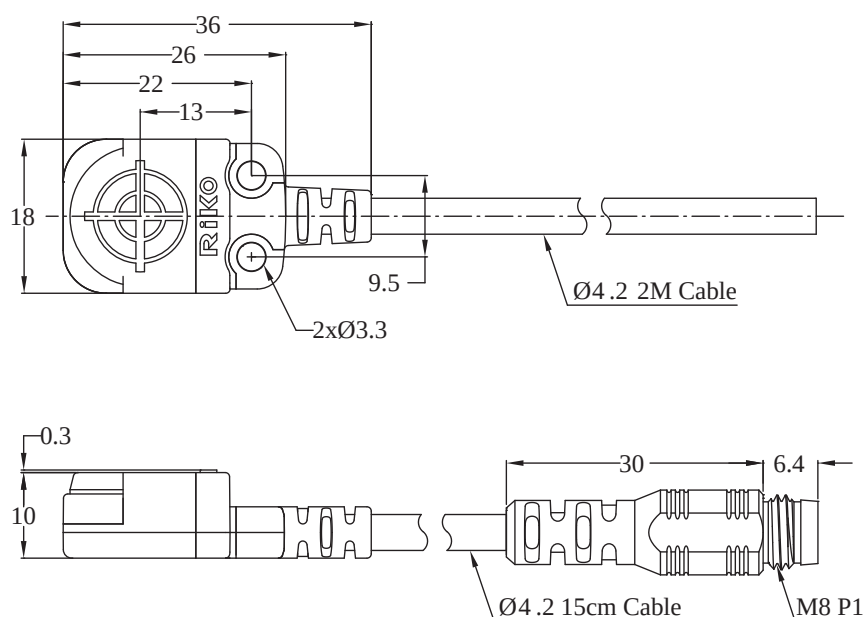
- Anti-bending connection design.
/ 包射設計，耐彎保護。
- Saving space for installation.
/ 體積薄，安裝省空間。
- Bright dual LED indicators.
/ 清晰易見雙LED動作指示燈。
- NPN/PNP N.O. or N.C. 4-in-1 outputs.
/ 同時具備NPN及PNP輸出，並可N.O./N.C.切換。



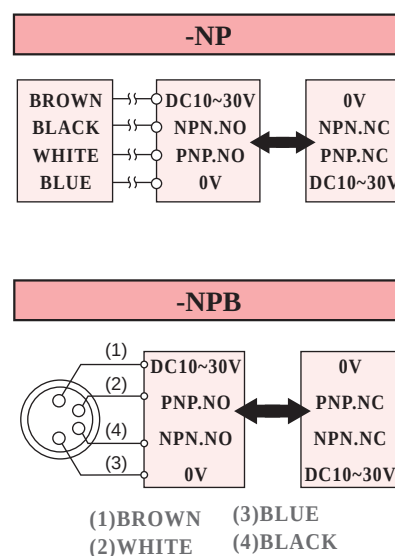
◆ Specifications / 規格表：

Output method / 輸出模式	NPN N.O./N.C. PNP N.O./N.C.	PND04-NP	PND04-NPB
Sensing distance / 檢出距離		4mm	
Secure sensing distance / 建議距離		0 to 3.2 mm	
Standard sensing object / 標準檢測物		Iron 18x18x1mm	
Sensing Surface / 檢測方向		Front surface / 上方	
Hysteresis / 遲滯		≤10% of sensing distance	
Response time / 反應時間		2ms Max.	
Operating voltage / 工作電壓		DC 10 ~ 30V	
Current consumption / 消耗電流		≤14 mA no-load	
Load current / 負載電流		100 mA Max. at DC 24V	
Leakage current / 漏電流		≤1.1 mA no-load	
Residual voltage / 殘餘電壓		≤ DC 1.5V	
Insulation resistance / 隔離阻抗		20M Ω min. (DC500V)	
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.	
Operating temperature / 工作溫度範圍		-20°C ~ +60°C	
Protection degree / 防水等級		IP67	
Wiring method / 出線方式		Ø4.2x2M / 4-wires	M8 pigtailed type /M8 接頭15cm 電線式
Weight / 重量		Approx.55g	Approx.15g

◆ Dimensions / 尺寸圖：(unit:mm)



◆ Wiring diagrams / 接線圖：



◆ Characteristic / 特點：

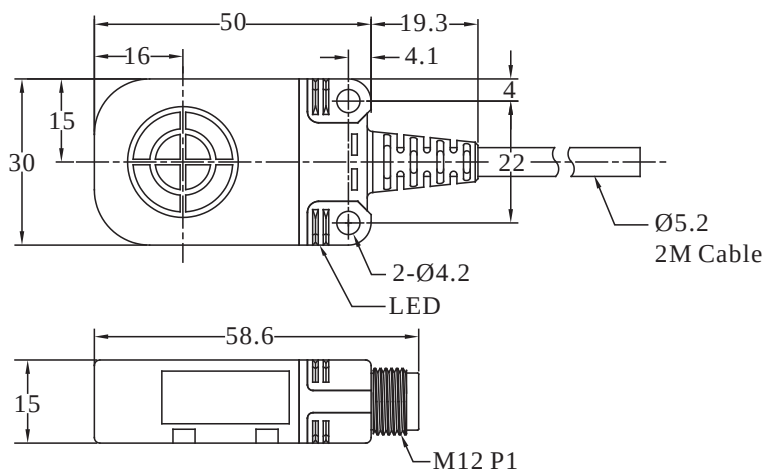
- Dual LED motion indicators.
/ 雙LED動作指示燈。
- Flat, front-side sensing, saving space.
/ 扁型，上方感應，省空間。
- Sensing distance up to 16mm.
/ 長距離感應16mm。
- Anti-bending connection design.
/ 包射設計，耐彎保護。



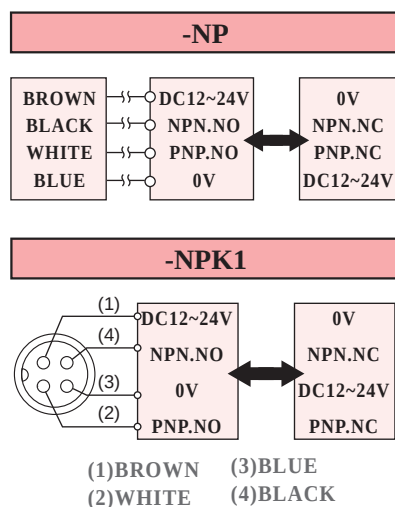
◆ Specifications / 規格表：

Output method 輸出模式	NPN N.O.	PND16-N	PND16-NK1
	PNP N.O.	PND16-P	PND16-PK1
	NPN N.O./N.C.	PND16-NP	PND16-NPK1
	PNP N.O./N.C.		
Sensing distance / 檢出距離	16 mm		
Secure sensing distance / 建議距離	0 to 12.8mm		
Standard sensing object / 標準檢測物	Iron 30x30x1mm		
Sensing Surface / 檢測方向	Front surface / 上方		
Hysteresis / 遲滯	≤ 10% of sensing distance		
Response time / 反應時間	3 ms Max.		
Operating voltage / 工作電壓	DC 12 ~ 24V		
Current consumption / 消耗電流	≤ 14 mA no-load		
Load current / 負載電流	100 mA Max. at DC 30V		
Leakage current / 漏電流	≤ 1.1 mA no-load		
Residual voltage / 殘餘電壓	≤ DC 2V		
Insulation resistance / 隔離阻抗	20M Ω min. (DC500V)		
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.		
Operating temperature / 工作溫度範圍	-20°C ~ +60°C		
Protection degree / 防水等級	IP66		
Wiring method / 出線方式	N/P : Ø5.2 x 2M / 3wires NP : Ø5.2 x 2M / 4wires		M12 connector / M12 接頭
Weight / 重量	Approx.106g		Approx.36g

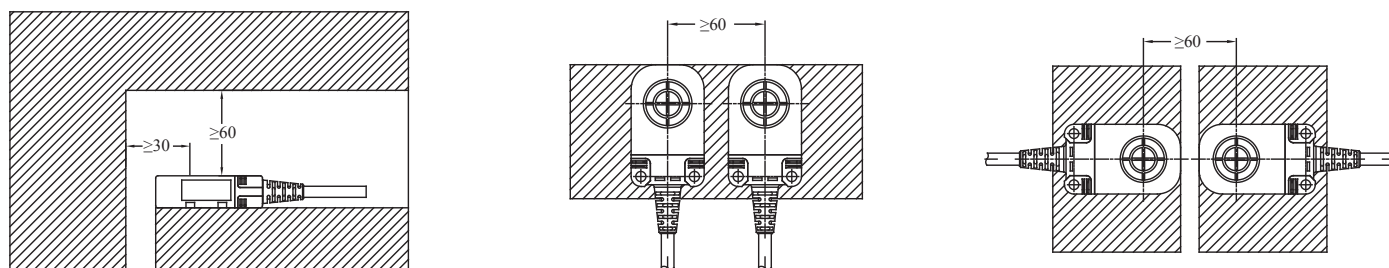
◆ Dimensions / 尺寸圖：(unit:mm)



◆ Wiring diagrams / 接線圖：



◆ PND16與周圍金屬的安全距離 (單位：mm)：



◆ Characteristic / 特點：

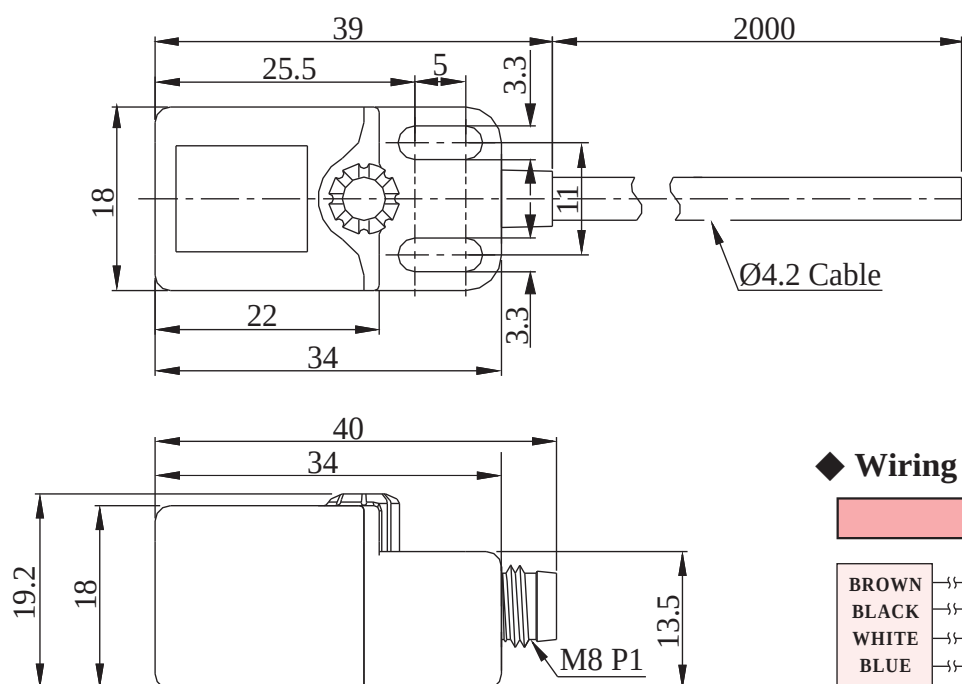
- The IP67 rating is designed to the effective waterproof.
/ 保護結構達到IP67的規格，能有效的防水。
- Build-in twin LED, convenient for checking the operation.
/ 具有雙LED，檢測操作更方便。
- Plug-in connector type is available, easy to connect, anyone can replace the new sensor in a minute.
/ 插入式接線，安裝更換很容易。
- Oval hole for easy installation and adjustment.
/ 具有長形孔，可容易微調安裝。



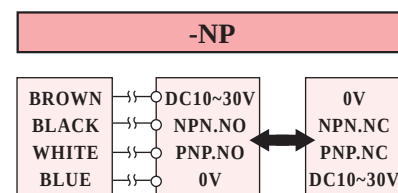
◆ Specifications / 規格表：

Output method 輸出模式	NPN N.O.	RN04-N	RN04-ND1
	PNP N.O.	RN04-P	RN04-PD1
	NPN N.O./N.C.	RN04-NP	—
	PNP N.O./N.C.		
Sensing distance / 檢出距離	5mm		
Secure sensing distance / 建議距離	0to4mm		
Standard sensing object / 標準檢測物	Iron 18x18x1mm		
Sensing Surface / 檢測方向	Top surface / 前方		
Hysteresis / 遲滯	≤10% of sensing distance		
Response time / 反應時間	2ms Max.		
Operating voltage / 工作電壓	DC 10 ~ 30V		
Current consumption / 消耗電流	≤8 mA no-load		
Load current / 負載電流	100 mA Max. at DC 30V		
Leakage current / 漏電流	≤1.1 mA no-load		
Residual voltage / 殘餘電壓	≤ DC 1.5V		
Insulation resistance / 隔離阻抗	20M Ω min. (DC500V)		
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.		
Operating temperature / 工作溫度範圍	-20°C ~ +60°C		
Protection degree / 防水等級	IP64 / IP67 (Option)		
Wiring method / 出線方式	N/P : Ø4.2 x 2M / 3wires NP : Ø4.2 x 2M / 4wires		M8 connector / M8 接頭
Weight / 重量	Approx.60g		Approx.12g

◆ Dimensions / 尺寸圖：(unit:mm)



◆ Wiring diagrams / 接線圖：



◆ Characteristic / 特點：

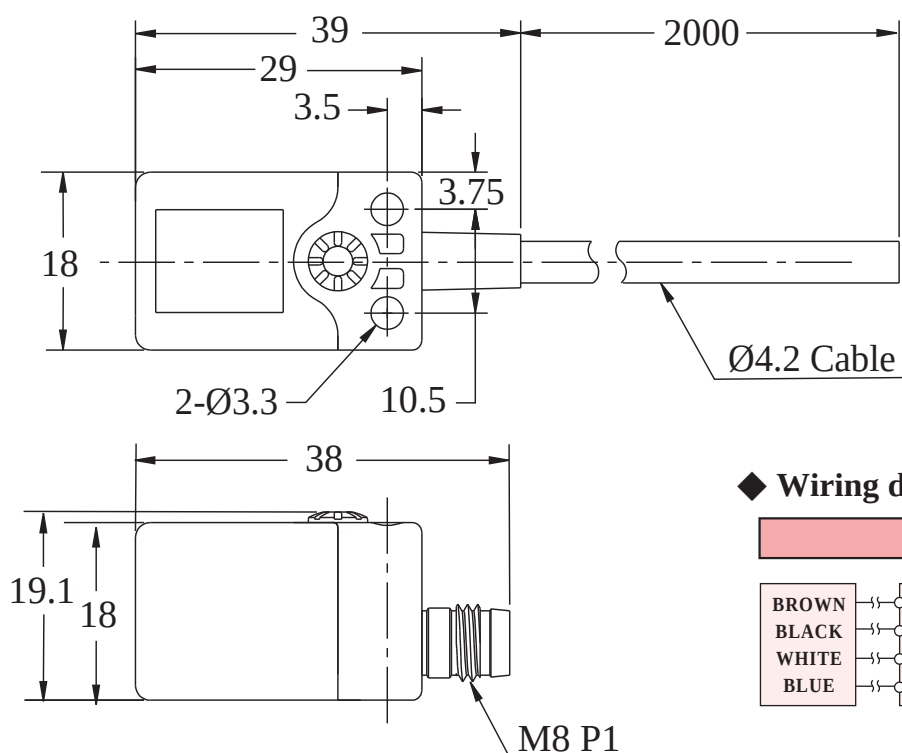
- Build-in twin LED, convenient for checking the operation.
/ 具有雙LED，檢測操作更方便。
- Plug-in connector type is available, easy to connect, anyone can replace the new sensor in a minute.
/ 插入式接線，安裝更換很容易。



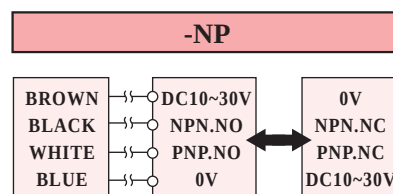
◆ Specifications / 規格表：

Output method 輸出模式	NPN N.O.	RN05-N	RN05-ND1
	PNP N.O.	RN05-P	RN05-PD1
	NPN N.O./N.C. PNP N.O./N.C.	RN05-NP	—
Sensing distance / 檢出距離		5mm	
Secure sensing distance / 建議距離		0to4mm	
Standard sensing object / 標準檢測物		Iron 18x18x1mm	
Sensing Surface / 檢測方向		Top surface / 前方	
Hysteresis / 遲滯		≤ 10% of sensing distance	
Response time / 反應時間		2ms Max	
Operating voltage / 工作電壓		DC 10 ~ 30V	
Current consumption / 消耗電流		≤ 8 mA no-load	
Load current / 負載電流		100 mA Max at DC 30V	
Leakage current / 漏電流		≤ 1.1 mA no-load	
Residual voltage / 殘餘電壓		≤ DC 1.5V	
Insulation resistance / 隔離阻抗		20M Ω min. (DC500V)	
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.	
Operating temperature / 工作溫度範圍		-20℃ ~ +60℃	
Protection degree / 防水等級		IP64	
Wiring method / 出線方式		N/P : Ø4.2 x 2M / 3wires NP : Ø4.2 x 2M / 4wires	M8 connector / M8 接頭
Weight / 重量		Approx.60g	Approx.12g

◆ Dimensions / 尺寸圖：(unit:mm)



◆ Wiring diagrams / 接線圖：



◆ Characteristic / 特點：

- Flat, front sensing, saving space.
/ 扁型，上方感應，不占空間。
- NP model：NPN+PNP NO/NC 4-in-1 outputs.
/ 新型NP電路：NPN/PNP NO/NC All in one.



◆ Specifications / 規格表：

Output method / 輸出模式	NPN N.O.	SND04-N	SND04-ND	—	—
	PNP N.O.	SND04-P	SND04-PD	—	—
	NPN N.O./N.C. PNP N.O./N.C.	SND04-NP	SND04-NPB	—	—
	SCR N.O.	—	—	SN04-A	SN04-AD
	SCR N.C.	—	—	SN04-A2	SN04-A2D
Sensing distance / 檢出距離	4 mm		4 mm		
Secure sensing distance / 建議距離	0 to 3.2 mm		0 to 3.2 mm		
Standard sensing object / 標準檢測物	Iron 18 x 18 x 1mm		Iron 18 x 18 x 1mm		
Sensing Surface / 檢測方向	Front surface / 上方		Top surface / 前方		
Hysteresis / 遲滯	≤ 10 % of sensing distance		≤ 10 % of sensing distance		
Response time / 反應時間	2 ms Max.		50 ms Max.		
Operating voltage / 工作電壓	DC 10 ~ 30V		AC 90 ~ 260V		
Current consumption / 消耗電流	≤ 8 mA no-load		2mA Max.		
Load current / 負載電流	100 mA Max. at DC 30V		5~100 mA Max.		
Leakage current / 漏電流	≤ 1.1 mA no-load		≤ 2.0 mA no-load		
Residual voltage / 殘餘電壓	≤ DC 1.5V		≤ AC 4V		
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)		20MΩ min. (DC500V)		
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.		AC1000V 60Hz for 60 Sec.		
Operating temperature / 工作溫度範圍	-20℃ ~ + 60℃		-20℃ ~ + 60℃		
Protection degree / 防水等級	IP 66		IP 66	IP 66	IP 66
Wiring method / 出線方式	Pre-wired Ø4.2 x 2M/3-wires (NP:Ø4.2 x 2M/4 wires)		M8 pigtailed type /M8 接頭15cm 電線式	Pre-wire Ø4.2 x 2M/2-wires	M8 pigtailed type /M8 接頭15cm 電線式
Weight / 重量	Approx.60g		Approx.18g	Approx.56g	Approx.15g
◆ Dimensions / 尺寸圖： (unit:mm)					
◆ Wiring diagrams / 接線圖：					

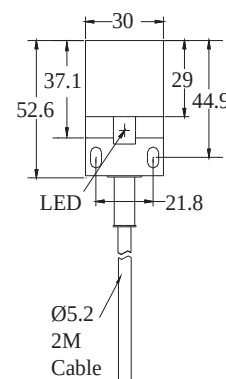
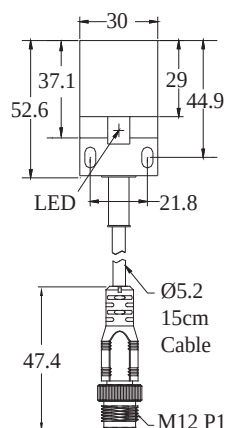
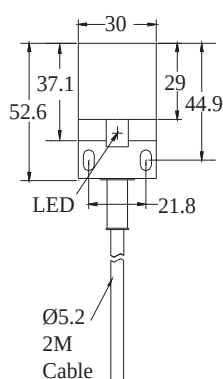
◆ Characteristic / 特點：

- Sensing distance up to 10mm.
/ 檢測距離10mm，檢出更穩定。
- Large LED indicator, clearly checking working operation.
/ 大面積動作燈，可清晰了解感測器的動作。
- Applications for limit positioning, counting control.
/ 最適合用於極限定位、計數控制。

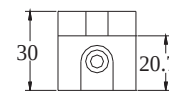
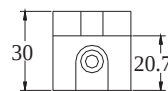
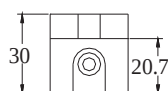
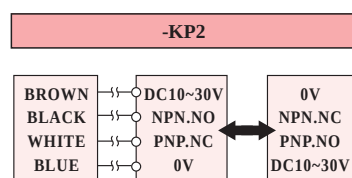


◆ Specifications / 規格表：

Output method / 輸出模式	NPN N.O.	SN10-N	SN10-NK	—
	PNP N.O.	SN10-P	SN10-PK	—
	NPN N.O./N.C. PNP N.C./N.O.	SN10-KP2	—	—
	SCR N.O.	—	—	SN10-A
	SCR N.C.	—	—	SN10-A2
Sensing distance / 檢出距離		10 mm		10 mm
Secure sensing distance / 建議距離		0 to 8 mm		0 to 8 mm
Standard sensing object / 標準檢測物		Iron 30 x 30 x 1mm		Iron 30 x 30 x 1mm
Sensing Surface / 檢測方向		Top surface / 前方		Top surface / 前方
Hysteresis / 遲滯		≤ 10 % of sensing distance		≤ 10 % of sensing distance
Response time / 反應時間		3.3 ms Max.		50 ms Max.
Operating voltage / 工作電壓		DC 10 ~ 30V		AC 90 ~ 260V
Current consumption / 消耗電流		≤ 8 mA no-load		2 mA Max.
Load current / 負載電流		100 mA Max. at DC 30V		5 ~ 300 mA Max.
Leakage current / 漏電流		≤ 1.1 mA no-load		≤ 2.0 mA no-load
Residual voltage / 殘餘電壓		≤ DC 1.5V		≤ AC 4V
Insulation resistance / 隔離阻抗		20M Ω min. (DC500V)		20M Ω min. (DC500V)
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.		AC1000V 60Hz for 60 Sec.
Operating temperature / 工作溫度範圍		-20 °C ~ + 60 °C		-20 °C ~ + 60 °C
Protection degree / 防水等級		IP 66	IP 66	IP 66
Wiring method / 出線方式		Pre-wired Ø5.2 x 2M/3-wires (KP2:Ø5.2 x 2M/4 wires)	M12 pigtailed type /M12 接頭15cm 電線式	Pre-wire Ø5.2 x 2M/2-wires
Weight / 重量		Approx.125g	Approx.70g	Approx.125g

◆ Dimensions / 尺寸圖：
(unit:mm)

◆ Wiring diagrams / 接線圖：



◆ Characteristic / 特點：

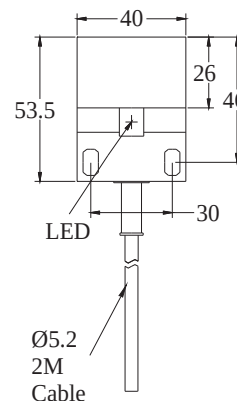
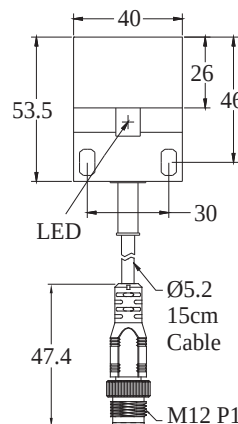
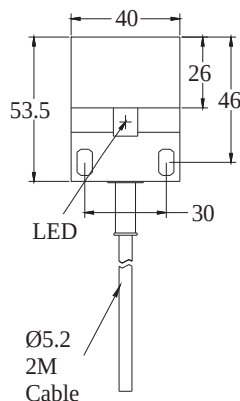
- Sensing distance up to 20mm.
/ 檢測距離20mm，檢出更穩定。
- Large LED indicator, clearly checking working operation.
/ 大面積動作燈，可清晰了解感測器的動作。
- Applications for limit positioning, counting control.
/ 最適合用於極限定位、計數控制。



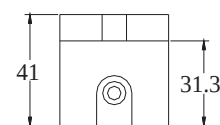
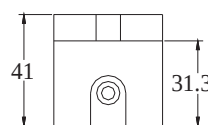
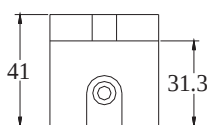
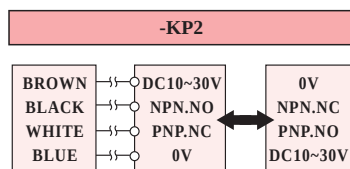
◆ Specifications / 規格表：

Output method / 輸出模式	NPN N.O.	SN20-N	SN20-NK	—
	PNP N.O.	SN20-P	SN20-PK	—
	NPN N.O./N.C. PNP N.C./N.O.	SN20-KP2	—	—
	SCR N.O.	—	—	SN20-A
	SCR N.C.	—	—	SN20-A2
Sensing distance / 檢出距離	20 mm		20 mm	
Secure sensing distance / 建議距離	0 to 16 mm		0 to 16 mm	
Standard sensing object / 標準檢測物	Iron 40 x 40 x 1mm		Iron 40 x 40 x 1mm	
Sensing Surface / 檢測方向	Top surface / 前方		Top surface / 前方	
Hysteresis / 遲滯	≤ 10 % of sensing distance		≤ 10 % of sensing distance	
Response time / 反應時間	20 ms Max.		50 ms Max.	
Operating voltage / 工作電壓	DC 10 ~ 30V		AC 90 ~ 260V	
Current consumption / 消耗電流	≤ 8 mA no-load		2 mA Max.	
Load current / 負載電流	100 mA Max. at DC 30V		5 ~ 300 mA Max.	
Leakage current / 漏電流	≤ 1.1 mA no-load		≤ 2.0 mA no-load	
Residual voltage / 殘餘電壓	≤ DC 1.5V		≤ AC 4V	
Insulation resistance / 隔離阻抗	20M Ω min. (DC500V)		20M Ω min. (DC500V)	
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.		AC1000V 60Hz for 60 Sec.	
Operating temperature / 工作溫度範圍	-20 °C ~ + 60°C		-20 °C ~ + 60°C	
Protection degree / 防水等級	IP 67		IP 67	
Wiring method / 出線方式	Pre-wired Ø5.2 x 2M/3-wires (KP2:Ø5.2 x 2M/4 wires)		M12 pigtailed type /M12 接頭15cm 電線式	Pre-wire Ø5.2 x 2M/2-wires
Weight / 重量	Approx.170g		Approx.118g	Approx.170g

◆ Dimensions / 尺寸圖： (unit:mm)



◆ Wiring diagrams / 接線圖：



◆ Characteristic / 特點：

- Around Two times longer sensing distance than conventional models.
/ 檢測距離接近原有機型的兩倍。
- Short Circuit Protection / Reverse Polarity Protection .
/ 短路保護/極性保護裝置。
- Waterproof / 防水。



◆ Specifications / 規格表：

Output method 輸出模式	NPN N.O.	TSN18-N	TSN18-NK
	PNP N.O.	TSN18-P	TSN18-PK
	NPN N.O./N.C. PNP N.O./N.C.	TSN18-NP	TSN18-NPK
	SCR N.O.	—	—
	SCR N.C.	—	—
Sensing distance / 檢出距離		18 mm	
Secure sensing distance / 建議距離		0 to 14.4 mm	
Standard sensing object / 標準檢測物		Iron 30 x 30 x 1mm	
Sensing Surface / 檢測方向		Top surface / 前方	
Hysteresis / 遲滯		≤ 15 % of sensing distance	
Response time / 反應時間		5ms Max.	
Operating voltage / 工作電壓		DC 12 ~ 24V	
Current consumption / 消耗電流		≤ 8 mA no-load	
Load current / 負載電流		100 mA Max. at DC 24V	
Leakage current / 漏電流		≤ 1.1 mA no-load	
Residual voltage / 殘餘電壓		≤ DC 1.5V	
Insulation resistance / 隔離阻抗		20MΩ min. (DC500V)	
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.	
Operating temperature / 工作溫度範圍		-5 °C ~ + 50 °C	
Protection degree / 防水等級		IP 66	IP 66
Wiring method / 出線方式		N/P : Pre-wired Ø5.2 x 2M/3-wires NP : Pre-wired Ø5.2 x 2M/4-wires	M12 pigtailed type / M12 接頭15cm 電線式
Weight / 重量		Approx.125g	Approx.70g

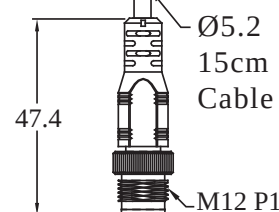
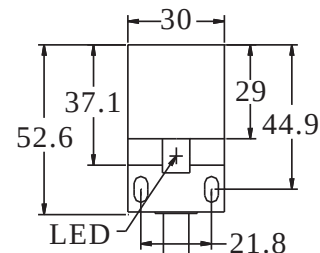
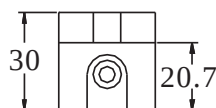
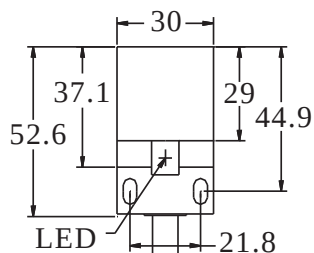
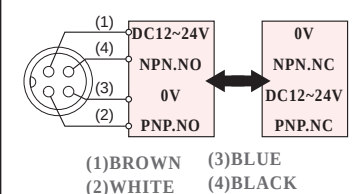
◆ Dimensions / 尺寸圖： (unit:mm)

◆ Wiring diagrams / 接線圖：

-NP



-NPK

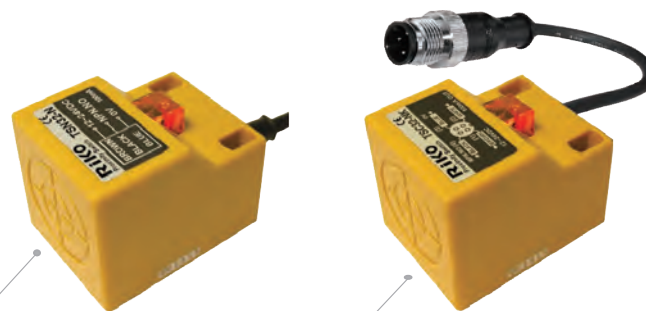


Long Sensing Range Rectangular Inductive Proximity Sensor

TSN

◆ Characteristic / 特點：

- Around Two times longer sensing distance than conventional models.
/ 檢測距離接近原有機型的兩倍。
- Short Circuit Protection / Reverse Polarity Protection .
/ 短路保護/極性保護裝置。
- Waterproof / 防水。



◆ Specifications / 規格表：

Output method 輸出模式	NPN N.O.	TSN28-N	TSN28-NK
	PNP N.O.	TSN28-P	TSN28-PK
	NPN N.O./N.C. PNP N.O./N.C.	TSN28-NP	TSN28-NPK
	SCR N.O.	—	—
	SCR N.C.	—	—
Sensing distance / 檢出距離	28 mm		
Secure sensing distance / 建議距離	0 to 22.4 mm		
Standard sensing object / 標準檢測物	Iron 40 x 40 x 1mm		
Sensing Surface / 檢測方向	Top surface / 前方		
Hysteresis / 遲滯	≤ 15 % of sensing distance		
Response time / 反應時間	10ms Max.		
Operating voltage / 工作電壓	DC 12 ~ 24V		
Current consumption / 消耗電流	≤ 8 mA no-load		
Load current / 負載電流	100 mA Max. at DC 24V		
Leakage current / 漏電流	≤ 1.1 mA no-load		
Residual voltage / 殘餘電壓	≤ DC 1.5V		
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)		
Voltage withstandability / 絕緣耐壓	AC1000V 60Hz for 60 Sec.		
Operating temperature / 工作溫度範圍	-5 °C ~ + 50°C		
Protection degree / 防水等級	IP 66		IP 66
Wiring method / 出線方式	N/P : Pre-wired Ø5.2 x 2M/3-wires NP : Pre-wired Ø5.2 x 2M/4-wires		M12 pigtailed type / M12 接頭15cm 電線式
Weight / 重量	Approx.170g		Approx.118g

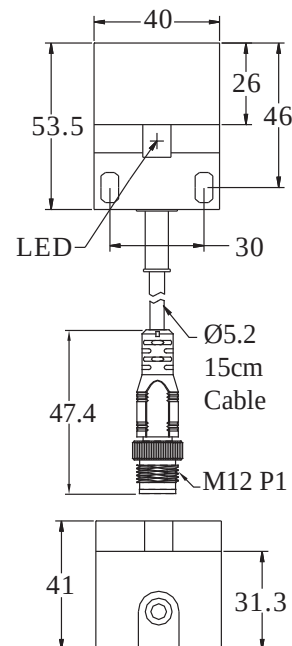
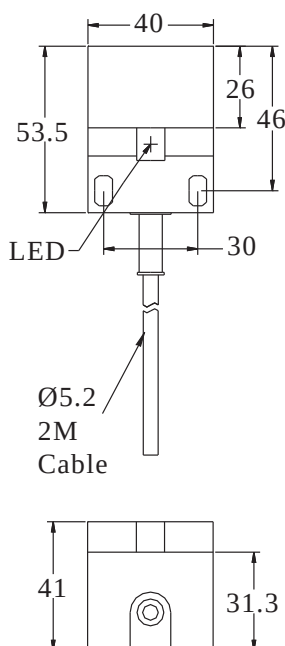
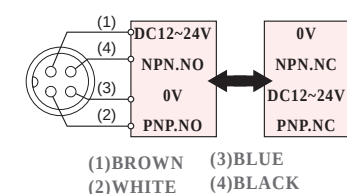
◆ Dimensions / 尺寸圖： (unit:mm)

◆ Wiring diagrams / 接線圖：

-NP



-NPK



Inductive / Capacitive Proximity Sensor

PSD18-LA/LV
PSC18-LA/LV
SC18-LA/LV

HPD
HPS

Ø4
M5
Ø6
M8
M12
M18
M30

JN
JND
KND
PN
PND
RN
SN
TSN

SID
SIR
SIA

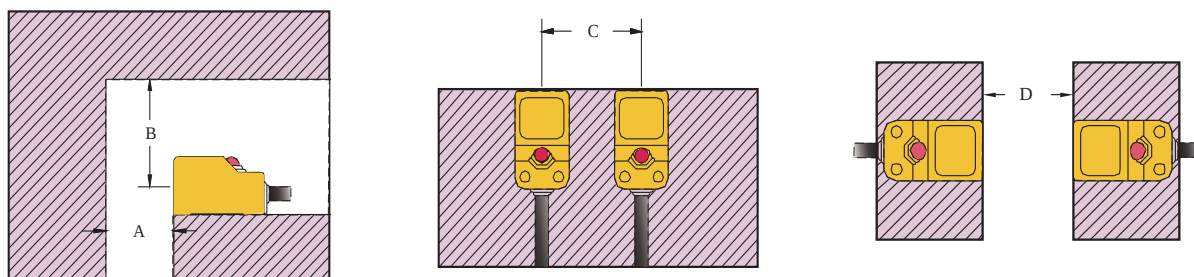
PKC
KC
KCM
KCP

◆ Precautions proper installation / 安裝注意事項：

Influenced by surrounding metals. / 周圍金屬影響

The surrounding metals will influence the sensing performance. Please keep the minimum sensing distance according to the table below.

• SN/TSN系列

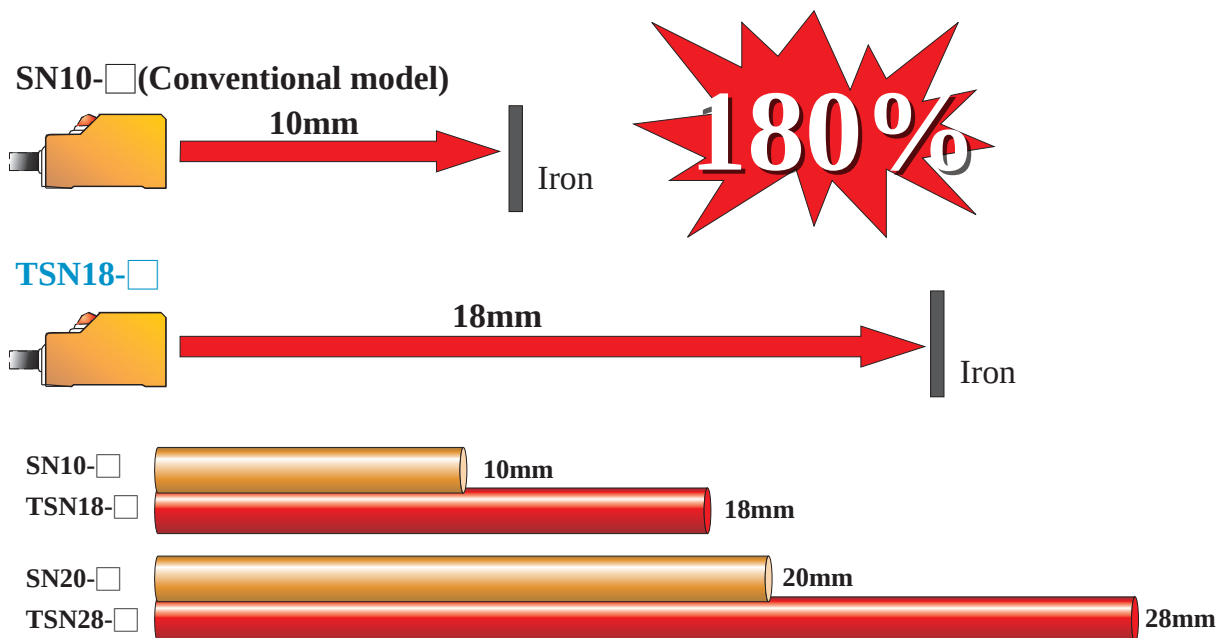


Model	A (mm)	B (mm)	C (mm)	D (mm)
SND04	≥ 15	≥ 20	≥ 30	≥ 30
RN04	≥ 15	≥ 20	≥ 30	≥ 30
RN05	≥ 20	≥ 25	≥ 40	≥ 40
SN10	≥ 40	≥ 30	≥ 60	≥ 60
SN20	≥ 80	≥ 45	≥ 80	≥ 80
TSN18	≥ 72	≥ 54	≥ 180	≥ 180
TSN28	≥ 112	≥ 63	≥ 280	≥ 280

◆ Around Two times longer sensing distance than conventional models.

檢測距離接近原有機型的兩倍

TSN series features 180% longer sensing distance than conventional models. It makes the detection more stable.
TSN系列比原有的機型檢測距提升了180%，使檢測更加可靠。



◆ Short Circuit Protection / Reverse Polarity Protection

短路保護/極性保護裝置

The TSN series will activate the short circuit protection/reverse polarity protection to reduce the damage caused by the wrong operation. / 當使用者誤接輸出線或極性相反時，將會啟動短路保護/極性保護，以降低因誤接而所造成的損害。

◆ Waterproof / 防水

IP66 protection. The sensor can be installed outdoors. It can prevent damage caused by immersion or dip in water under regular standard. / 防水等級為IP66，可裝置在室外，在一定標準下能確保不因浸水而造成損壞。

◆ Characteristic / 特點：

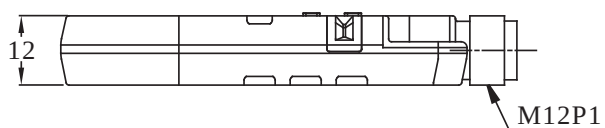
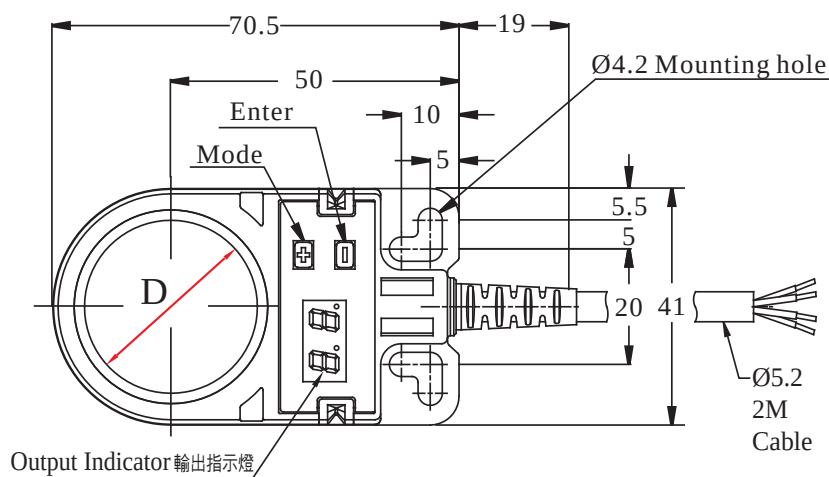
- Suitable for the detection of tiny metal passing.
/ 適合檢測通過的微小金屬。
- The plug in connector type connector makes easy disconnection.
/ 有端子式，讓您能夠迅速的更換。
- Digital sensitivity adjustment.
/ 數字顯示，感測強度，可依據感測物大小而調整。
- Setting by +/- button. / 感度可用(+)(-)鍵設定。
- Clear LED indicator. / 側發光動作LED清晰可見。



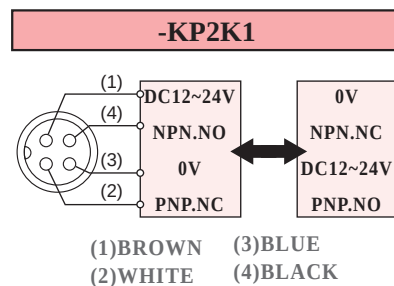
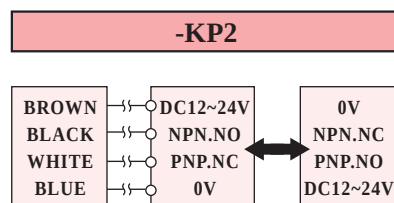
◆ Specifications / 規格表：

Model / 型號	Pre-wired Ø5.2	SID05-KP2	SID10-KP2	SID15-KP2	SID22-KP2	SID30-KP2
	M12 Connector type	SID05-KP2K1	SID10-KP2K1	SID15-KP2K1	SID22-KP2K1	SID30-KP2K1
Sensing hole diameter / 檢測孔直徑		D=5mm	D=10mm	D=15mm	D=22mm	D=30mm
Min. detecting object / 最小檢測物		1mm min.	2mm min.	2mm min.	3mm min.	5mm min.
Operating voltage / 工作電壓		DC 12 ~ 24V				
Current consumption / 消耗電流		30 mA				
Load current / 負載電流		100 mA Max. at DC 24V				
Output method / 輸出模式		NPN N.O./N.C. PNP N.C./N.O.				
Operating temperature / 工作溫度範圍		-20°C ~ +60°C				
Protection degree / 防水等級		IP 64				
Wiring method / 出線方式	SID-□KP2	Ø5.2 x 2M / 4-wires				
	SID-□KP2K1	M12 plug in connector type/ M12接頭				
Weight / 重量	SID-□KP2	Approx.100g	Approx.100g	Approx.100g	Approx.96g	Approx.92g
	SID-□KP2K1	Approx.32g	Approx.32g	Approx.32g	Approx.31g	Approx.28g

◆ Dimensions / 尺寸圖：(unit:mm)



◆ Wiring diagrams / 接線圖：



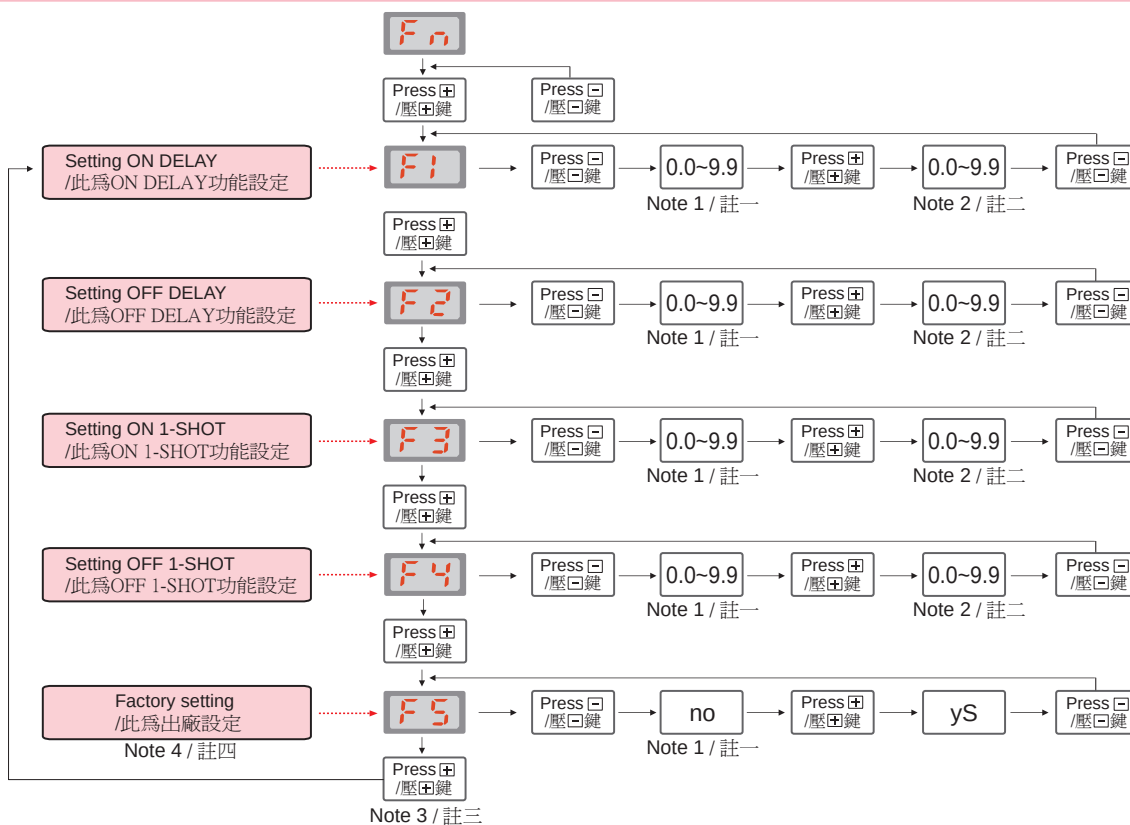
◆ Manual / 使用說明:

• How to adjust sensitivity / 檢測靈敏度之調整方法:

1. Press $\boxed{+}$ button one time as increasing sensitivity (value column as hundred and ten) keep pressing 2 seconds value will be increased to ON and then value stopped.
/ $\boxed{+}$ 鍵每按壓一次，靈敏度個位數加1(目前只顯示十位及百位數)。若壓住不放達2秒以上，顯示器會自動將數值加1，直到SENSOR "ON" 為止，且顯示器將停於 "ON" 之值。
2. Press $\boxed{-}$ button one time as decreasing sensitivity (value column as hundred and ten) keep pressing 2 seconds value will be added to and then value stopped at $\boxed{88}$.
/ $\boxed{-}$ 鍵每按壓一次，靈敏度個位數減1(目前只顯示十位及百位數)。若壓住不放達2秒以上，顯示器會自動將數值減1，且會檢測是否SENSOR "OFF"，若持續不放，則顯示器會停於 $\boxed{88}$ ，不再變化。
3. Value range from $\boxed{88}$ to Max.
/顯示器的顯示值範圍為 $\boxed{88} \sim \text{Max.}$ 。
4. When sensor is ON, press $\boxed{+}$ is no function, press $\boxed{-}$ will work.
/在 "ON" 住的情況下作調整， $\boxed{+}$ 鍵會失效，而 $\boxed{-}$ 鍵可正常使用。

• How to set up the function / 進入功能設定之方法:

1. Keep pressing $\boxed{+}$ and $\boxed{-}$ for 2 seconds. $\longrightarrow$ $\boxed{Fn}$
/ $\boxed{+}$ & $\boxed{-}$ 鍵同時按壓達約2秒鐘以上，顯示器自動顯示 $\boxed{Fn}$ ，表示已進入功能設定並等待放開按鍵。
2. $\boxed{Fn}$ setting mode: $\boxed{+}$ = selection, $\boxed{-}$ = confirm.
/ $\boxed{+}$ 鍵為選擇鍵， $\boxed{-}$ 鍵為確認鍵。



Note 1: Previous setting value or RESET.

/註一：顯示上一次設定值或歸零(上一次非選擇此功能時)。

Note 2: From 0.0 to 9.9 cycling change, press one time and value add 0.1.

/註二：隨著按壓時間長短，將數字往上增加直到9.9後，再回頭由0.0開始遞增顯示，直到放開 $\boxed{+}$ 鍵。若單鍵按壓，則每次加0.1顯示。

Note 3: Setting mode $\longrightarrow$ Press $\boxed{+}$ one time = Change from F1 to F5

Press $\boxed{+}$ and $\boxed{-}$ 2 seconds $\longrightarrow$ Exit setting

No pressing button in 5 seconds $\longrightarrow$ Exit setting

Setted function will work after exit. If it is no change, sensor will work by previous setting.

/註三：在功能設定模式下，若只按壓一次 $\boxed{+}$ 即放開，則顯示器僅作畫面更換。若同時兩鍵按壓不放，達2秒以上，則跳出功能設定模式，顯示靈敏度設定值。或無任何按鍵被壓下達5秒以上，亦跳出功能設定模式，此時若有做任何之設定，程式會做記錄並變更執行；若未做任何變更，程式亦不變動。

Note 4: Factory setting $\longrightarrow$ Not delay / One shot setting. Sensitivity vlaue = $\boxed{88}$.

/註四：出廠設定值為 $\longrightarrow$ 無任何DELAY，且靈敏度預設值為 $\boxed{88}$ 。

◆ Characteristic / 特點：

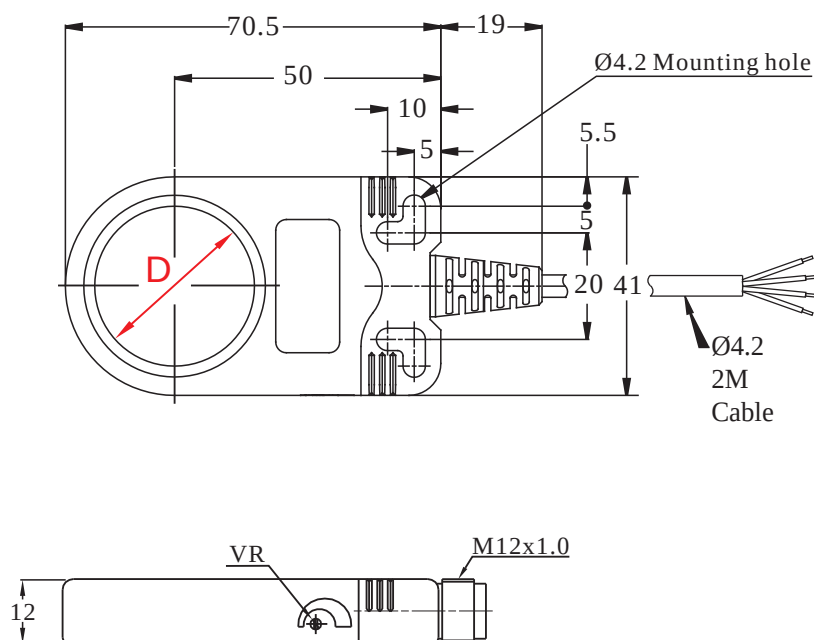
- Suitable for the detection of tiny metal passing.
/ 適合檢測通過的微小金屬。
- The pigtailed type connector makes its replacement easy.
/ 有端子式，讓您能夠迅速的更換。
- 12-turn Sensitivity Adjuster. Users can adjust the sensitivity more optimum according to different objects.
/ 可調式旋鈕(12轉)，可依據感測物的大小而有所調整。
- Dual LED makes you easy to know the current operating situation.
/ 後端雙LED顯示，能夠讓您在使用的時候容易判斷輸出的狀況。



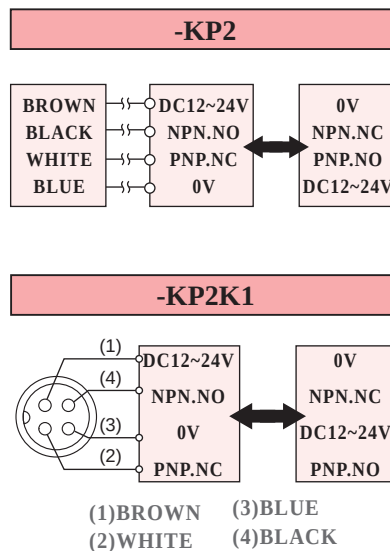
◆ Specifications / 規格表：

Model / 型號	Pre-wired Ø4.2	SIR15-KP2	SIR22-KP2	SIR30-KP2
	M12 Connector type	SIR15-KP2K1	SIR22-KP2K1	SIR30-KP2K1
Sensing hole diameter / 檢測孔直徑		D=15mm	D=22mm	D=30mm
Min. detecting object / 最小檢測物		2mm min.	3mm min.	3mm min.
Operating voltage / 工作電壓		DC 12 ~ 24V		
Current consumption / 消耗電流		15 mA		
Load current / 負載電流		100 mA Max. at DC 24V		
Output method / 輸出模式		NPN N.O./N.C. PNP N.C./N.O.		
Operating temperature / 工作溫度範圍		-20°C ~ +60°C		
Protection degree / 防水等級		IP 66		
Wiring method / 出線方式	SIR-□KP2	Ø4.2 x 2M / 4-wires		
	SIR-□KP2K1	M12 plug-in connector type/ M12接頭式		
Weight / 重量	SIR-□KP2	Approx.86g	Approx.85g	Approx.81g
	SIR-□KP2K1	Approx.30g	Approx.29g	Approx.25g

◆ Dimensions / 尺寸圖：(unit:mm)



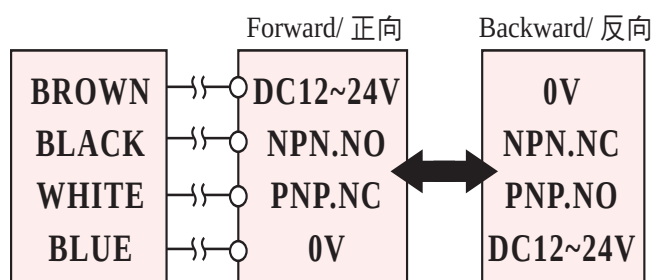
◆ Wiring diagrams / 接線圖：



◆ Introduction / 介紹：

• Output method of KP2 series. / KP2的輸出

SIR□-KP2 includes PNP and NPN two output types. Not only available used on PNP type and NPN type, but also NO/NC switching available. / SIR□-KP2含有PNP與NPN兩種輸出狀態，並且能夠NO/NC切換。



• High brightness dual LED. / 高亮度雙LED燈

The transparent design of rear cover and high brightness dual LED makes you easy to know the current operating situation. / SIR尾蓋為透明狀，並使用高亮度雙LED顯示，能夠讓您在使用的時候容易判斷機體的感應狀況。

Non detecting.



Detecting.



High brightness dual LED.

• Sensitivity Adjuster / 可調式旋鈕

12-turn Sensitivity Adjuster. Users can adjust the sensitivity more optimum according to different objects. / 可調式旋鈕(12轉)，可依據感測物的大小而有所調整。



VR 12-turn Adjuster

• Pre-wired type / Plug-in connector type. 出線式 / 端子式

Pre-wired type or plug-in connector type available. / 有出線式與端子式兩種選擇。

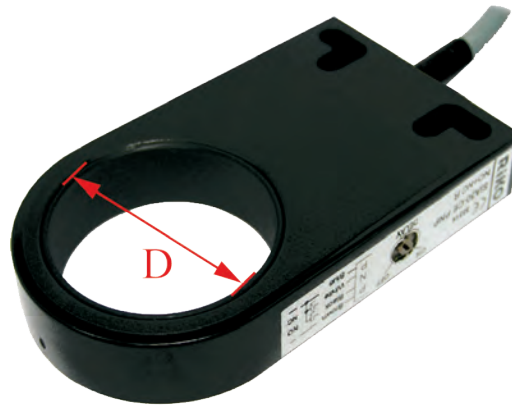
Pre-wired type / 出線式



Plug-in connector / 端子式



◆ Shape / 外觀 :

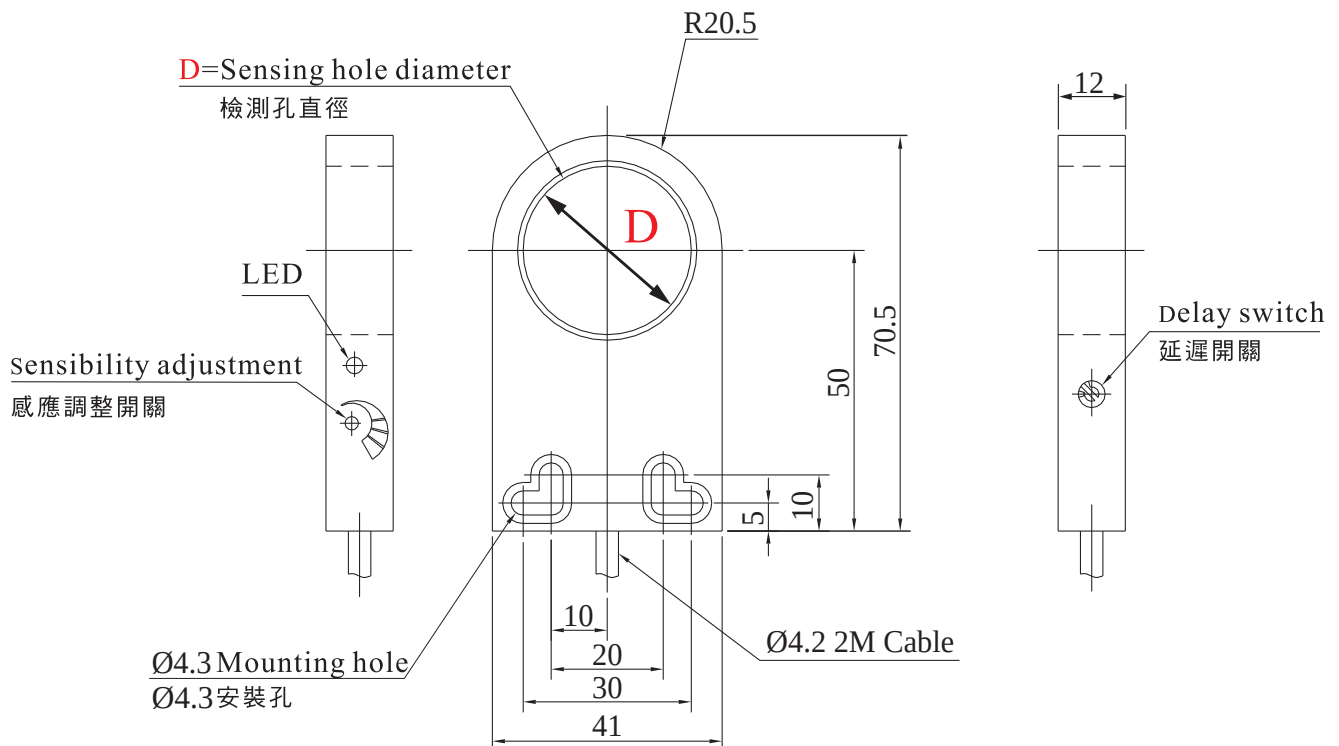


◆ Specifications / 規格表 :

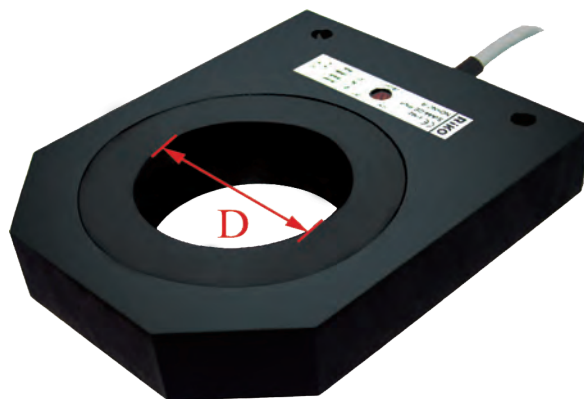
D=Sensing hole diameter / 檢測孔直徑

Output method /輸出模式	NPN N.O./N.C.	SIA05-N	SIA12-N	SIA15-N	SIA22-N	SIA30-N
	PNP N.O./N.C.	SIA05-P	SIA12-P	SIA15-P	SIA22-P	SIA30-P
Sensing hole diameter / 檢測孔直徑		D=5mm	D=12mm	D=15mm	D=22mm	D=30mm
Min. detecting object / 最小檢測物		0.7mm min.	1.2mm min.	2mm min.	3mm min.	
Operating voltage / 工作電壓	DC 10 ~ 30V					
Current consumption / 消耗電流	15 mA					
Load current / 負載電流	100 mA Max. at DC 24V					
Operating temperature / 工作溫度範圍	-20℃ ~ + 60℃					
Protection degree / 防水等級	IP 65					
Wiring method / 出線方式	Ø4.2 x 2 M / 4-wires					
Recommended power unit/應用電源供給單元	ST - 1 . ST - T2					
Weight / 重量	Approx.100g					

◆ Dimensions / 尺寸圖 : (unit:mm)



◆ Shape / 外觀 :

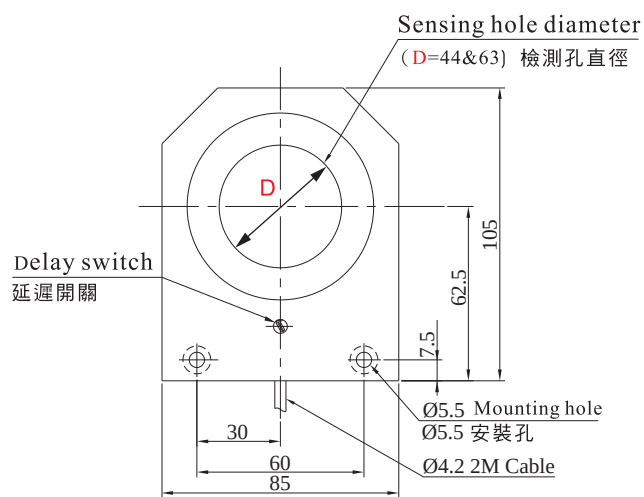


◆ Specifications / 規格表 :

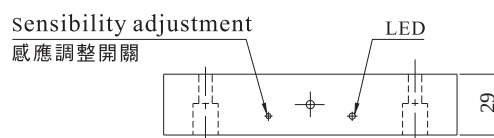
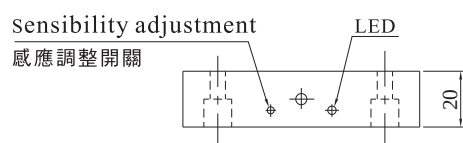
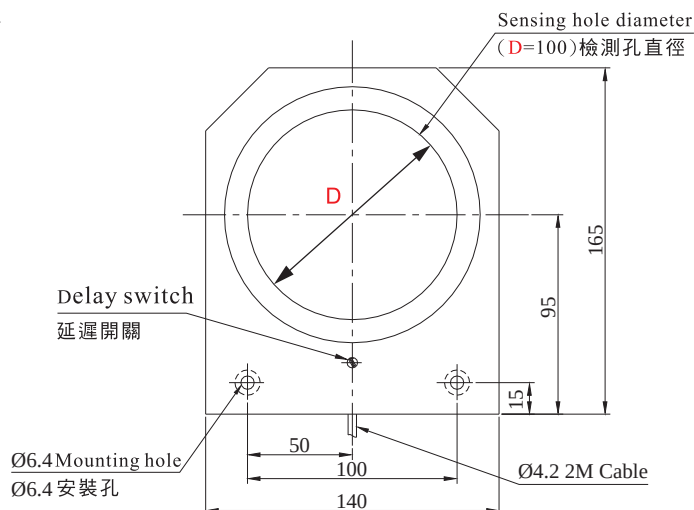
Output method /輸出模式	NPN N.O./N.C.	SIA44-N	SIA63-N	SIA100-N
	PNP N.O./N.C.	SIA44-P	SIA63-P	SIA100-P
Sensing hole diameter / 檢測孔直徑		D=44mm	D=63mm	D=100mm
Min. detecting object / 最小檢測物		5mm min.		10mm min.
Operating voltage / 工作電壓		DC 10 ~ 30V		
Current consumption / 消耗電流		15 mA		
Load current / 負載電流		100 mA Max. at DC 24V		
Operating temperature / 工作溫度範圍		-20°C ~ +60°C		
Protection degree / 防水等級		IP 65		
Wiring method / 出線方式		Ø4.2 x 2 M / 4-wires		
Recommended power unit/應用電源供給單元		ST - 1 . ST - T2		
Weight / 重量		Approx.260g	Approx.220g	Approx.710g

◆ Dimensions / 尺寸圖 : (unit:mm)

SIA44-□ / SIA63-□



SIA100-□



PSD18-
LA/LV
PSC18-
LA/LV
SC18-
LA/LV

HPD
HPS

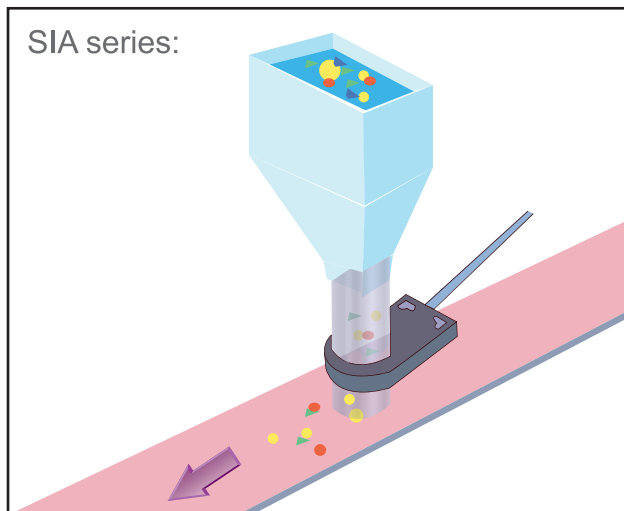
Ø4
M5
Ø6
M8
M12
M18
M30

JN
JND
KND
PN
PND
RN
SN
TSN

SID
SIR
SIA

PKG
KC
KCM
KCP

◆ Inductive Ring Sensor / 環型近接感應器：



GENERAL CHARACTERISTICS

In ring sensors, sensing is made within the ring itself. The sensors is activated when a metallic object is introduced within it. They are particularly suitable for applications where detection of small metal objects such as screws, nuts, washers etc...is requested and also for break detection of continuous metal wires that pass through it.

一般的特性

環型近接感應器的感應裝置就在其環形物中。當有金屬的物體通過此環形物時，感應器便產生作用。特別適合用於檢測細小的金屬物體，例如螺絲釘、螺帽、墊圈等。以及連續金屬線的斷裂檢測。感應器的外罩是塑膠製。內徑為5、12、15、22、25、30、44、63、100 mm。

USE WITH A DELAYED AMPLIFIERS

All types of ring sensor can work in combination with a delayed amplifier of the programmable ALTP series which ensures the sensing of small object in rapid movement.

與延遲輸出共同使用

所有形式的環型近接感應器，都可以運用於可編程序的ALTP系列的延遲放大器，並可確保檢測快速移動的小物體。

EFFECTS OF METAL IN THE CLOSE VICINITY

If a moving metal part is close to the sensing area the functioning can be disturbed. In Order to avoid this, install the units some distance from metallic object. Ensure that this dose not interfere with the functioning.

金屬接近感應區域的影響

如果有移動的金屬零件靠近感應區域時，感應功能可能會被干擾。為了避免此情況發生，在裝置時，請與金屬物體保持一段距離，以確保不會干擾到感應功能。

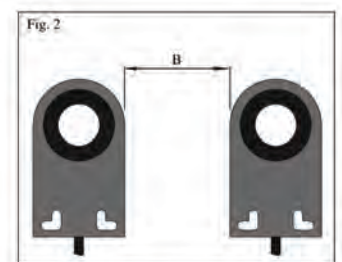
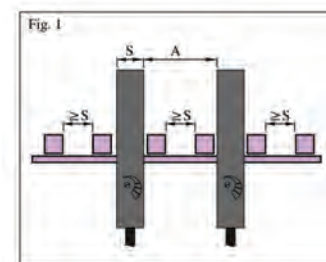
MINIMUM DISTANCE BETWEEN SENSORS									
MODEL	SIA05	SIA12	SIA15	SIA22	SIA25	SIA30	SIA44	SIA63	SIA100
A(Fig.1)mm	25	30	30	60	20	60	300	300	600
B(Fig.2)mm	10	10	10	20	1	20	250	250	650

USE OF SENSOR

A distance equal to the width of the sensor should be left between each object that passes through the sensor. If more than one sensor is to be installed in close vicinity, the minimum distance indicated between sensors should be observed.

感應器的使用

通過感應器的每件物體，其間隔距離，至少要有了一個感應器寬度的距離。如果有超過一個以上的感應器，被裝置在鄰近區域，相互間距離，必須遵守如附表所示的最小距離。



SELECTION OF RING SENSOR

Selection should be made based on the minimum hole diameter required. In this way the sensitivity adjustment can be made within normal parameters

環型光電感應器的選擇

依據最小洞徑做選擇。如此敏銳性的調整可以在正常值內，而不會有不正當運作的風險。

Model	Length mm	Diameter mm
SIA05	1	0.7
SIA12	2	1.2
SIA15	2	1.2
SIA22	6	3
SIA25	7	4
SIA30	7	4
SIA44	9	5
SIA63	12	6
SIA100	20	12

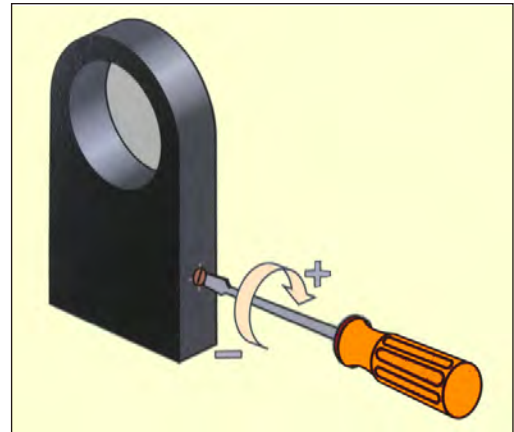
◆ Inductive Ring Sensors / 環型近接感應器：

SENSITIVITY ADJUSTMENT

After having followed the instructions regarding the choice of the most suitable unit it is recommended that the sensitivity adjustment be carried out when the sensor is installed in the final position taking into account how much metal mass is close by which could alter its functioning. The sensitivity increases turning the trimmer clockwise.

靈敏度的調整

根據操作指南的指示，挑選最適合的型號後，強烈建議在最後安裝定位後，再做敏銳度的調整，並注意是否有任何的金屬物體會影響到它的正常功能。順時針方向旋轉可增加敏銳度。



SWITCHING FREQUENCY

The switch frequency of inductive ring sensors depends on delayed impulse time (when inserted) according to the formula:

$$\text{Switching frequency (Hz)} = \frac{1}{(T \text{ impulse} + 10) \text{ ms}}$$

Vice versa, switching frequency will be as per chart beside.

動作頻率

環型近接感應器的切換頻率取決於被測物通過時延遲的脈衝時間，並依據以下公式：

$$\text{切換頻率 (Hz)} = \frac{1}{(T \text{ 延遲輸出時間} + 10) \text{ ms}}$$

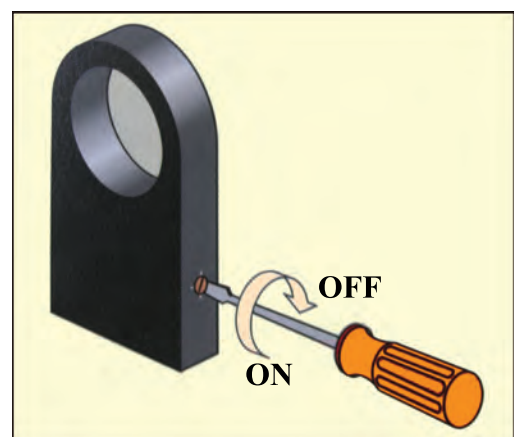
Model	Sw. Frequency Hz(min.~Max.)
SIA05	600~1500
SIA12	600~1000
SIA15	600~1000
SIA22	600~1000
SIA25	600~800
SIA30	600~800
SIA44	250~600
SIA63	100~200
SIA100	≤ 100

DELAY ON DE-ENERGIZATION

All our inductive ring sensors, NPN and PNP amplified versions, are supplied with an ON-OFF switch to activate and deactivate delay on de-energization 100ms. This delay allows the sensor to detect small metallic objects passing rapidly through the sensitivity area of the ring.

延遲輸出

所有我們的環型近接感應器(NPN和PNP放大型式)都備有ON-OFF開關，以控制輸出供給的延遲100ms。這個延遲提供感應器能夠檢測出金屬小物體快速的通過感應區域。



◆ Characteristic / 特點：

- Stripped 3-color LED sensing indicator.
/ 條狀三色LED顯示感應強度。
- +/- buttons for sensitivity adjust.
/ 感度調整用(+)(-)鍵設定。
- Capacity sensor can detect metal or non-metal targets.
/ 靜電容可檢測金屬、非金屬(水、玻璃、塑膠、紙...等)。
- Patented anti-bending design.
/ 耐彎保護，包覆射出，跨時代設計。

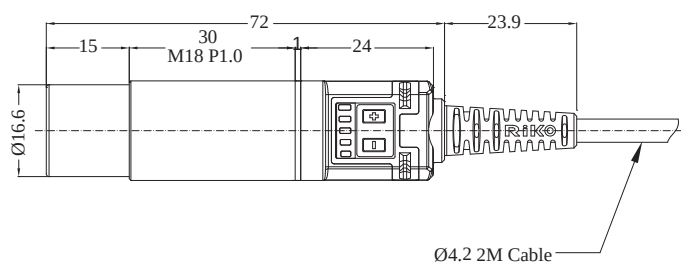


◆ Specifications / 規格表：

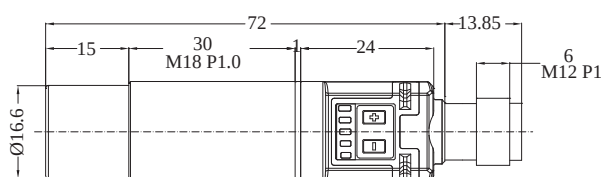
Output method 輸出模式	NPN N.O./N.C. PNP N.C./N.O.	PKC1816-KP2	PKC1816-KP2K1
Sensing distance / 檢出距離		1 ~ 16 mm	
Standard sensing object/標準檢出物		Conducting Neutral / 導體電中性	
Description / 外型		Standard M18 / 標準M18	
Hysteresis / 遲滯		≤ 10 % of sensing distance	
Response time / 反應時間		14.3 ms Max.	
Operating voltage / 工作電壓		DC 12 ~ 24V	
Current consumption / 消耗電流		≤ 22 mA no-load	
Load current / 負載電流		100 mA Max. at DC 24V	
Leakage current / 漏電流		≤ 1.1 mA no-load	
Residual voltage / 殘餘電壓		≤ DC 1.5V	
Insulation resistance / 隔離阻抗		20M Ω min. (DC500V)	
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.	
Operating temperature/工作溫度範圍		-20°C ~ + 60°C	
Portection degree / 防水等級		IP 65	
Wiring method / 出線方式		Per-wired Ø4.2 x 2M / 4-wires	M12 Plug-in connector type / M12接頭式
Weight / 重量		Approx.65g	Approx.25g

◆ Dimensions/尺寸圖：(unit:mm)

• PKC1816-KP2

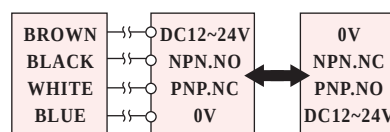


• PKC1816-KP2K1

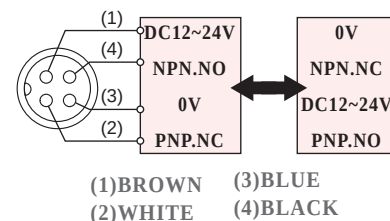


◆ Wiring diagrams / 接線圖：

-KP2



-KP2K1

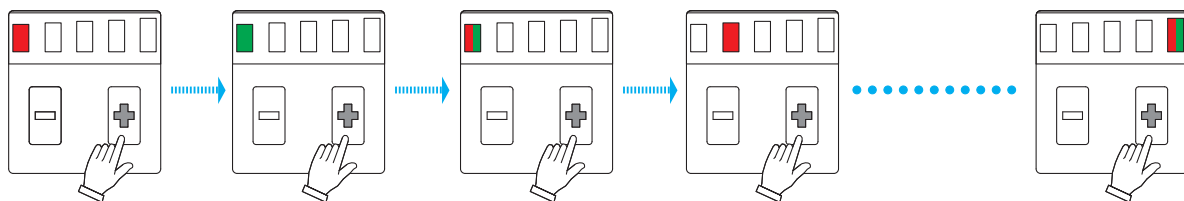


◆ Operation manual of PKC1816-KP2 /PKC1816-KP2按鍵操作方法：

- Button  for extending sensing distance /  鍵功能：此為增長檢測距離用之：
 1. Press  one time : slight adjustment of extending sensing distance. Press 16 counts : LED indicators will light upwards. Target sensed : output will change into ON. No reaction for button.
/按壓  壹次即放開，此為增長檢測距離之微調功能，若連續按壓、放開達約16次時，指示燈(LED)會往上改變亮(改變方式請看LED顯示說明)，當偵測到被測物時，輸出會改變狀態(OFF > ON)，按鍵將不會再有動作。
 2. Press  for 2 sec. Sensor will last longer sensing distance unless release button or target sensed.
/若按壓不放，超過2秒(約)，則機器會持續增長檢測距離，直至放開按鍵或偵測到物品為止，此時LED也會相對的往上亮滅變化。
- Button  for deducting sensing distance /  鍵功能：此為減短檢測距離用之：
 1. Press  one time : slight adjustment of deducting sensing distance. Press 16 counts : LED indicators will light off downwards. Target absent : output will change into OFF.
/按壓  壹次即放開，此為減短檢測距離之微調功能，若連續按壓、放開達約16次時，指示燈號會往下改變，當遠離被測物時輸出會改變狀態(ON >> OFF)。
 2. Press  for 2 sec. Sensor will shorten sensing distance unless release button or minimum .
/若按壓不放，超過2秒(約)，則機器會持續縮短檢測距離，直至最短(MIN.)或放開按鍵，此時LED會相對的往下亮滅變化，直至最下方(如下圖)的紅燈亮，不再變化。

Min.

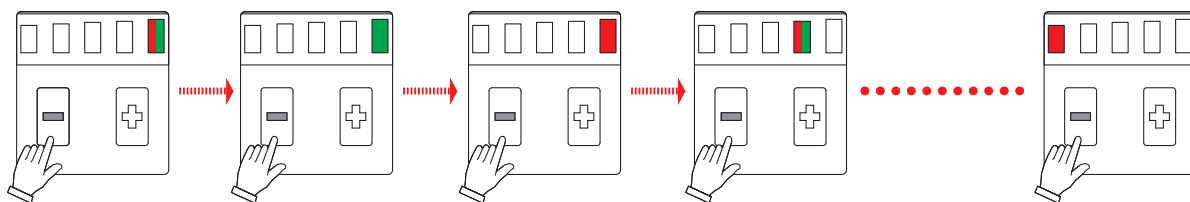
Max.



RED GREEN:
as no function.
直到ON住為止

Max.

Min.



Till RED: as Min.
直到紅色階為止

1. Always one set of lamps is lighting at one time, other sets will OFF.
/該組燈亮時，其他組燈將會完全熄滅，也就是永遠只會有一組燈點亮。
2. Upward lamps ON Distance is longer .
Downward lamps ON Distance is shorter.
/越往上之燈亮時，表示檢測距離越遠，越往下燈亮，表示檢測距離越短

◆ Characteristic / 特點：

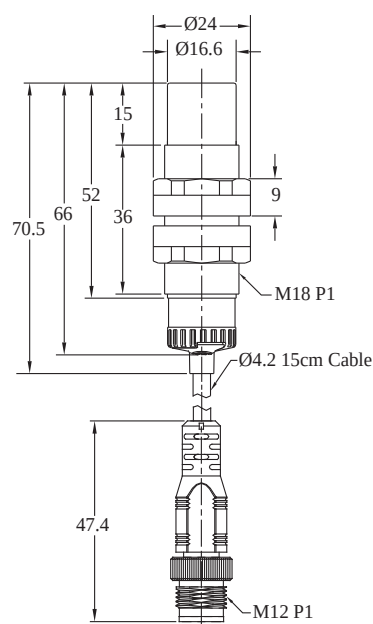
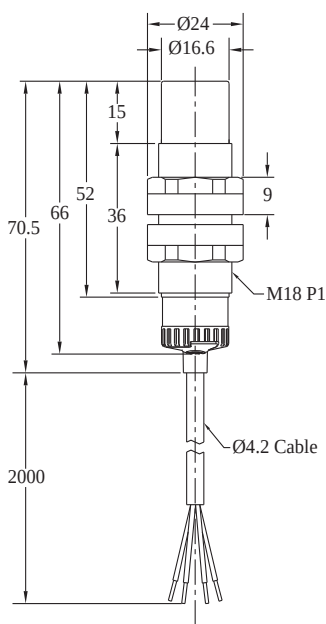
- Maximum distance to grounded metal target.
/ 對有接地金屬，可獲得最大檢測距離。
- Sensitivity adjustment：20-turn potentiometer (VR).
/ 多轉式VR(20轉)，方便調整。
- Widely applied to detect metal, water, oil, glass, plastics, paper etc.
/ 靜電容近接可廣泛應用於檢測金屬、水、油、玻璃、塑膠、紙等。



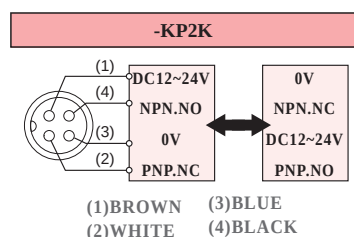
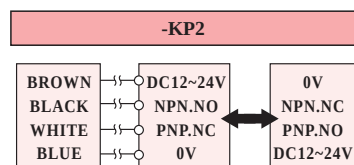
◆ Specifications / 規格表：

Output method 輸出模式	NPN N.O./N.C. PNP N.C./N.O.	KC1820-KP2	KC1820-KP2K
Sensing distance / 檢出距離		1 ~ 16 mm	
Standard sensing object / 標準檢出物		Conducting Neutral / 導體電中性	
Description / 外型		Standard M18 / 標準M18	
Hysteresis / 遲滯		≤ 10 % of sensing distance	
Response time / 反應時間		14 ms Max.	
Operating voltage / 工作電壓		DC 12 ~ 24V	
Current consumption / 消耗電流		≤ 22 mA no-load	
Load current / 負載電流		100 mA Max. at DC 24V	
Leakage current / 漏電流		≤ 1.1 mA no-load	
Residual voltage / 殘餘電壓		≤ DC 1.5V	
Insulation resistance / 隔離阻抗		20M Ω min. (DC500V)	
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.	
Operating temperature / 工作溫度範圍		-20°C ~ +60°C	
Portection degree / 防水等級		IP 66	
Wiring method / 出線方式		Per-wired Ø4.2 x 2M / 4-wires	M12 pigtailed type / M12接頭15cm電線式
Option / 選購配件 (Page 252)		Bracket / 固定架：MF-01	
Weight / 重量		Approx.70g	Approx.35g

◆ Dimensions / 尺寸圖： (unit:mm)



◆ Wiring diagrams / 接線圖：



◆ Characteristic / 特點：

- Maximum distance to grounded metal target.
/ 對有接地金屬，可獲得最大檢測距離。
- Sensitivity adjustment：20-turn potentiometer (VR).
/ 多轉式VR(20轉)，方便調整。
- Widely applied to detect metal, water, oil, glass, plastics, paper etc.
/ 靜電容近接可廣泛應用於檢測金屬、水、油、玻璃、塑膠、紙等。

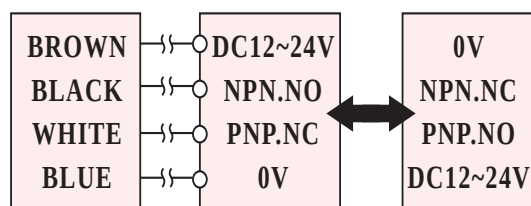


◆ Specifications / 規格表：

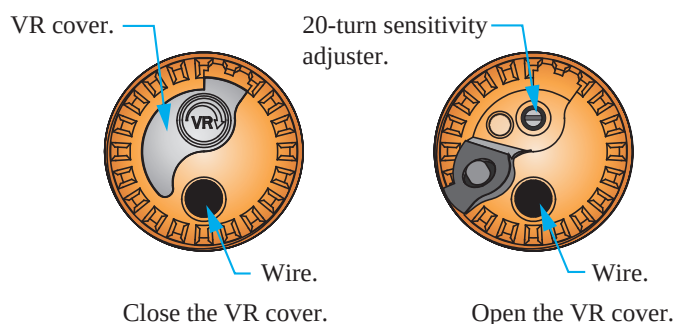
Output method 輸出模式	NPN N.O./N.C. PNP N.C./N.O.	KC3035-KP2	KC3035-KP2K
Sensing distance / 檢出距離		2 ~ 30mm	
Standard sensing object / 標準檢出物		Conducting Neutral / 導體電中性	
Description / 外型		Standard M30 / 標準M30	
Hysteresis / 遲滯		≤ 10 % of sensing distance	
Response time / 反應時間		10 ms Max.	
Operating voltage / 工作電壓		DC 12 ~ 24V	
Current consumption / 消耗電流		≤ 22 mA no-load	
Load current / 負載電流		100 mA Max. at DC 24V	
Leakage current / 漏電流		≤ 1.1 mA no-load	
Residual voltage / 殘餘電壓		≤ DC 1.5V	
Insulation resistance / 隔離阻抗		20M Ω min. (DC500V)	
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.	
Operating temperature / 工作溫度範圍		- 20°C ~ + 60°C	
Portection degree / 防水等級		IP 66	
Wiring method / 出線方式		Per-wired Ø5.2 x 2M / 4-wires	M12 pigtailed type / M12 接頭15cm電線式
Weight / 重量		Approx.135g	Approx.80g
◆ Dimensions / 尺寸圖： (unit:mm)			
◆ Wiring diagrams / 接線圖：			

◆ Wiring diagrams / 接線圖：

KC□-KP2 includes PNP and NPN two output types. Not only available used on PNP type and NPN type, but also NO/NC switching available.



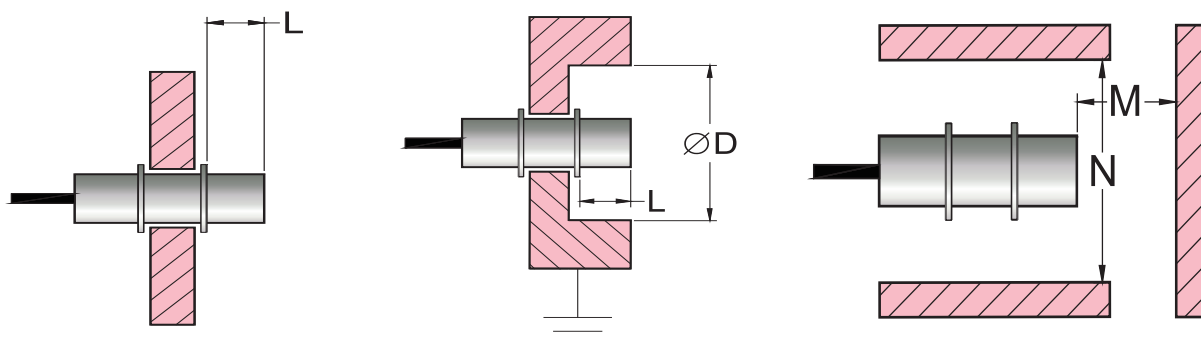
◆ Function introduction / 功能介紹：



KC□-KP2 with 20-turn sensitivity adjuster. Users can adjust the sensitivity according to different objects. Special VR cover for water-proof and greasiness-proof.

KC□-KP2 為可調式旋鈕(20轉)，可依據感測物的不同，而有所調整。另外，在旋鈕上附有VR蓋，不但能夠防水還能防油污。

◆ Precautions proper installation / 安裝注意事項：



KC1820 $D \geq 40\text{mm}$ $M \geq 30\text{mm}$ $L \geq 30\text{mm}$ $N \geq 40\text{mm}$

KC3035 $D \geq 90\text{mm}$ $M \geq 50\text{mm}$ $L \geq 30\text{mm}$ $N \geq 90\text{mm}$

◆ Characteristic / 特點：

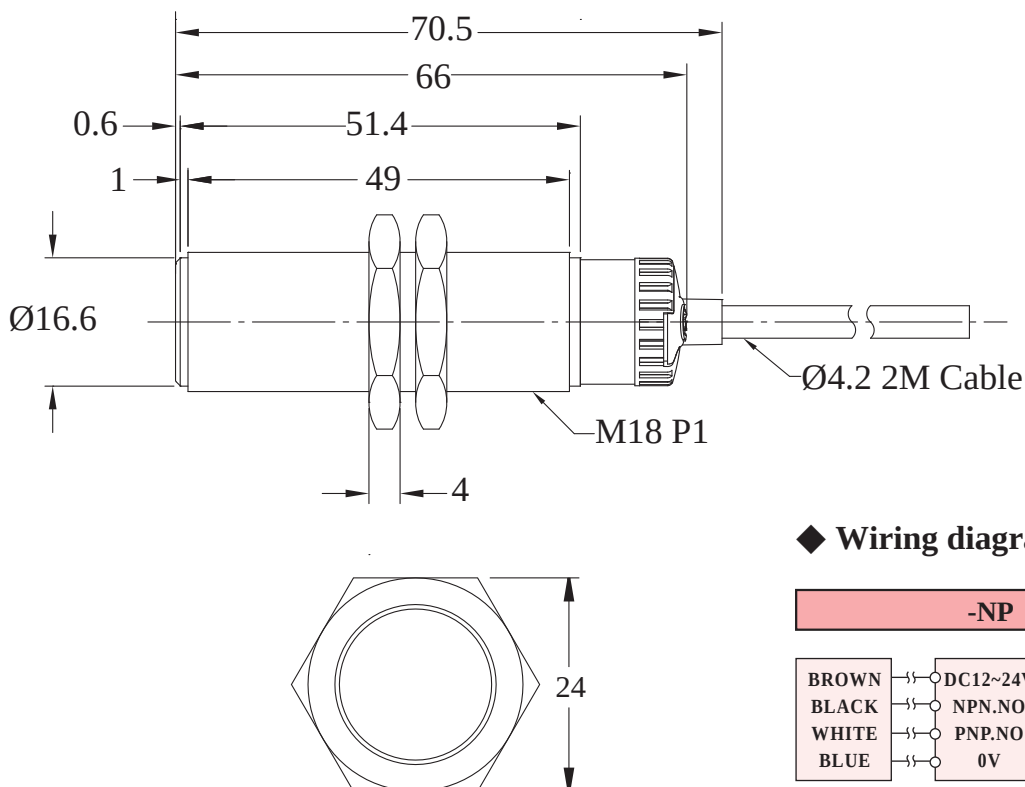
- M18 cylindrical metal body.
/ M18標準金屬螺絲，堅固耐用。
- Detected targets：metal, water, oil, glass, plastics, paper.
/ 可檢測金屬、水、油、玻璃、塑膠、紙等多種物體。
- Shielded type design.
/ 埋入式設計，可齊平安裝。
- Sensitivity adjustment：20-turm potentationmeter (VR).
/ 多轉式(20轉)VR感度調整，檢出更方便。



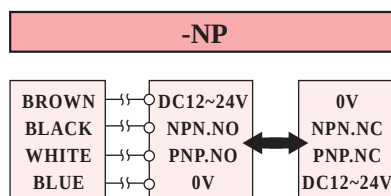
◆ Specifications / 規格表：

Output method 輸出模式	NPN N.O./N.C. PNP N.O./N.C.	KCM1808-NP
Sensing distance / 檢出距離		1 ~ 8 mm
Standard sensing object/標準檢出物		Conducting Neutral / 導體電中性
Description / 外型		Standard / 標準M18
Hysteresis / 遲滯		≤ 10 % of sensing distance
Response time / 反應時間		14.3 ms Max.
Operating voltage / 工作電壓		DC 12 ~ 24V
Current consumption / 消耗電流		≤ 22 mA no-load
Load current / 負載電流		100 mA Max. at DC 24V
Leakage current / 漏電流		≤ 1.1 mA no-load
Residual voltage / 殘餘電壓		≤ DC 1.5V
Insulation resistance / 隔離阻抗		20M Ω min. (DC500V)
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.
Operating temperature/工作溫度範圍		-20℃ ~ + 60℃
Portection degree / 防水等級		IP 66
Wiring method / 出線方式		Per-wired Ø4.2 x 2M / 4-wires
Option / 選購配件 (Page 252)		Bracket / 固定架：MF-01
Weight / 重量		Approx.70g

◆ **Dimensions / 尺寸圖：**



◆ **Wiring diagrams / 接線圖：**



Rectangular Capacitive Proximity Sensor KCP16

◆ Characteristic / 特點：

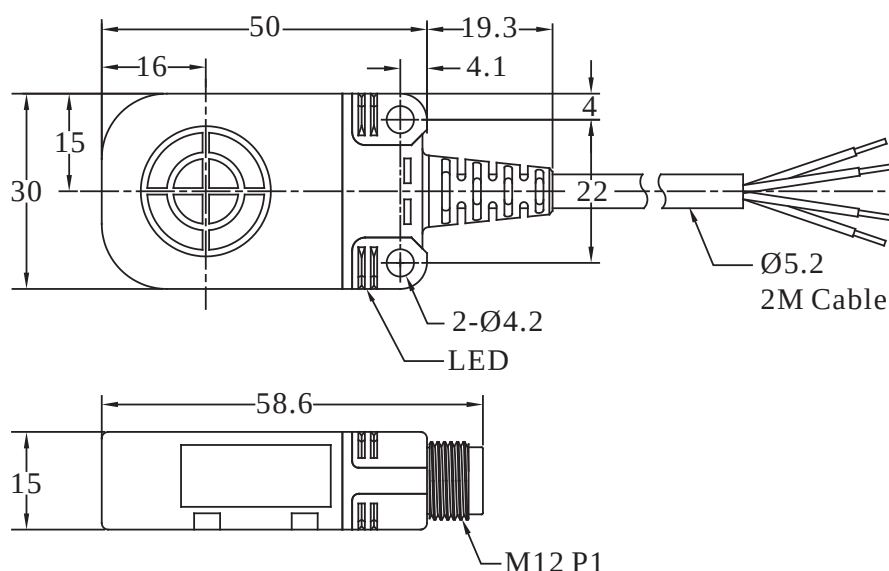
- Detecting non-metal targets: water, oil, glass, plastics.
/ 可檢測：水、油、玻璃、塑膠等非金屬物。
- Setted sensing distance for installation.
/ 固定檢測距離，適合特別安裝。



◆ Specifications / 規格表：

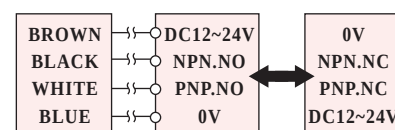
Output method / 輸出模式	NPN N.O./N.C. PNP N.O./N.C.	KCP16-NP	KCP16-NPK1
Sensing distance / 檢出距離		16 mm	
Standard sensing object / 標準檢測物		Conducting Neutral / 導體電中性	
Sensing Surface / 檢測方向		Front surface / 上方	
Hysteresis / 遲滯		≤ 10% of sensing distance	
Response time / 反應時間		10 ms Max.	
Operating voltage / 工作電壓		DC 12 ~ 24V	
Current consumption / 消耗電流		≤ 22 mA no-load	
Load current / 負載電流		100 mA Max. at DC 24V	
Leakage current / 漏電流		≤ 1.1 mA no-load	
Residual voltage / 殘餘電壓		≤ DC 1.5V	
Insulation resistance / 隔離阻抗		20M Ω min. (DC500V)	
Voltage withstandability / 絕緣耐壓		AC1000V 60Hz for 60 Sec.	
Operating temperature / 工作溫度範圍		-20°C ~ +60°C	
Protection degree / 防水等級		IP66	
Wiring method / 出線方式		Ø5.2 x 2M / 4wires	M12 connector / M12 接頭
Weight / 重量		Approx.106g	Approx.36g

◆ Dimensions / 尺寸圖：(unit:mm)

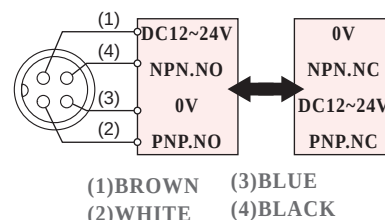


◆ Wiring diagrams / 接線圖：

-NP



-NPK1



Inductive / Capacitive Proximity Sensor

PSD18-LA/LV
PSC18-LA/LV
SC18-LA/LV

HPD
HPS

Ø4
M5
Ø6
M8
M12
M18
M30

JN
JND
KND
PN
PND
RN
SN
TSN

SID
SIR
SIA

PKC
KC
KCM
KCP

S0001 Page 248

◆ Traditional pointer header / 傳統指針式錶頭



◆ Digital display pressure switch / 數位顯示壓力開關：
* Easy readout with digital display. / 數位顯示，易於判讀



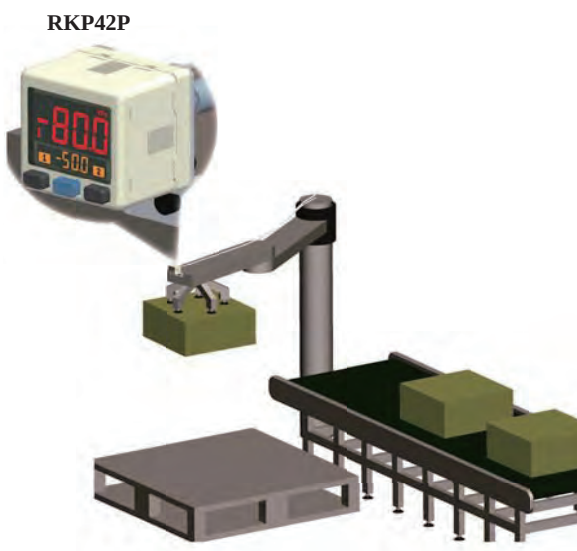
Alternative traditional pointer header.
替代傳統指針式錶頭

S0002 Page 249



Testing leakage.
漏氣測試

S0003 Page 249



Adsorbing and delivering objects.
吸附應用、運送

S0004 Page 249

◆ Digital display pressure switch / 數位顯示壓力開關：
* Easy readout with digital display. / 數位顯示，易於判讀
* High precision. / 高精度
* Function of output control. / 具備輸出控制功能



Pressure indication and control.
F.R.L.的壓力顯示及控制

Fiber Sensor

Photo / Area Photo / Ultrasonic Sensor

Inductive / Capacitive Proximity Sensor

Others

S0005 Page 249



Indication and control of pressure value in cylinder.
儲氣瓶內的壓力值顯示控制

S0006 Page 248



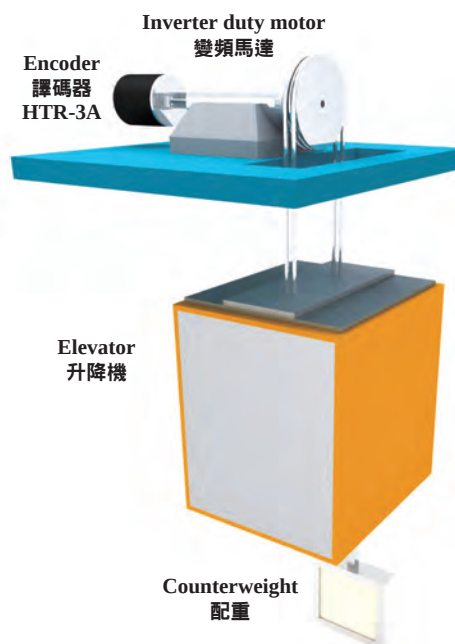
Indication and control of pressure value in compressor.
空壓機壓力顯示及控制

S0007 Page 226



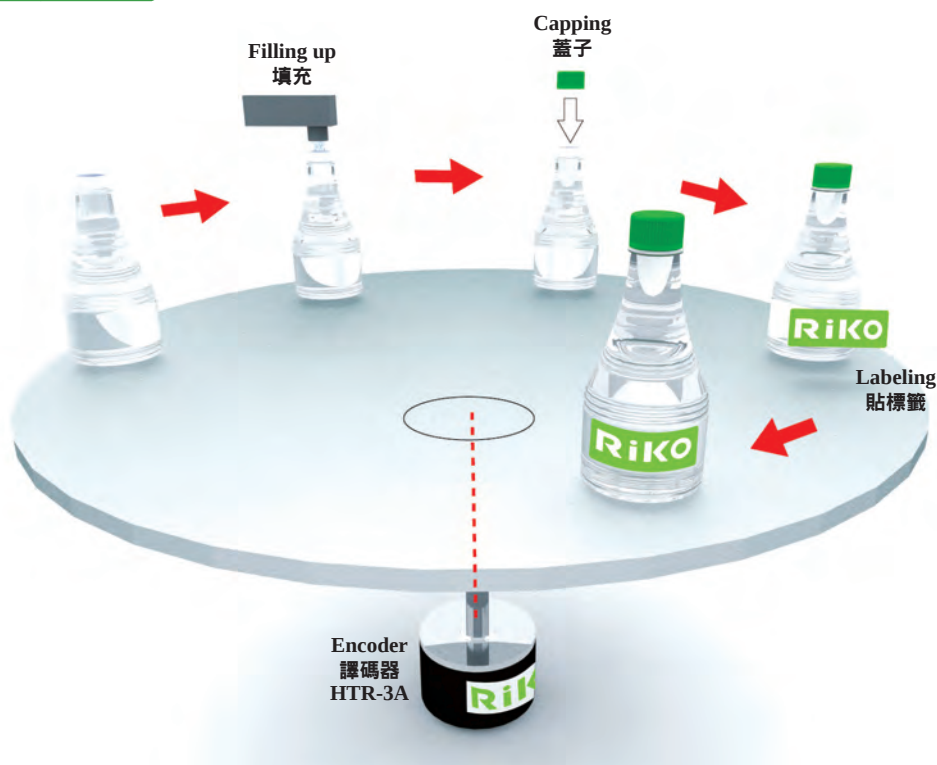
Detecting quantity of metal parts.
金屬件計數

S0008 Page 244



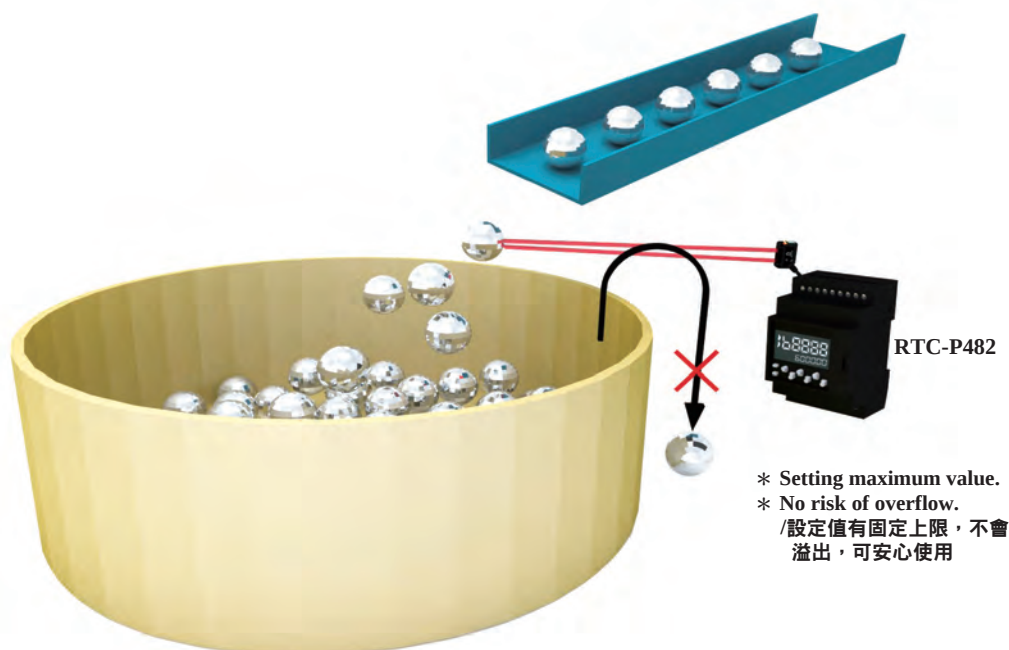
Position control.
位置控制

S0009 Page 244



Position control.
位置控制

S0010 Page 230



* Setting maximum value.
* No risk of overflow.
/設定值有固定上限，不會
溢出，可安心使用

Counting quantity.
計算數量

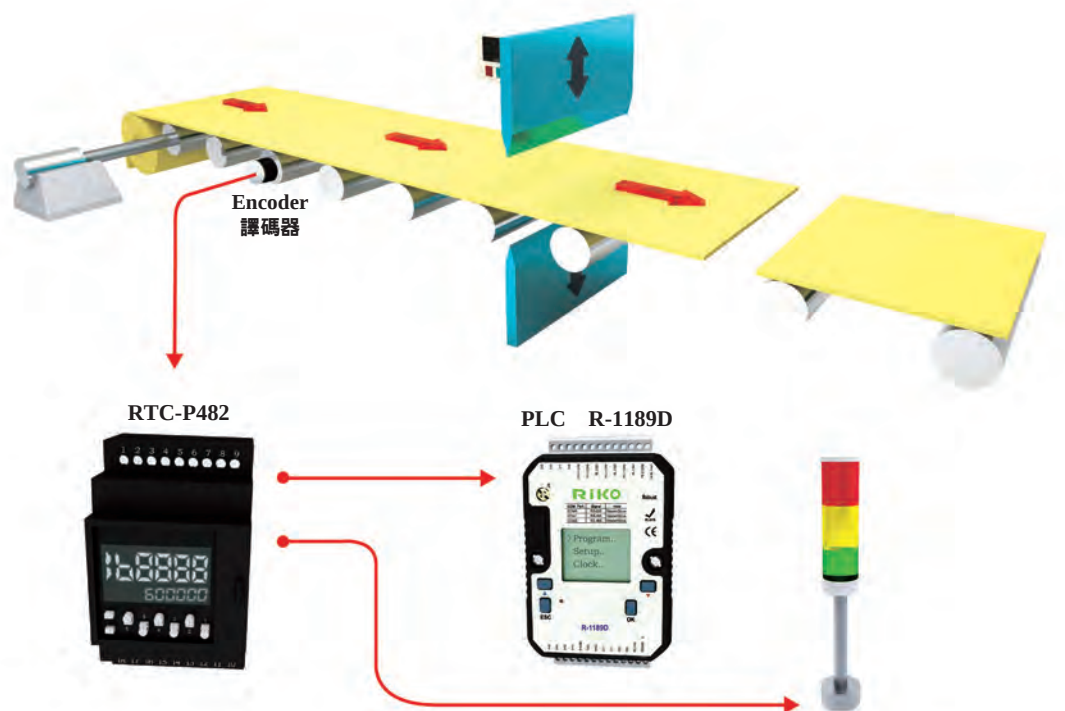
Fiber Sensor

Photo / Area Photo / Ultrasonic Sensor

Inductive / Capacitive Proximity Sensor

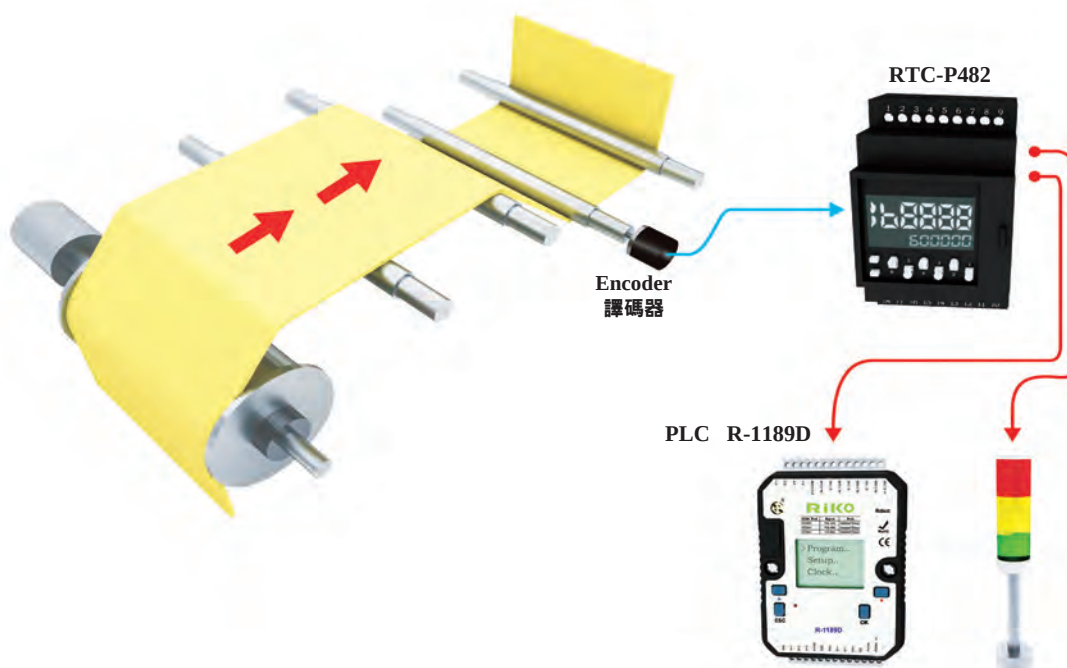
Others

S0011 Page 230 / Page 235 / Page 244



Basic control of convey.
簡易輸送控制

S0012 Page 230 / Page 235 / Page 244



Basic control of convey.
簡易輸送控制

◆ Characteristic / 特點：

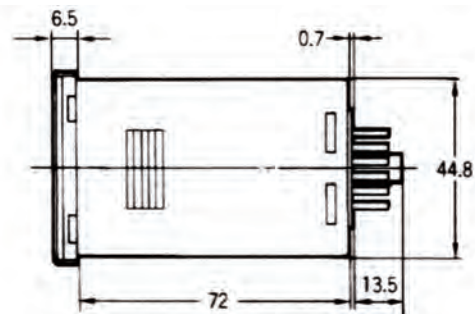
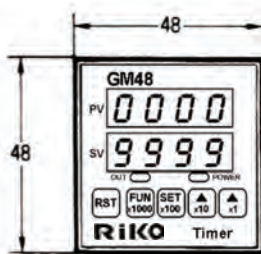
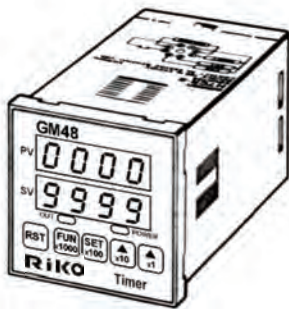
- Contact / transistor input. / 接點及晶體輸入。
- 4 timer range setting. / 4種時間範圍設定。
- 11pin type. / 11pin型式。
- 5 keys, easy to operate. / 面板5組按鍵，設定容易。
- 8 motion modes flexible manipulation. / 8種動作模態，使用更有彈性。
- LED display. / LED顯示器。
- Small dimension (48x48x92mm) easy to install. / 體積小(48x48x92mm)安裝容易。
- 12 VDC / 200mA power supply for the usage of external sensor. / 提供12 VDC / 200mA電源，供給外部SENSOR使用。



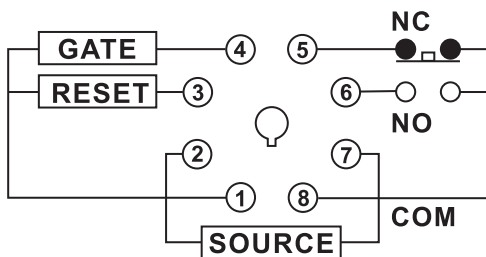
◆ Specifications / 規格表：

Model / 型號	GM48-A	GM48-B	GM48-C
Input / 輸入	RESET, GATE	RESET, GATE	RESET, GATE, START
Motion mode / 動作模態	Power On Delay	4modes	8 modes
Pin / 接腳	8-Pin Round	8-Pin Round	14-Pin Round
Timer range / 時間範圍	0~99.99s 0~999.9s 0~99m59s 0~99h59m, 4modes		
	Fixed/固定	Adjustable/可設定	Adjustable/可設定
Operating voltage/ 電源	AC 90 ~ 260V 50/60Hz		
Display / 顯示器	LED 4 digits X 2 (Red, Green)		
Output / 輸出	RELAY 1C/ 1A AC250V		
Operating temperature / 工作時溫度	-10°C ~ +50°C (14 °F ~ 122 °F)		
Reset time / 斷電重置	0.5 Sec		
Weight / 重量	Approx.105g		

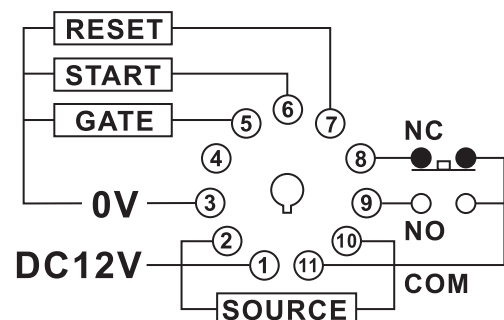
◆ Dimensions / 尺寸圖：(unit:mm)



◆ GM48-A GM48-B Wiring diagrams / 配線圖：

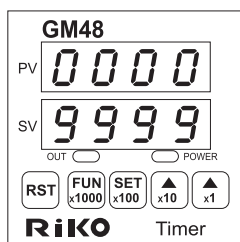


◆ GM48-C Wiring diagrams / 配線圖：



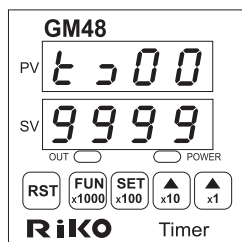
◆ Setting of "Output time" and "Output mode" / 設定"輸出時間"及"輸出模式"：

Setting/設定

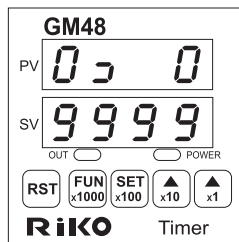


Picture 1/圖1

Output time/輸出時間

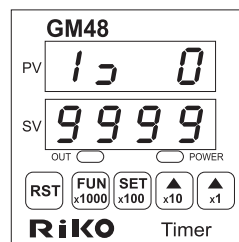


Picture 2/圖2

Motion mode
/動作模式

Picture 3/圖3

Timer range/時間範圍



Picture 4/圖4

Press and hold on **FUN** key for 3 seconds. The display will transfer to **picture 2**. Release the key and enter the setting mode of "Output time".

按住 **FUN** 鍵不放3秒後如<圖2>顯示並放開按鍵此時進入設定"輸出時間"模式

Note: The display will return to the normal timer condition, if press **SET** key at any time or do not press any key for more than 3 seconds.

註:任何時間按下 **SET** 鍵或持續3秒沒有按任何按鍵則回到正常之計數模式

Press **FUN** key to enter the setting mode of "Output mode". The display will transfer to **picture 3**.

按下 **FUN** 鍵後如<圖3>顯示並進入設定"動作模式"

Press **x1** key or **x10** key to set the "output time" (0~9.9 seconds).

按下 **x1** 鍵或 **x10** 鍵設定"輸出時間",時間範圍為 0 ~ 9.9 秒.

Press **FUN** key to enter the setting mode of "Timer range". The display will transfer to **picture 4**.

按下 **FUN** 鍵後如<圖4>顯示並進入設定"時間範圍"

Press **x1** key to set the "Motion mode" (0-7 modes).

按下 **x1** 鍵設定"動作模式", 0 ~ 7組動作模式

Press **FUN** key to enter the setting mode of "Timer range". The display will transfer to **picture 2**.

按下 **FUN** 鍵後如<圖2>顯示並進入設定"輸出範圍"

Press **x1** key to set the "Timer range" (0~3 timer range)

按下 **x1** 鍵設定"時間範圍" 0 ~ 3時間範圍

◆ Characteristic / 特點：

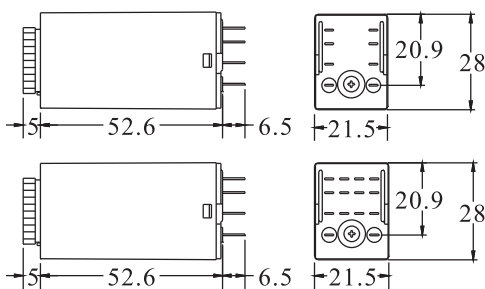
- High light LED indicator for timer operation.
/ 高亮度雙LED電源指示燈。
- Varied specifications suitable for different operating voltages(AC110V,220V,DC12V,24V)
/ 多樣化規格，適用於AC110V,220V,DC12V,24V。
- The accurate tolerance of resetting accuracy 3%.
/ 返復操作精確度3%。
Contact:2 poles,4poles.Small dimension-varied installation ways,
easy to install.
/ 接點2極,4極,體積小,安裝方式多樣化，安裝容易。
- Suitable for the use in automatic systems,
electronic communication equipments and household appliances.
/ 適用自動控制系統，電子通信設備及家用電氣。



◆ Specifications / 規格表：

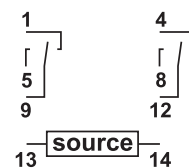
Catalog Listing/型號		G3Y-2	G3Y-4
Motion mode/動作模態		On Delay	On Delay
Contact/接點		2c/2組接點	4c/4組接點
Operating Voltage/供應電壓		AC12V or 24V or 110V or 220V DC12V or 24V	
Timer range/時間範圍		1 or 3 or 6 or 10 or 12 or 30秒/Sec	
		1 or 3 or 6 or 10 or 12 or 30 or 60分/min	
Resetting time/復歸時間		0.1 Sec below	
Vibration/震動		10 to 50Hz,amplitude 1.00mm	
Accuracy /精確度	Setting time/往復誤差	Max. Scale $\pm 10\%$ below	
	Resetting time/設定誤差	Max. Scale $\pm 1\%$ below	
	Variation due to voltage change/電壓影響	Max. Scale $\pm 2\%$ below	
	Variation due to temperature change/溫度影響	Max. Scale $\pm 5\%$ below(-20°C ~ +60°C)	
Ambient humidity / 工作溼度範圍		35%~85% RH	
Weight / 重量		Approx.40g	Approx.45g

◆ Dimensions / 尺寸圖：(unit:mm)

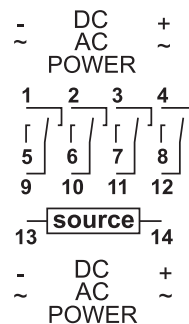


◆ Wiring diagrams / 接線圖,時序圖：

G3Y-□2



G3Y-□4



G3YF-□

Power
Contact NO
Contact NC



G3Y- □

Power
Contact NO
Contact NC



G3YI- □

Power
Contact NO
Contact NC



◆ Characteristic/特點：

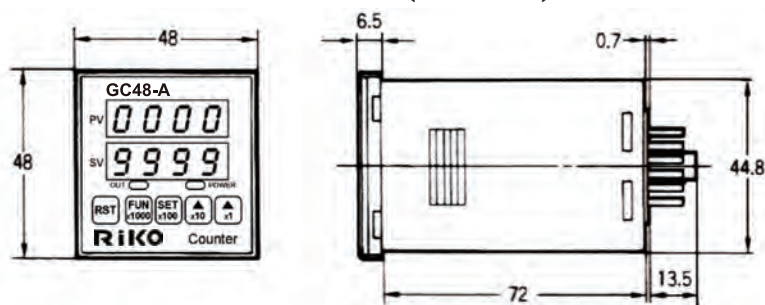
- Power failure memory. / 斷電記憶保持。
- 4 digits up and down counting function.
/ 四位數顯示，可往上或下計數。
- Counting speed 30/2K CPS. / 計數速度 30/2K CPS。
- 5 keys easy to operate. / 面板5組按鍵，設定容易。
- 8 output modes flexible manipulation.
/ 8種輸出模態，使用更有彈性。
- LED display. / LED顯示器。
- Small dimension (48x48x92mm) easy to install.
/ 體積小(48x48x92mm)安裝容易。
- 12 VDC / 200mA power supply for the usage of external sensor.
/ 提供12VDC 200mA電源，供給外部SENSOR使用。



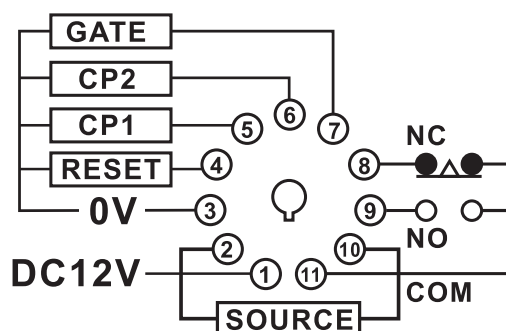
◆ Specifications / 規格表：

GC48-A Specifications/電氣規格			
Operating Voltage/電源	AC 90~260V 50/60Hz	Input mode/輸入模態	Up count/ 上數 Down count/ 下數
Display LED/顯示器	4 digits X 2 (Red, Green)	Output mode/輸出模態	0~7, 8 modes
External Input/外部輸入	RESET, CP1, CP2, GATE	Counting speed /計數速度	30 CPS 或 2K CPS
Output/輸出	RELAY 1C, 1A AC 250V	Counting range /計數範圍	0000~9999
Operating temperature /工作時溫度	-10°C~50°C (14°F~122°F)	Pin/接腳	11-Pin Round
Weight / 重量	Approx.115g		

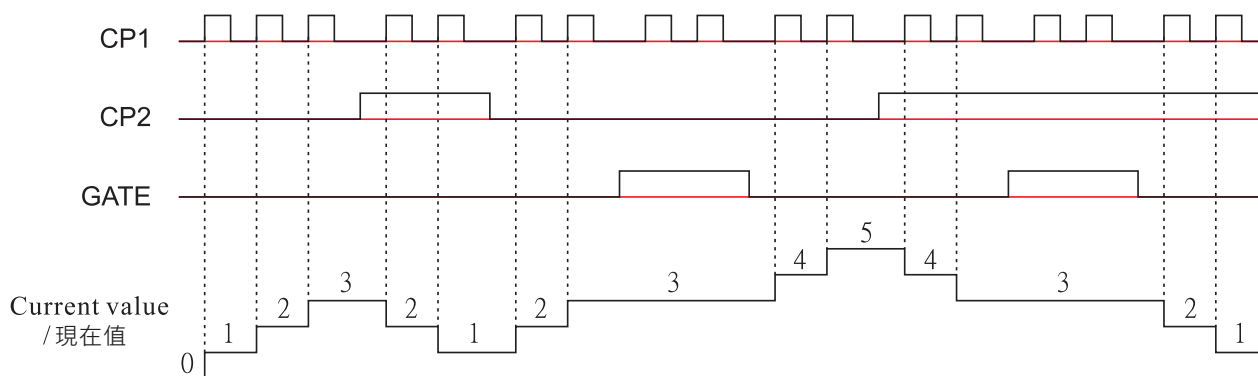
◆ Dimensions / 外型尺寸圖：(unit:mm)



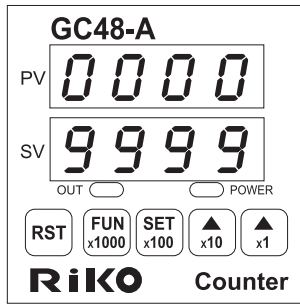
◆ Wiring diagrams / 接線圖：



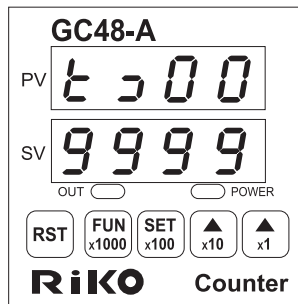
◆ Input Timing Chart / 輸入時序圖：



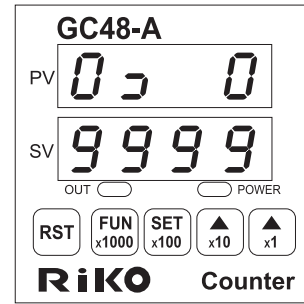
◆ Setting of "Output time" and "Output mode" / 設定"輸出時間"及"輸出模態"：



Picture 1/圖1



Picture 2/圖2



Picture 3/圖3

Press and hold on **FUN** x1000 key for 3 seconds. The display will transfer to **picture 2**. Release the key and enter the setting mode of "Output time".

按住 **FUN** x1000 鍵不放3秒後如<圖2>顯示並放開按鍵此時進入設定"輸出時間"模式

Note: The display will return to the normal timer condition, if press **SET** x100 key at any time or do not press any key for more than 3 seconds.

註:任何時間按下 **SET** x100 鍵或持續3秒沒有按任何按鍵則回到正常之計數模式

Press **FUN** x1000 key to enter the setting mode of "Output mode". The display will transfer to **picture 3**.

按下 **FUN** x1000 鍵後如<圖3>顯示並進入設定"輸出模態"

Press **x1** key or **x10** key to set the "output time" (0~ 9.9 seconds).

按下 **x1** 鍵或 **x10** 鍵設定"輸出時間",時間範圍為 0 ~ 9.9 秒。

Press **FUN** x1000 key to return back to the setting mode of "Output time". The display will transfer to **picture 2**.

按下 **FUN** x1000 鍵後如<圖2>顯示並回到設定"輸出時間"

Press **x1** key to set the "Output mode" (0-7 modes).

按下 **x1** 鍵設定"輸出模態"0 ~ 7組輸出模態

◆ Characteristic / 特點：

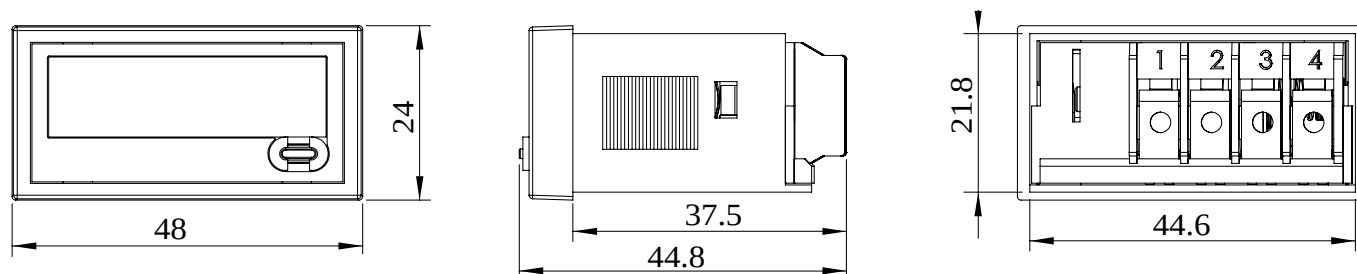
- 8-digit high resolution LCD(8mm high).
/ 8位數LCD顯示(8mm高)。
- Manual reset & external reset.
/ 手動歸零及外部輸入歸。
- 25 functions(15 timer functions, 8 counter functions, frequency meter & tachometer).
/ 25種功能設定(計時器15種,計數器8種,頻率計,轉速計)。
- Programmable reset button to prevent wrong-button push.
/ 可設定Reset(歸零)按鈕為無效,以防止誤按。



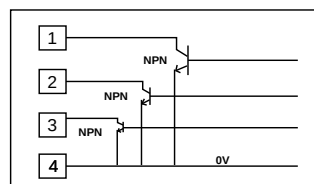
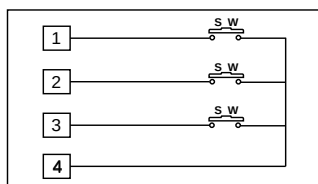
◆ Specifications / 規格表：

Model / 型號	RTC-P2400
Size / 尺寸	48x24x45.7(Unit : mm) / 48x24x45.7(單位:mm)
Timer range / 計時範圍	0-99999999
Counter range / 計數範圍	0-99999999
Response frequency / 計頻範圍	0.6Hz~10000Hz
RPM rang / 轉速範圍	36~60000(unit: Round per minute) / 36-60000(顯示單位: 轉/分)
Functions / 功能	25Functions (15 Timer + 8 Counter + Frequency Meter + Tachometer) / 25種功能設定(計時器15種,計數器8種,頻率計,轉速計)
Power supply / 電源	DC3V Batteries / 3V電池
Batteries Life / 電池壽命	>2 years / 二年以上
Operation temperature / 操作溫度	-10°C~55°C
Display Type / 螢幕顯示方式	LCD
Screw Type / 端子螺絲	M3
Front panel waterproof protection / 前端防水保護	IP66
Rear panel waterproof protection / 後端防水保護	IP20
Vibration / 抗震動能	IEC60068-2-6
Static discharge / 靜電防護等級	IEC1000-4-2(4KV Air/2KV contact) / IEC1000-4-2(4KV空氣放電2KV觸電放電)
Electromagnetic field / 電磁場耐受	IEC1000-4-3(field strength 10V/m, frequency 80MHz~1GMHz) / IEC1000-4-3(場強10V/m, 頻率80MHz~1GMHz)
Shock pulse / 衝擊脈衝規範	IEC1000-4-4(1KV input) / IEC1000-4-4(1KV輸入)
Weight / 重量	about 33g / 約33克
Opening size / 開孔尺寸	45x22(unit : MM) / 45X22(單位:mm)

◆ Dimensions / 尺寸圖：(unit:mm)



◆ Wiring diagrams / 接線圖：



◆ Layout / 配線架設：

- Terminal #1(T1) connected with T4 as external output RESET.
/ #1 號端子連接到 #4 號端子，做外部輸入歸 0 動作 (防面板 Reset 按鈕誤觸)。
- Terminal #2(T2) connected with T4 as manual RESET.
/ #2 號端子連接到 #4 號端子，做面板上 Reset 按鍵手動歸 0 動作。
- Terminal #3(T3) connected with T4 as timer, counter, tachometer.
/ #3 號端子連接到 #4 號端子，做計時、計數、轉速動作。
- Terminal #2(T2) and T3 connected with T4 press Reset 10 seconds. → FUNC-101
/ #2 號端子連接到 #4 號端子、#3 號端子連接到 #4 號端子，按住 Reset 按鍵 10 秒，進入模式設定 (畫面顯示 FUNC-101)。
- FUNC-101 Press RESET → FUNC-102 (setting)
/ 再按 Reset 按鍵，螢幕將會顯示 FUNC-102 (設定使用的模式)。
- Leave button 10 seconds, setting completed.
/ 放開按鍵等待約 10 秒鐘，即完成功能設定。
- Remove T2 from T4. → Remove T3 from T4.
/ 將 #2 號端子連接到 #4 號端子的連接線拔除、將 #3 號端子連接到 #4 號端子的連接線拔除。

※ Changing battery, setting as FUNC-101 please set up again according to requirement

/ 備註：當更換電池時，功能設定將重設為 FUNC-101，必須依需求再次重新設定

◆ Counter / 計數動作：

- On one shot: input signal switch on = counter +1.
input signal switch off = counter no action.
/ 升緣：當輸入信號開關短路時，計數器會以遞增方式加 1。
當輸入信號開關斷路時，計數器不會動作。
- Off one shot: input signal switch on = counter no action.
input signal switch off = counter +1.
/ 降緣：當輸入信號開關短路時，計數器不會動作。
當輸入信號開關斷路時，計數器以遞增方式加 1。

◆ Function / 功能設定：

Timer / 計時器			Counter / 計數器	
Mode / 模式設定	Monitor / 螢幕顯示	Description / 說明	Mode / 模式設定	Description / 說明
FUNC-101	D.H.M.T	日.時.分.秒	FUNC-201	升緣 50Hz
FUNC-102	D.H.M	日.時.分	FUNC-202	降緣 50Hz
FUNC-103	D-H-M	日-時-分	FUNC-203	升緣 100Hz
FUNC-104	D.H	日.時	FUNC-204	降緣 100Hz
FUNC-105	D-H	日-時	FUNC-205	升緣 600Hz
FUNC-106	D	日	FUNC-206	降緣 600Hz
FUNC-107	H.M.T	時.分.秒	FUNC-209	升緣 50,000Hz
FUNC-108	H-M-T	時-分-秒	FUNC-210	降緣 50,000Hz
FUNC-109	H.M	時.分	FREQ. Meter / 頻率計	
FUNC-110	H-M	時-分	Mode / 模式設定	Description / 說明
FUNC-111	H	時	FUNC-207	2.5~1300Hz
FUNC-112	M.T	分.秒	Techometer / 轉速計	
FUNC-113	M-T	分-秒	Mode / 模式設定	Description / 說明
FUNC-114	M	分	FUNC-208	150~78,000RPM
FUNC-115	T	秒		
D = Date / H= Hour / M=Minute / T =Second				

◆ Characteristic / 特點：

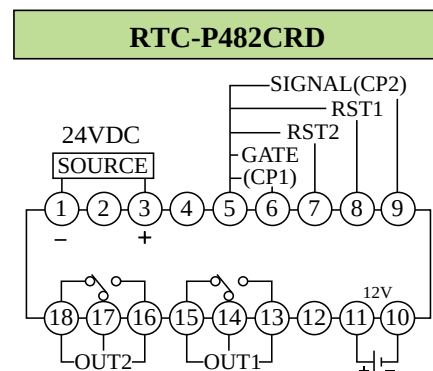
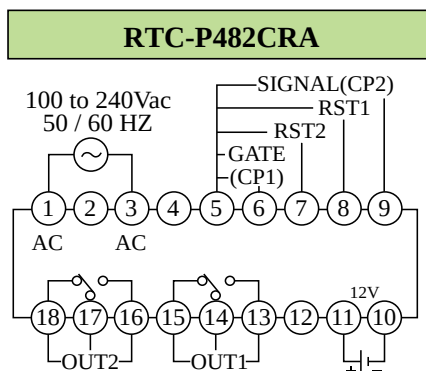
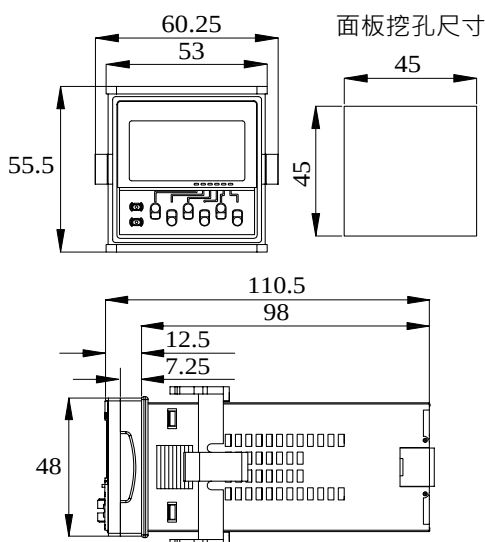
- Highly visible display with backlit LCD. / 高清晰度背光LCD。
- Conform to the key design of ergonomics. / 符合人體工學的按鍵設計。
- Five key protection modes: KP-1~5. / 多樣性按鍵保護模式: KP-1~5。
- EEPROM(overwrites: 100,000 times min.) / EEPROM (10萬次以上重複寫入)。
- 12VDC external supply power. / 帶12VDC輸出電源。
- Applied to connect PC/HMI/PLC/DCS. / 支援PC/HMI/PLC/DCS通信功能。
- Free PC software "TC-SOFT" . / 免費的應用軟體 "TC-SOFT" 。
- Support Modbus Protocol. / 支援Modbus協議。
- Support RS-232/485/422. / 支援RS-232/485/422。



◆ Specifications / 規格表：

Model / 型號	RTC-P482CRA
	RTC-P482CRD
Classification / 種類	Digital Timer/Counter/Tachometer 計時器/計數器/轉速計
Supported configurations / 支持的組態	Timer, Dual Timer, 2-Stage Timer, 1-stage counter, 2-stage counter, total counter, batch counter, dual counter, and tachometer / 計時器，雙計時器，雙預置計時器，一階計數器，二階計數器，一階總數計數器，一階批次計數器，雙計數器，轉速計
Operating voltage range / 額定電源電壓	100~240VAC(50/60HZ), 24VDC
Installation / 安裝方式	DIN rail or Flush mounting / 嵌入安裝和導軌安裝
Max. counter speed / 最大計數速度	30HZ or 5KHZ (10KHZ for Tachometer) / 30HZ或5KHZ(轉速計為10KHZ)
Timer mode / 計時模態	Elapsed time (UP), Remaining time (down) (selectable) / 流逝時間(UP)和剩餘時間(DOWN)可切換選擇
Input method / 輸入方法	No-voltage input : ON impedance : 1k Ω max. Voltage Input : High(logic) level : 4.5~30 VDC Low(logic) level : 0~2 VDC(Input resistance: approx. 4.7 k Ω) / 無電壓輸入: ON 阻抗: 1k Ω 以下(漏電流: 5~20 mA於0 Ω) ON 殘量電壓: 3V以下OFF 阻抗: 100k Ω 以上電壓輸入: 高(邏輯)准位: 4.5~30 VDC 低(邏輯)准位: 0~2 VDC(輸入阻抗: 約4.7 k Ω)

◆ Dimensions / 尺寸圖：(unit:mm) ◆ Wiring diagrams / 接線圖：



◆ Mode setting / 模態選擇：

- Press  +  hold 3 seconds, Enter setting mode, press  to select.

/按住  +  鍵 3 秒以上，進入模態選擇，然後按  鍵做選擇。

Mode setting / 模態選擇					
	Timer setting mode. /計時器設定模態		Twin Timer setting mode. /雙計時器設定模態		Twin Forecast setting mode. /雙預置計時器設定模態
	1-stage counter setting mode. /一階計數器設定模態		2-stage counter setting mode. /二階計數器設定模態		Total counter setting mode. /總數計數器設定模態
	Batch counter setting mode. /批次計數器設定模態		Dual counter setting mode. /雙計數器設定模態		Tachometer setting mode. /轉速計設定模態

◆ Set value / 目標值：

- Set the six digital values with the corresponding.

/按       鍵設定計數目標值。

◆ Manual / 使用說明：

Counter setting / 計數器設定	
Press  hold 3 seconds, Enter setting mode, press  to select. /按住  鍵 3 秒以上，進入計數器功能設定，然後按  鍵做功能選擇。	
 Input mode /輸入模態	Counting way, press  to set increment or decrement modal. /計數的方式，按  鍵設定遞增、遞減模態。  Increment modal. /遞增模態 ·  Decrement modal. /遞減模態
 Output mode /輸出模態	Set the way that control output for the present value is output. The possible settings are N,F,C,R,K-1,P,Q and A. /控制輸出的方法，按  鍵設定 N、F、C、R、K-1、P、Q、A 各項模態。  Operation after count completion: The outputs and present value display are held until reset by manually./感應計數到達目標值後，停在設定的目標值，OUT 輸出，無法繼續計數，手動 RESET 復歸。  Operation after count completion: The present value display continues to increase/decrease. The outputs are held until reset by manually./感應計數到達目標值後，OUT 輸出，可以繼續累計計數，手動 RESET 復歸。  Operation after count completion: As soon as the count value reaches SV, the present value display returns to the reset start status./感應計數到達目標值後，OUT 輸出，可以繼續計數，OUT 輸出在輸出時間到 RESET 復歸。  Operation after count completion: The present value display returns to the reset start status. (start again from 0)/感應計數到達目標值後，OUT 輸出，無法繼續計數，OUT 輸出在輸出時間到 RESET 復歸後才可以計數 (從 0 開始)。  Operation after count completion: The present value display continues to increase/decrease. The outputs are held until reset by manually./感應計數到達目標值後，OUT 輸出，可以繼續累計計數，OUT 輸出在輸出時間到停止輸出，但可以繼續累計計數，手動 RESET 歸零。  Operation after count completion: The present value display does not change during the output time, but the actual count returns to the reset status. (start again but not from 0)感應計數到達目標值後，OUT 輸出，無法繼續計數，OUT 輸出在輸出時間到 RESET 復歸後才可以計數 (不會從 0 開始)。

-  Operation after count completion: The present value continues to increase/decrease for the output time, but returns to the reset start status after the output time has elapsed./感應計數到達目標值後，OUT 輸出，可以繼續累計計數，OUT 輸出在輸出時間到 RESET 復歸。
-  Operation after count completion: The present value display is held until reset by manually./感應計數到達目標值後，OUT 輸出，無法繼續計數，OUT 輸出在輸出時間到停止輸出，手動 RESET 歸零。


One-shot output mode
/瞬時輸出時間

控制輸出的時間， 按      鍵設定輸出的時間。
(One-shot output can be used only when C, R, K-1, P, Q or A is selected as the output mode.)
/(備註：僅在輸出模態為C、R、K-1、P、Q、A 中出現)


Counting speed
/計數速度

Set the maximum counting speed, press  to select 30Hz or 5KHz.
/輸入最大的計數速度，按  鍵設定 30Hz、5KHz 速度。

 30Hz ·  5KHz
(30Hz) (5KHz)


Input signal width
/輸入信號寬度

Set Reset input signal width, press  to select 20ms or 1ms.
/輸入 Reset 的信號寬度，按  鍵設定 20ms、1ms 信號寬度。

 20ms ·  1ms
(20ms) (1ms)


Decimal point position
/小數點位置

Decide the decimal point position for the present value, press  to setting.
/加總計數值，按  鍵設定無小數點、小數點後一位、小數點後二位、小數點後三位的位置。

 (無小數點) None /無小數點 ·  (小數點後一位) 1 decimal places /小數點後一位
 (小數點後二位) 2 decimal places /小數點後二位 ·  (小數點後三位) 3 decimal places /小數點後三位


Prescale value
/比例預調值

Pulses input to the counter are converted according to the specified prescale value.
Use      to set value.(Setting range: 0.001~999.999)
/輸入計數器的脈波會依指定的比例預調值做轉換，按      鍵設定數值。
(設定計數輸出的距離)

 000.001 ·  001.000 ·  999.999
(000.001) (001.000) (999.999)


NPN / PNP input mode
NPN/PNP輸入模態

Select either NPN input (no-voltage input) or PNP input (voltage input) as the input format.
The same setting is used for all external inputs. Press  to select NPN or PNP modal.
/選擇 NPN 輸入 (無電壓輸入) 或 PNP 輸入 (電壓輸入) 為輸入格式，所有外部輸入的設定均相同，按  鍵設定 NPN、PNP模態。

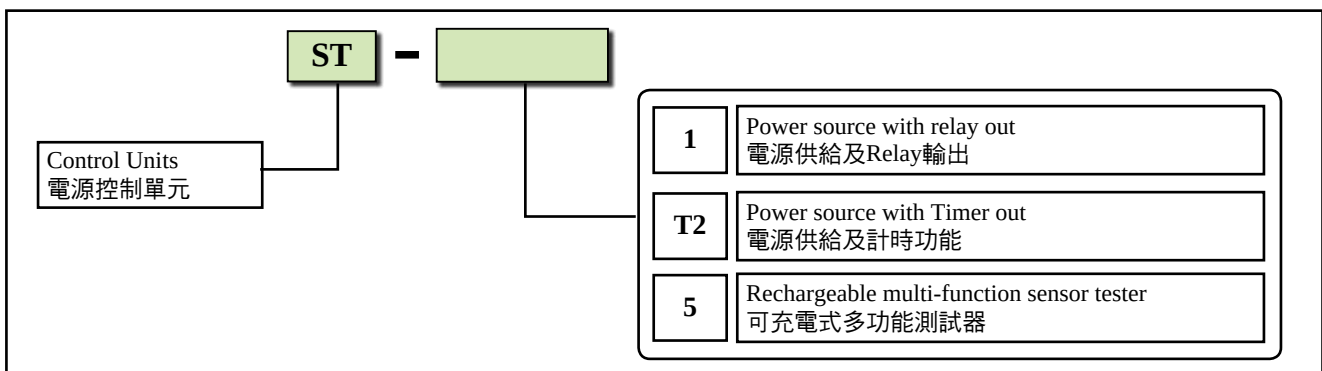
 NPN modal ·  PNP modal
(NPN輸入) (PNP輸入)

◆ Characteristic / 特性：

- 12VDC / 50mA external power supply.
/ 提供電源輸出DC12V / 50mA。
- Available in NPN or PNP, ON / OFF-delay, One-shot, functions.
/ 可接受NPN或PNP輸入方式。
- ON/OFF-Delay (0~10sec).
ONE-Shot (0~10sec).
- Easy for operating.
/ 操作容易簡便。



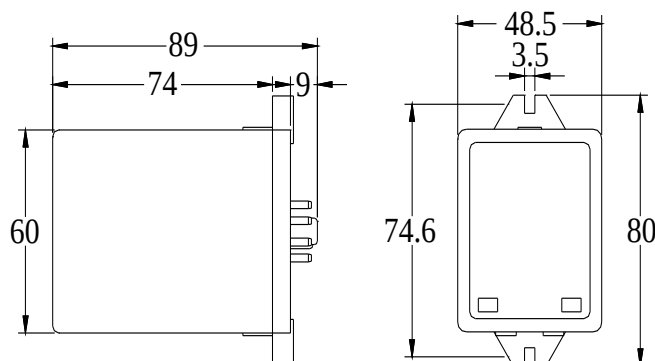
◆ Order Information / 訂貨索引：



◆ Specifications / 規格表：

Catalog Listing / 型號	ST-1	ST-T2
Adopt controller / 控制選擇	Power Source with Relay Out / 電源供給及RELAY輸出	Power Source with Timer Function / 電源供給及計時功能
Input voltage / 輸入電壓	AC 110 V or AC 220V 50 / 60 Hz (±10 %)	
Current consumption / 消耗電流	≤ 8mA NO-Load	
DC Output voltage / 直流輸出電壓	DC 12V ± 10%	
Load current / 負載電流	50 mA Max	
Delay timer functions / 延遲動作時間	—	ON / OFF - Delay Out (0 ~ 10 sec) One - Shot Out (0 ~ 10 sec)
Relay output / 輸出接點容量	AC 250V 3A	
Operating temperature/工作時溫度	- 25℃ ~ + 60℃	
Weight / 重量	Approx.135g	Approx.240g
Remark / 備註	This product is used with 8PFAW, but the pedestal is extra purchase. /此項產品須配座8PFAW使用,但座需另外購買	

◆ Dimensions / 尺寸圖：(unit:mm)



Others

GM48
G3Y

GC48-A
RTC-
P2400
RTC-
P482CRA

ST-1
ST-T2
R-1189D

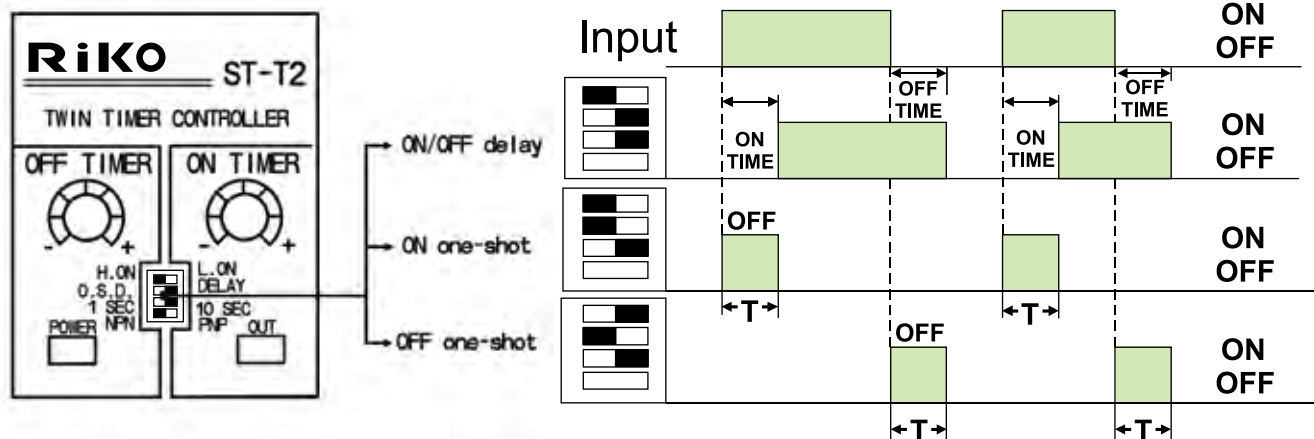
ST-5

HTR-3A
HTR-HN
HTR-W

RKP25
RKP42

ACC.

◆ ST-T2 Timing Chart / 時序圖：



- The timer functions are selected by 4-DIP switches.
/ 功能設定由面板指撥開關變更.
- "T" is the TIME of the Off Timer Range.
/ T : 延遲時間範圍.
- The knob of ON TIMER must be at 0 sec. position during ON one-shot and OFF one-shot operations.
/ 如果使用O.S.D.(ON one-shot and OFF one-shot)之功能, 請將ON TIMER旋鈕調至0 sec, 指撥開關切換至O.S.D.

◆ Connection / 接腳圖：

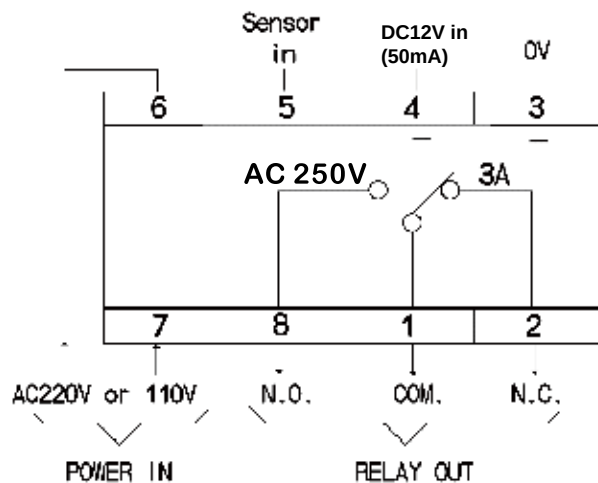
SENSOR COMBINATION/ 組合應用

Photoelectric Sensors / 光電開關

MF series
RMF series
SU series
TQ18 series
PK3 series
PK5 series
PM6 series

Proximity Sensors / 近接開關

SC series
TSC series
SN series
TSN series
JND series
SIA series
SIR series



◆ Characteristic / 特點：

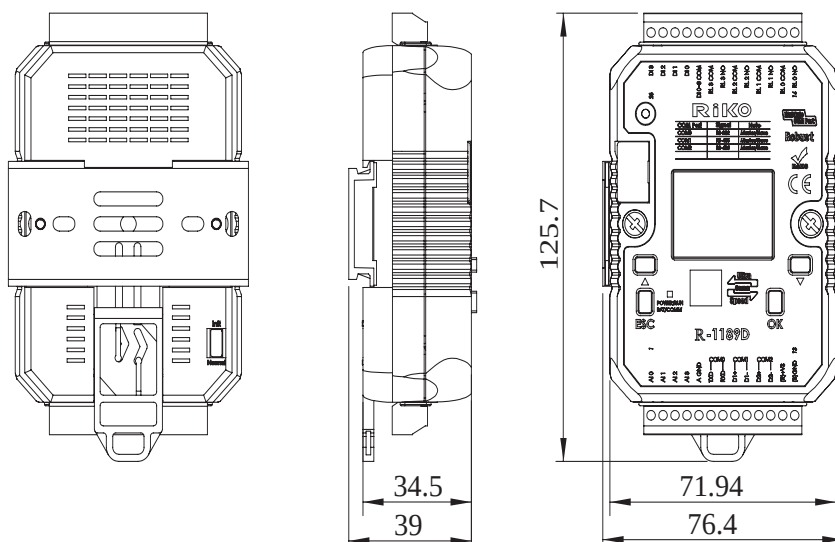
- FBD + LD System. / 功能方塊與階梯圖編輯系統。
- Support Start-up Screen (108*64). / 支援開機畫面設定(108*64 像素)。
- Multiple communication port / 多樣化通訊介面。
- Password protection, copy protection / 密碼保護功能，防盜拷功能。
- 36 integrated function, pre-tested functions / 36組預設功能，模擬功能。
- Linking of 1024 function block is possible. / 1024組功能方塊。
- Display of message texts, adjust program parameter. / 簡易文本顯示功能，可直接修改參數。
- Integrated data latch. / 斷電保持功能。
- Support full Modbus protocol. / 支援Modbus協議。



◆ Specifications / 規格表：

Model / 型號	R-1189D
Digital Inputs / 輸入迴路	8
Analog Inputs / 類比輸入迴路	4 (able to use in digital specification) / 4(支援數位模式)
Digital Outputs / 輸出迴路	4
Input voltage range / 輸入迴路電壓位準	Digital ON: 4~30VDC OFF:2VDC(max.) / 數位輸入電壓ON: 4~30VDC OFF:2VDC(最大) Analog: 0~10VDC / 類比輸入電壓: 0~10VDC
Continuous Current / 輸出能力	Relay: 5 A for resistive load, 2 A for inductive load / 繼電器輸出:電阻性負載5A，電感性負載2A Transistor: NPN open collector, max. 100mA at 30 VDC / 電晶體輸出:NPN開集極,最大100mA於30VDC
Incoming Power / 操作電壓	10~30 VDC
reserve power / 斷電保持	> 10 years / 約10年
Operation temperature / 操作溫度	-20 °C to +75 °C
Storage temperature / 儲存溫度	-25 °C to +80 °C
Linking of functions / 程式功能方塊數量	1024(Max.)
Real time clock / 集成時鐘	Yes/>2 years 有/約2年
Protocols / 通訊協定	Modbus ASCII + Modbus RTU
Incorporate operator interface / 自訂通訊界面	有(Modbus interface)
Expansion maximum I/O / 外部擴充點數	More than 10000 / 大於10000點
Input Operating frequency / 輸入迴路工作頻率	15000HZ(DI0~DI3)/50HZ(DI4~DI7)
Message text/ display / 訊息文本顯示器	4 lines of 12 characters / 4行,每行12字
Communication Port / 通訊界面	RS485*2 +RS232*1
Type Instruction / 機型說明	R-1189D :LCD monitor, Relay output / R-1189D : 12點輸出入/繼電器輸出/訊息文本顯示器

◆ Dimensions / 尺寸圖：(unit:mm)



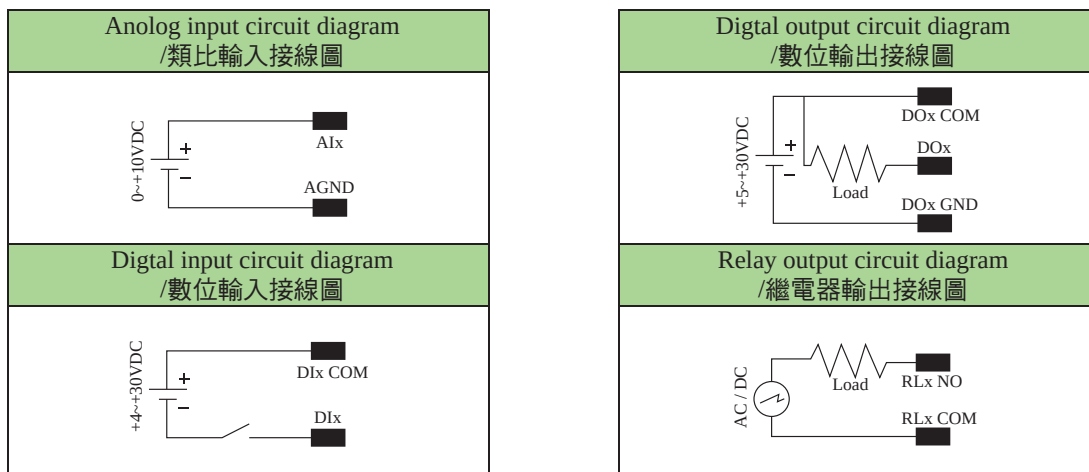
◆ Application Example and Software Instruction of controller program / 控制器程式範例應用與軟體說明:



◆ Application Example / 範例應用:

Example 1 / 範例1	Series circuit application function. /範例說明：串聯應用功能。	
	Description: AND-gate will only act when both I000 and I001 are active. Either I000 or I001 is off, AND-gate will not act. /動作說明： 當使用者僅按下I000或I001其中一輸入點時，AND閘是不會動作的，必須同時按下I000及I001，AND閘才會有輸出。	
Example 2 / 範例2	Parallel circuit application function. /範例說明：並聯應用功能。	
	Description: One or more input between I000~I003 are active, OR-gate will act. /動作說明： 當使用者按下I000~I003其中任何一個按鍵，OR閘就會立即輸出；同時按下二個(含)以上的I001~I003，OR閘也是一樣會立即輸出。	
Example 3 / 範例3	Counter I/O application function. /範例說明：計數器輸入輸出功能。	
	Description: Counter will act when the input signal reached to set value: Ex. Set Value 3, Counter will act when the input signal reached 3 times or more. 2 times and below will not act. /動作說明： 當輸入的訊號累積達到設定的計數數值時，計數器就會執行輸出動作；例如計數器參數設定為3，代表輸入訊號要達到3次才會讓計數器動作；如果輸入訊號只有2次(含)以下，計數器是不會動作的。	
Example 4 / 範例4	ON/OFF Delay timer I/O application function. /範例說明：ON/OFF延遲計時輸入輸出功能。	
	Description: 1. ON-Delay Timer: when timer receive the input signal, after set value (2 sec), timer start act. 2. OFF-Delay Timer: Timer will act immediately after receive the input signal, and off only after set value (2 sec), when the input signal stop. /動作說明： 1.ON延遲計時器(ON-DELAY TIMER)當計時器接收輸入訊號後，要經過所設定的時間2sec後，計時器才會啟動且立即輸出。 2.OFF延遲計時器(OFF-DELAY TIMER)當計時器接收輸入訊號後，會直接啟動，但經過所設定的時間2sec後，計時器不啟動會立即關閉輸出。	
Example 5 / 範例5	Combination of Counter and ON Delay timer for input and reset for output functions. /範例說明：結合計數器與ON延遲計時輸入與reset輸出功能。	
	Description: This is for garden sprinkler system, push button twice to start sprinkling, then stop sprinkling after set value(5 min). (In the diagram: ON-Delay Timer(B0) connected to the Counter(B1) at first contactor(reset), to control the output period for Counter(B1). /動作說明： 這個應用為花園自動灑水系統，連續按二下按鍵後啟動灑水，並在啟動後五分鐘停止灑水。(此範例的ON延時計時器B0是連接到計數器B1的RESET接點，ON延時計時器的功能是通知計數器關閉輸出功能)。	

◆ wiring diagram / 接線圖:

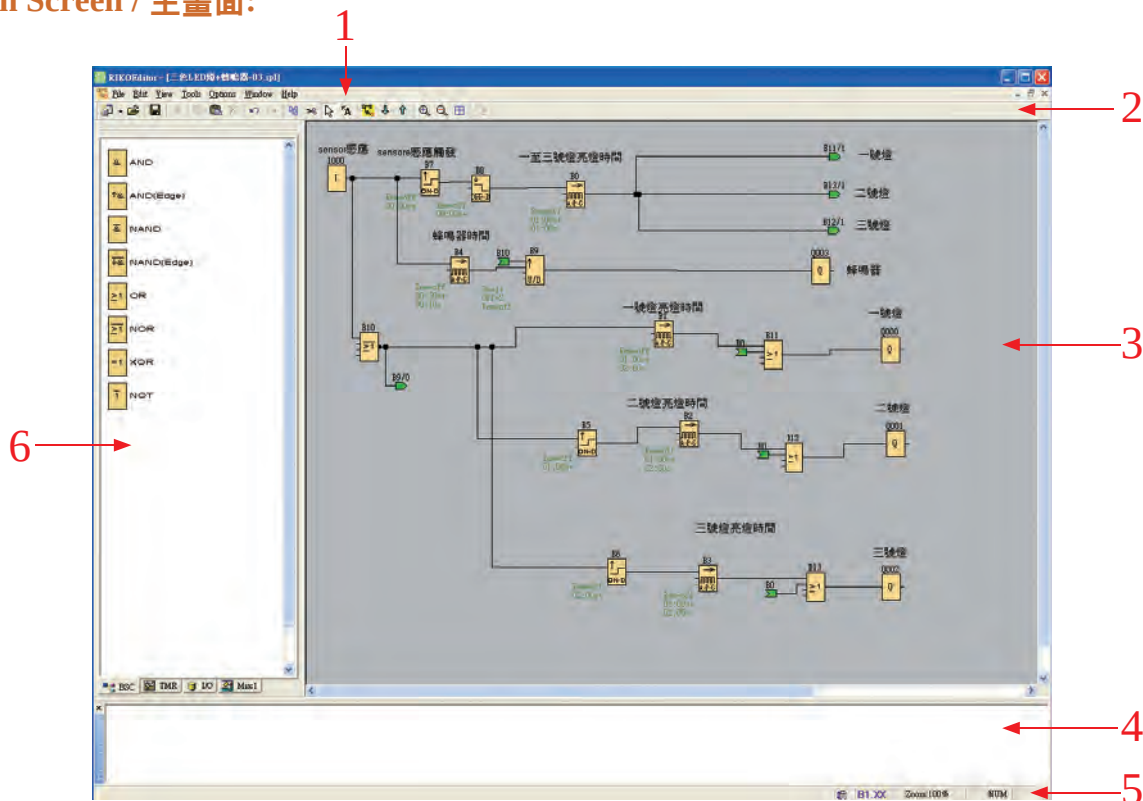


◆ Notifications / 注意事項:

1. Damage may caused by using non specific power supply.
/不符使用規格的高壓電將導致控制器短路或毀損。
2. Make sure Power OFF before doing any connection or disconnection.
/連接或解除控制器各接點前，請務必將工作電源關閉。
3. When installing into required highly security device or place, please do double check all the device and circuit wiring to avoid any unexpected accident.
/當使用於高安全性裝置或重要場所時，請再次依所需配置或規劃檢查線路是否連接正確，避免造成工安事故。

◆ Software Instruction / 軟體說明:

• Main Screen / 主畫面:



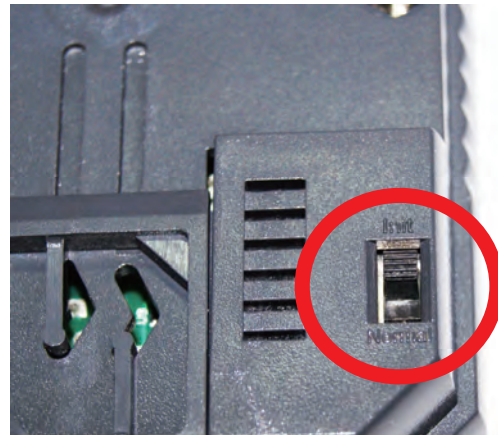
Item/項目	1	2	3	4	5	6
Description / 描述	Menu bar / 主功能選項	Standard toolbar / 工具欄	Programming interface / 程式編輯視窗	Information window / 執行訊息欄	Status bar / 狀態欄	Constants and connectors, Basic functions, Special functions / 功能方塊選項欄

◆ PC to R-1189D communication module instruction. /PC與R-1189D控制器通訊模組操作：

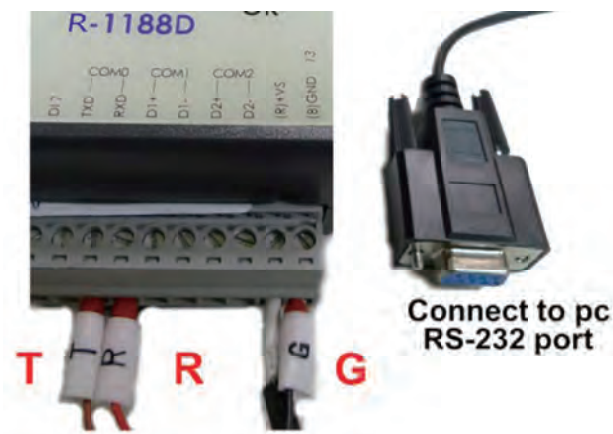
■ Step 1 : Prepared R-1189D and DSCAB cable.
/步驟1：準備好控制器及DSCAB通訊線。



■ Step 2 : Turn the switch to "init" from the back side of R-1189D.
/步驟2：將控制器背面的開關撥到init位置。



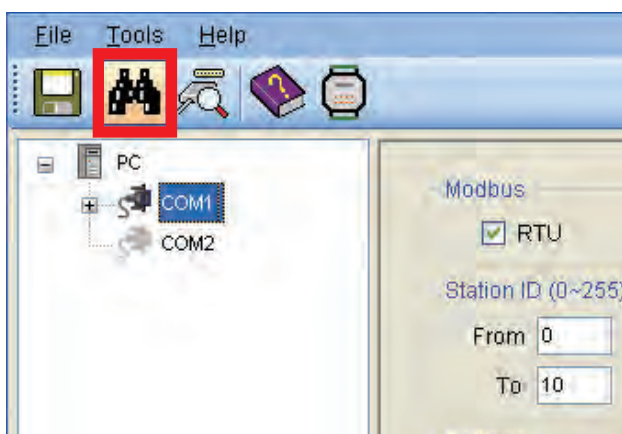
■ Step 3 : Connect the cable between R-1189D and PC.
/步驟3：將通訊線連接至控制器與PC。



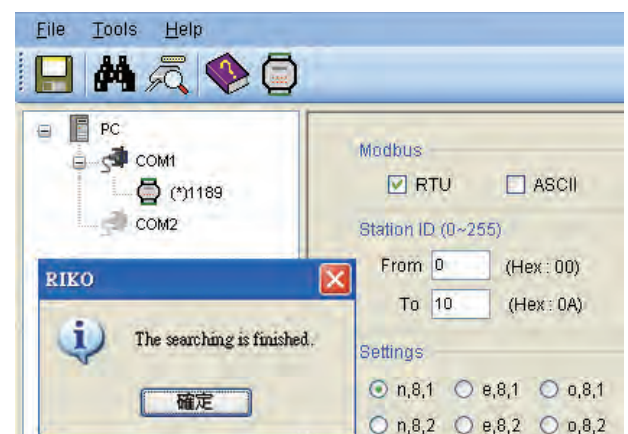
■ Step 4 : Switch on the R-1189D.
/步驟4：開啟電源。



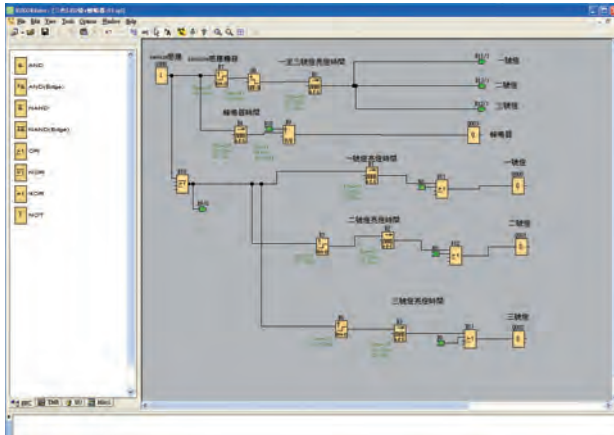
■ Step 5 : Open the RiKO software.
/步驟5：開啟RiKO搜尋控制器。



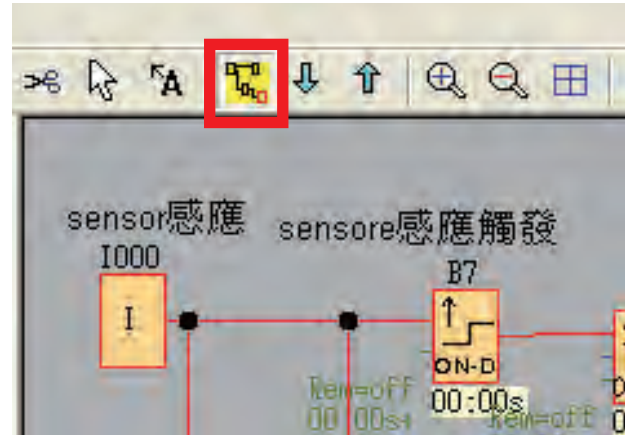
■ Step 6 : Find the device and get connected.
/步驟6：順利完成控制器搜尋及選取。



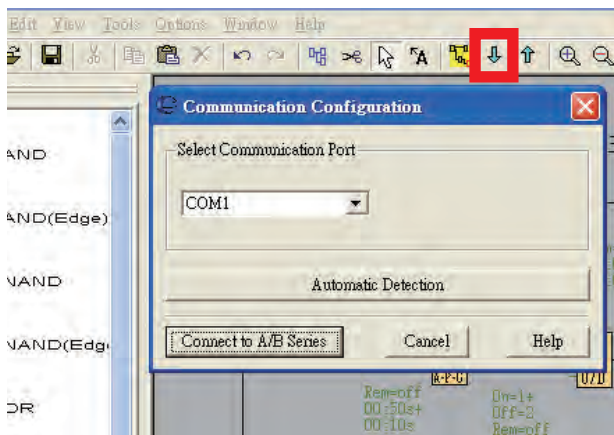
- Step 7 : Now you may start use RiKOEEditor.
/步驟7：現在您已經可以使用 RiKOEEditor來編輯程式。



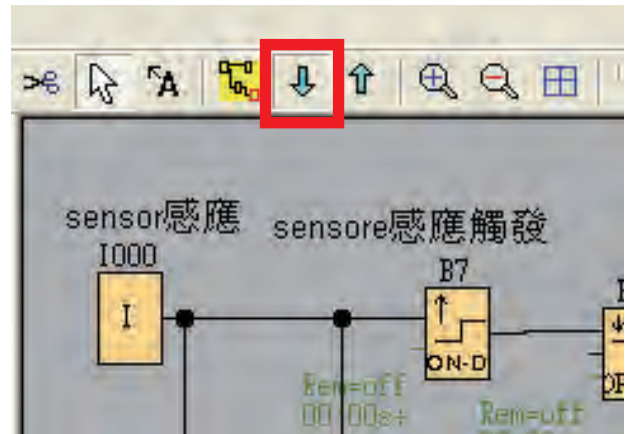
- Step 8 : Edit program and proceed simulation.
/步驟8：編輯程式並進行線上模擬。



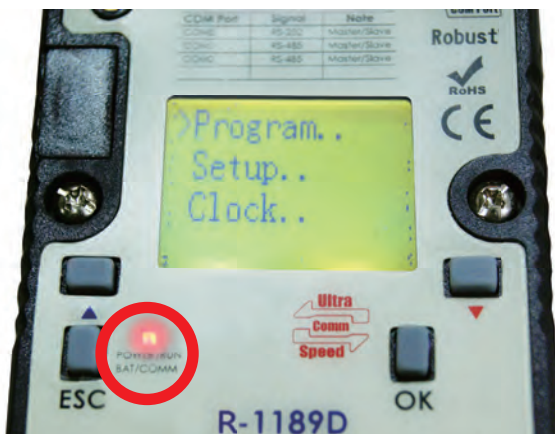
- Step 9 : Select the COM port.
/步驟9：開啟 RiKOEEditor設定控制器的通訊埠。



- Step 10 : Completed the program and download to RiKOcontrol.
/步驟10：將完成程式下載至控制器。



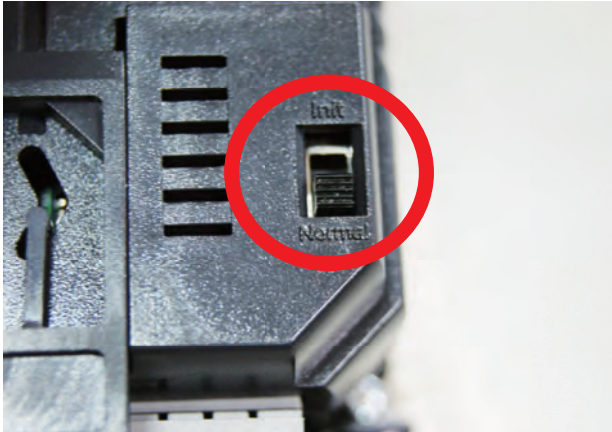
- Step 11 : RiKOcontrol shows the setting page, (Red light ON)
/步驟11：自動進入控制器操作介面 (亮紅燈)。



- Step 12 : program=>Edit=>Edit program Enter to do Parameter adjustment
/步驟12：program=>Edit=>Edit program進入參數調整。



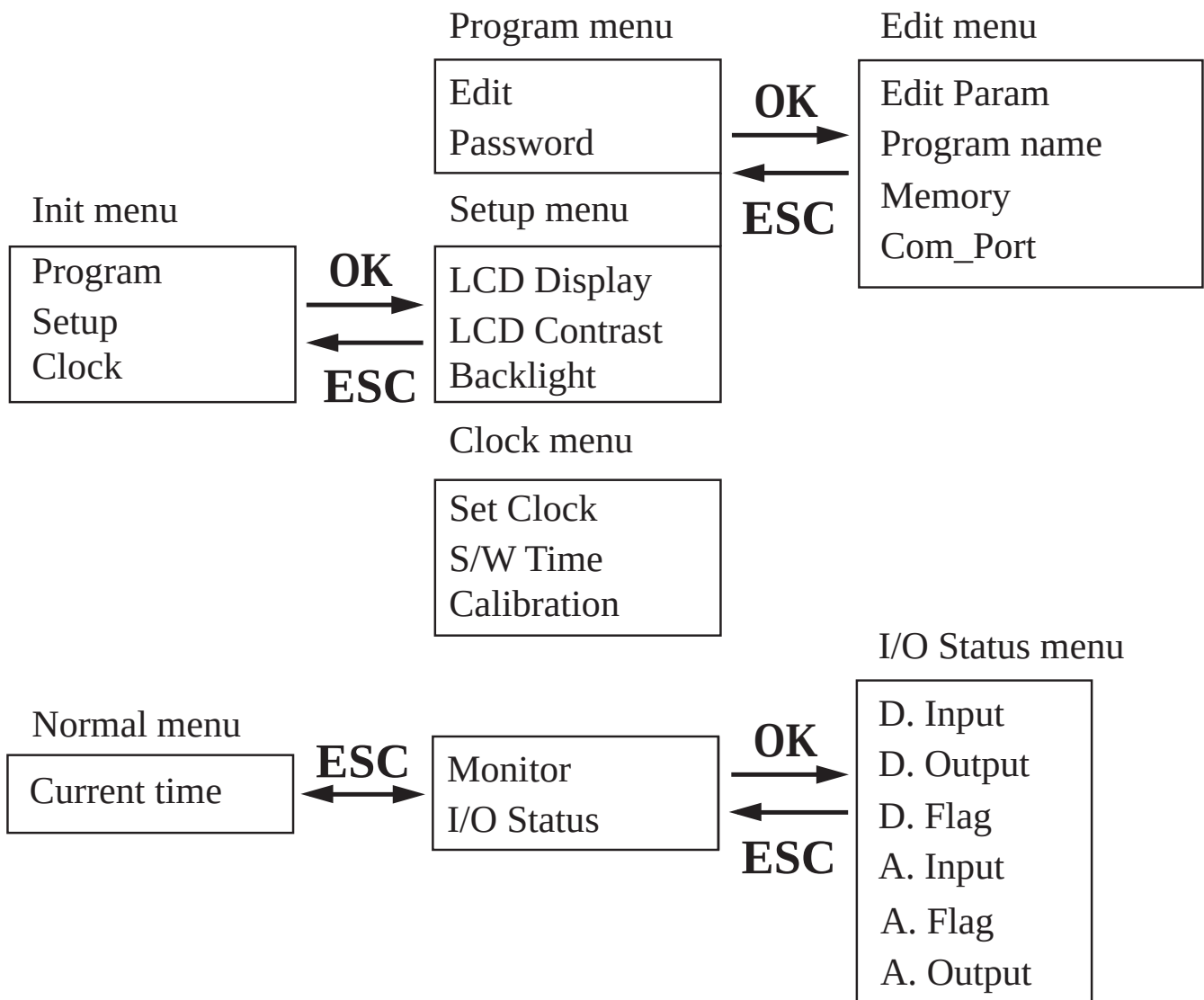
- Step 13 : Turn the switch to "Normal" from the back side of RiKOcontrol.
/步驟13：將控制器背面的開關撥到Normal位置。



- Step 14 : RiKOcontrol ready to work,(Green light ON)
/步驟14：控制器進入即時控制模式 (亮綠燈)。



◆ Operating procedure / 顯示螢幕操作流程：



Others

GM48
G3Y

GC48-A
RTC-
P2400
RTC-
P482CRA

ST-1
ST-T2
R-1189D

ST-5

HTR-3A
HTR-HN
HTR-W

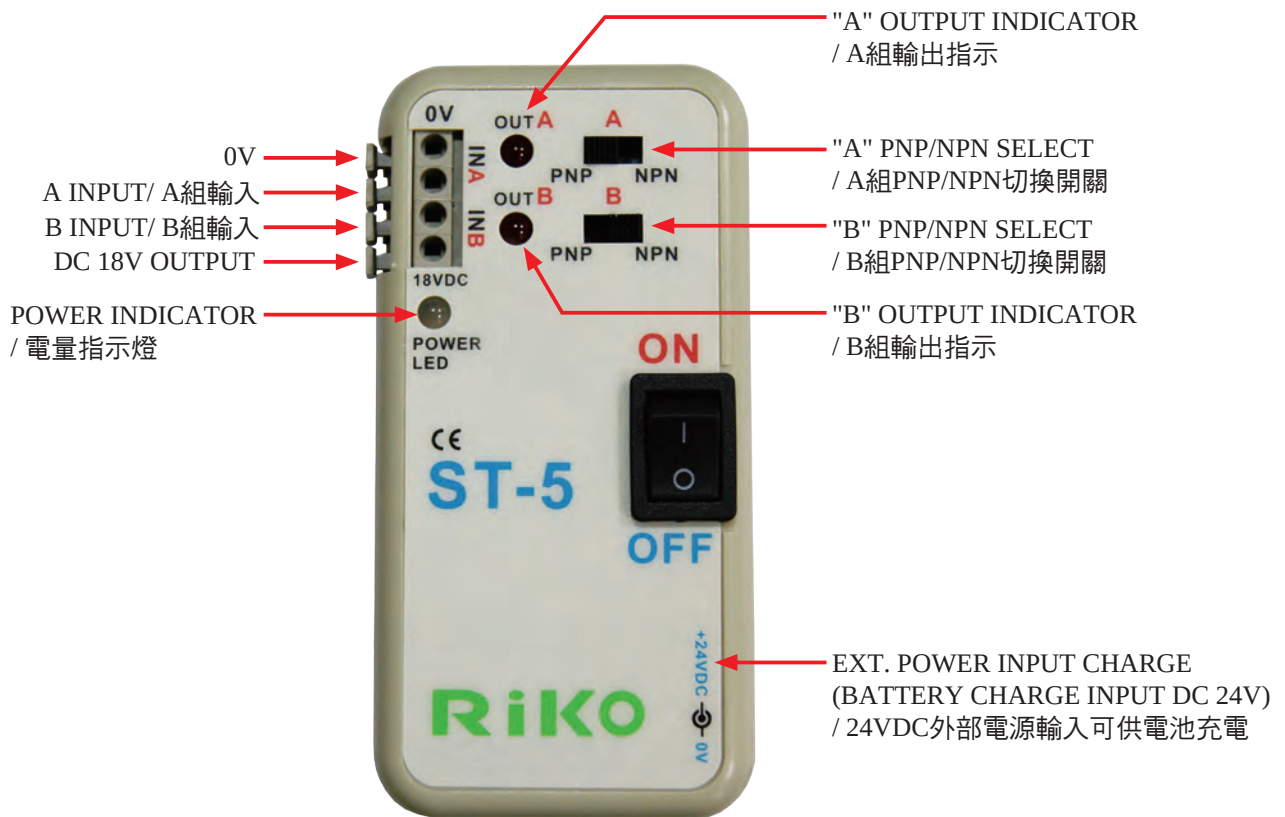
RKP25
RKP42

ACC.

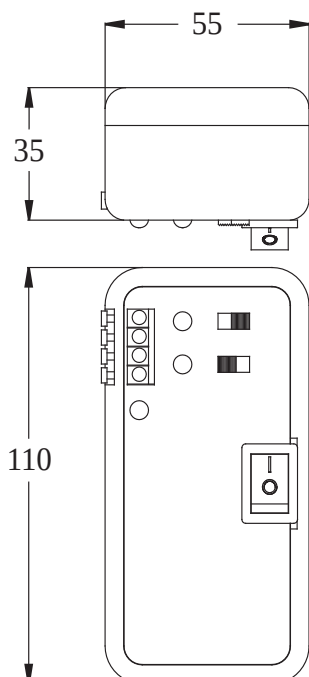
◆ Characteristic / 特性：

- Used to check photoelectric and proximity sensor./ 可檢測光電開關與近接開關並供應18VDC給SENSOR使用。
- Two LED indicators and two select switches for NPN or PNP./ 提供二組NPN及PNP輸入測試。
- Use DC24V to recharge the battery ./ 可使用DC24V外部電源來進行電池充電。
- Automatic power off : If operator does not make any motion or detection after power-on, it will stop automatically after 5 minutes.Auto power off timer for saving power./ 省電裝置，開機後，5分鐘未動作，將會自動關閉。
- LED indicator blinks when low power./ 當電量不足時,指示燈會閃爍。
- Power source : DC24V or 18V Rechargeable battery ./ 使用電源為外部DC24V或內部一顆18V電池。

◆ Panel description / 功能位置：(unit:mm)



◆ Dimensions / 尺寸圖：(unit:mm)



◆ BATTERY CHARGER : GS18U24-P1J (OPTION)



Series	GS18U
Model	GS18U24-P1J
Dimension	79x54x33 mm
Power output	DC 24V 0.75A

◆ BATTERY : ST-5-B01

Lithium Polymer Rechargeable Battery.



Others

GM48
G3Y

GC48-A
RTC-
P2400
RTC-
P482CRA

ST-1
ST-T2
R-1189D

ST-5

HTR-3A
HTR-HN
HTR-W

RKP25
RKP42

ACC.

◆ Characteristic / 特點：

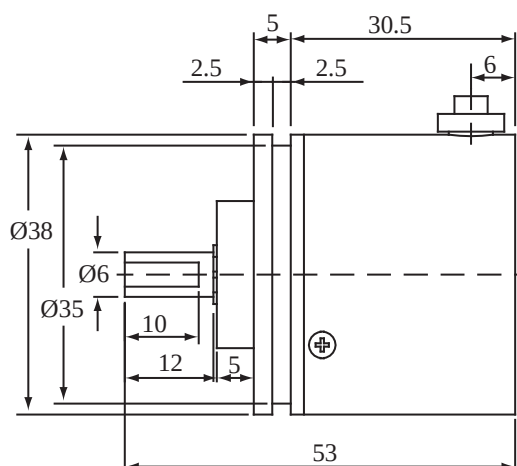
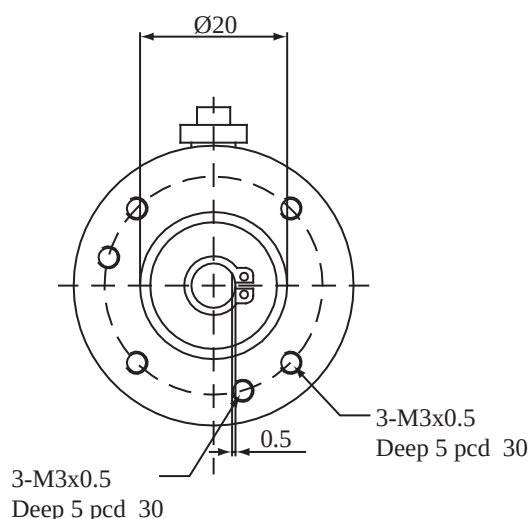
- Automation control and measurement applied to length, angles, speed, gapping, thickness, flow, height, counter, tension, liquid level in equipments.
- / 工業自動控制量測，如長度、角度、速度、尺寸、厚薄、流量、高低、計數、張力、液位等相關設備。



◆ Specifications / 規格表：

Model / 型號	HTR-3A
Detection System	Incremental 增量型
Output Wave / 輸出波形	Square Wave 方波
Standard Number of Pulse Per Revolution / 解析	100, 360, 500, 1000, 1024, 2000, 2500
Output Phase / 輸出相	ABZ phase
Electronics / 電路特性	NPN Voltage 電壓型, NPN Open Collector 電流型 or Line Driver 差動式
Power Supply / 供應電源	DC 8~26V, DC 5V fixed
Current Consumption / 消耗電流	≤ 60 mA
Output Capacity / 輸出容量	Sync. Current: 20 mA, Residual Voltage: 0.5V or less
Max. Response / 最大響應頻率	10K Hz ~ 100K Hz
Phase Different / 相位差	A, B phase different 90° ±45° (T/4±T/8), Z phase T±T/2
Wave Form Rise / Fall 波形上下時間	2 μs or less
Polarity / 極性保護	Against Reverse Protection (not with DC 5V)
Shaft Diameter / 軸徑	6 mm
Shaft Loading / 軸荷重	(10 ~ 400 PPR) Axial 軸向: 1 Kg, Radial 徑向: 2 Kg (over 400 PPR) Axial 軸向: 0.5 Kg, Radial 徑向: 1 Kg
Starting Torque (at 25°C) / 起動轉矩	30 gf-cm or less
Max. Speed / 最大機械容許速度	6,000 rpm
Vibration / 震動	10g (10±1,500 Hz)
Shock / 衝擊	20g per 11 ms
Cable / 電線	Ø4.5, 100 cm long
Weight / 重量	≤ 200g
Operating Temp. / Humidity / 操作溫度/濕度	0°C ~ 60°C, RH 35% ~ 90% (No Condensation)
Storage Temp. / 儲存溫度	-20°C ~ 80°C
Protection / 保護等級	IP50: Dust Proof

◆ Dimensions / 尺寸圖：(unit:mm)



◆ Characteristic / 特點：

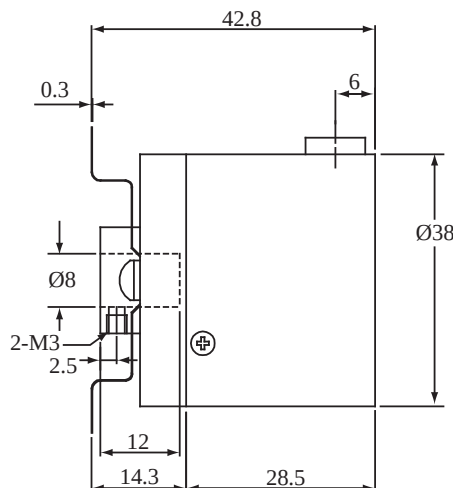
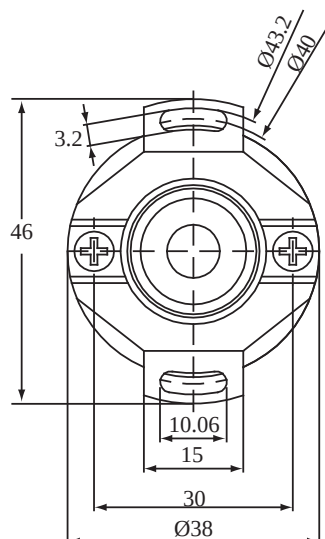
- Automation control and measurement applied to processing equipments in harsh environments with serious humidity dust and vibration.
/ 潮濕、粉塵重、振動大等惡劣環境之自動化控制量測加工設備使用。



◆ Specifications / 規格表：

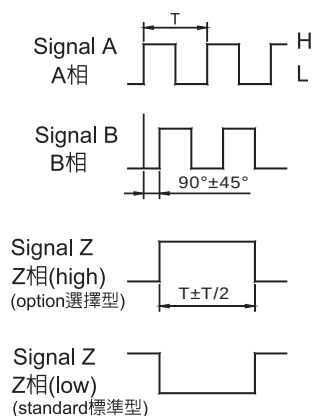
Model / 型號	HTR-HN
Detection System	Incremental 增量型
Output Wave / 輸出波形	Square Wave 方波
Standard Number of Pulse Per Revolution / 解析	100, 360, 500, 1000, 1024, 2000, 2500
Output Phase / 輸出相	ABZ phase
Electronics / 電路特性	Voltage 電壓型, Open Collector 電流型 or Line Driver 差動式
Power Supply / 供應電源	DC 8~26V, DC 5V fixed
Current Consumption / 消耗電流	≤ 60 mA
Output Capacity / 輸出容量	Sync. Current: 20 mA, Residual Voltage: 0.5V or less
Max. Response / 最大響應頻率	10K Hz ~ 100K Hz
Phase Different / 相位差	A, B phase different 90° ±45° (T/4±T/8), Z phase T±T/2
Wave Form Rise / Fall / 波形上下時間	2 μs or less
Polarity / 極性保護	Against Reverse Protection (Except Line Driver, Line Driver 除外)
Hollow Shaft Diameter / 孔徑	8 mm
Shaft Loading / 軸荷重	(10 ~ 400 PPR) Axial 軸向: 1 Kg, Radial 徑向: 2 Kg (over 400 PPR) Axial 軸向: 0.5 Kg, Radial 徑向: 1 Kg
Starting Torque (at 25°C) / 起動轉矩	30 gf-cm or less
Max. Speed / 最大機械容許速度	6,000 rpm
Vibration / 震動	10g (10±1,500 Hz)
Shock / 衝擊	20g per 11 ms
Cable / 電線	Ø4.5, 100 cm long
Weight / 重量	≤ 200g
Operating Temp. / Humidity / 操作溫度/濕度	0°C ~ 60°C, RH 35% ~ 90% (No Condensation)
Storage Temp. / 儲存溫度	-20°C ~ 80°C
Protection / 保護等級	IP50: Dust Proof

◆ Dimensions / 尺寸圖：(unit:mm)



◆ Incremental Encoder's Electrical Data / 增量型譯碼器電器特性：

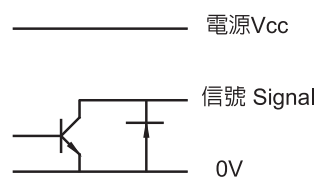
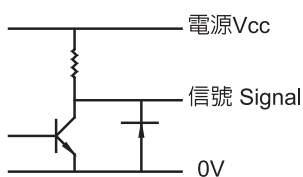
• Output Wave Form / 輸出波形圖



• Circuit Of Output Signal / 電路輸出訊號

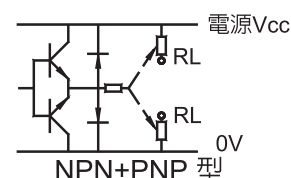
電壓型 Voltage Type

電流型 Open-Collector



線性差動 Line Driver

推挽式 Push-Pull



◆ Electrical Connections / 接線圖：

• Color wire function of cable

電壓電流型接法 NORMAL CIRCUIT

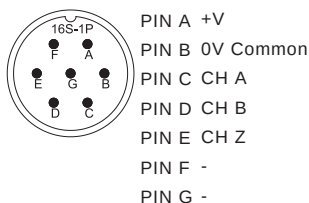
線性差動式接法 LINE DRIVER CIRCUIT

Color of wire	(pin)	Function	Color of wire	(pin)	Function
Red 紅	1A	+V	Red 紅	1A	+V
Black 黑	2B	0V Common	Black 黑	2B	0V Common
White 白	3C	A 相 CH A	Blue 藍	3C	A 相 CH A
Green 綠	4D	B 相 CH B	Green 綠	4D	B 相 CH B
Yellow 黃	5E	Z 相 CH Z	Yellow 黃	5E	Z 相 CH Z
Shield 隔離線	-	NC	Violet 紫	6F	/A 反相 CH A (reverse)
			Orange 橘	7G	/B 反相 CH B (reverse)
			Brown 棕	8H	/Z 反相 CH Z (reverse)
			Shield 隔離線	-	NC

• Pin function of connector

TYPE:MS3102A16S-1P

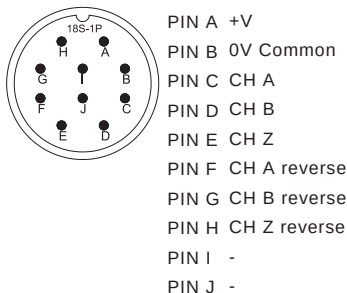
(7pin connector)

*for Voltage, Open Collector,
Push Pull

TYPE:MS3102A18S-1P

(10 pin connector)

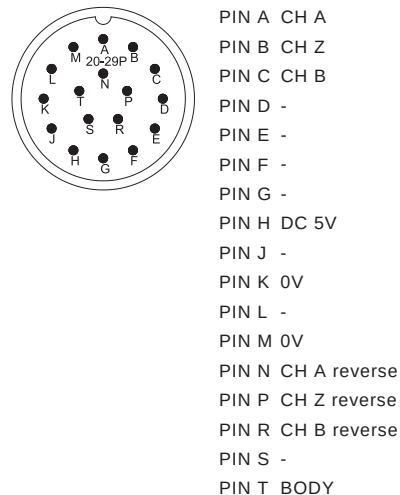
*for Line Driver



TYPE:MS3102A20S-1P

(17 pin connector)-only for HPN-6D

*for Line Driver



Pressure Switch

◆ Characteristic / 特點：

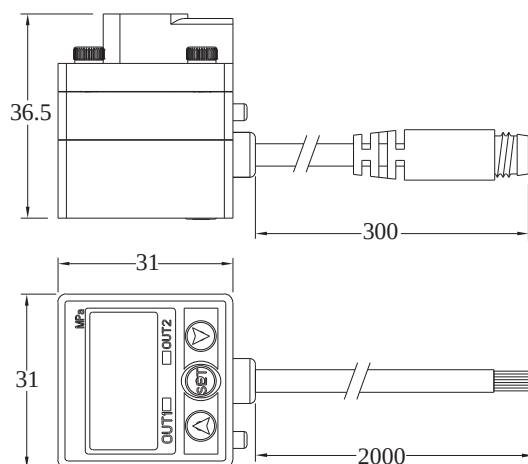
- Two switch outputs & One analog output : 1~5V.
/ 2組輸出 & 1組類比輸出 1~5V。
- High display accuracy : $< \pm 0.2\%$ F.S.
/ 重覆精度高： $< \pm 0.2\%$ F.S。
- IP65 enclosure. / 保護構造：IP 65。
- Hysteresis adjustable. / 應差可調整設定。



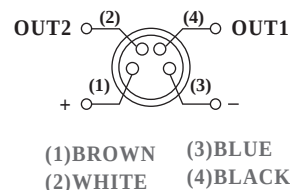
◆ Specifications / 規格表：

Model / 型號		RKP25C (Compound /連成壓)	RKP25V (Vacuum /負壓)	RKP25P (Positive /正壓)
1.0 MPa 100.0 kPa 0 -101.3 kPa				
Rated pressure range / 額定壓力範圍		-100.0~100.0 kPa	0.0~-101.3 kPa	0.000~1.000 MPa
Setting pressure range / 設定壓力範圍		-100.0~100.0 kPa	10.0~-101.3 kPa	-0.100~1.000 MPa
Withstand pressure / 耐壓力		300 kPa		1.5 MPa
Fluid / 適用氣體		Air, Non-corrosive, Non-flammable gas / 空氣，非腐蝕性，不可燃性		
Set pressure resolution / 壓力單位 設定最小刻度	kPa	0.1	-	
	MPa	-	0.001	
	kgf/cm ²	0.001	0.01	
	bar	0.001	0.01	
	psi	0.01	0.1	
	InHg	0.1	-	
	mmHg	1	-	
Power supply voltage / 電源電壓		12 to 24V DC ±10%, Ripple (P-P) 10% or less / 12 to 24V DC ±10%，漣波峰值10%以下		
Current consumption / 消費電流		≤55mA		
Switch output / 開關輸出		NPN : open collector 2 outputs / 2NPN開集極輸出 Max. load current : 80mA / 最大負載電流：80mA Max. supply voltage : 30VDC / 最大供應電壓：30VDC Residual voltage : ≤1V / 內部壓降：1V以下 PNP : open collector 2 outputs / 2PNP開集極輸出 Max. load current : 80mA / 最大負載電流：80mA Max. supply voltage : 24VDC / 最大供應電壓：24VDC Residual voltage : ≤1V / 內部壓降：1V以下		
Repeatability(Switch output) / 重複精度		≤±0.2%F.S.±1 digit		
Hysteresis / 應差	Hysteresis mode / 應差模式	Adjustable / 可調		
	Window comparator mode / 窗口比較模式	Fixed (3 digits) / 固定(3 digits)		
Response time / 反應時間		≤2.5ms (chattering-proof function : 24ms, 192ms and 768ms selections) / 2.5ms以下(預防誤動作功能：24ms, 192ms and 768ms可選擇)		
Output short circuit protection / 輸出短路保護		Yes		
7 segment LED display / 顯示		3 1/2 digit LED display (Sampling rate : 5times/1sec) / 3 1/2 digit LED顯示 (取樣率5次/秒)		
Indicator accuracy / 顯示精度		≤±2% F.S. ±1 digit (ambient temperature : 25±3℃) / ±2% F.S. ±1 digit 以下(在周圍溫度：25±3℃)		
Indicator / 動作顯示燈		OUT1=Green, OUT2=Red / 綠色LED (OUT1 : ON時亮燈), 紅色LED (OUT2 : ON時亮燈)		
Environment / 耐環境	Enclosure / 防護等級	IP65		
	Ambient temp. range / 周圍溫度	Operation : 0~50℃, storage : -20~60℃ (No condensation or freezing) / 動作：0~50℃, 保存：-20~60℃ (無水露及不結冰狀況下)		
Temperature characteristic / 溫度特性		≤±2% F.S. of detected pressure (25℃) at temp. range of 0~50℃ / ±2% F.S.以下 (0~50℃溫度範圍內)		
Port size / 接管口徑		F1 : 1/8"PT, F2 : 1/8"NPT, F3 : G1/8"		
Lead wire / 電線規格		Oil-resistance cable (0.15mm ²) / 耐油PVC電線 (0.15mm ²)		
Weight / 重量		Approx. 105g (with 2-meter lead wire), Approx. 71g (with M8, 4Pin male connector) / 約105g (包含2公尺的電線), 約71g (包含M8, 4Pin公頭)		

◆ Dimensions / 尺寸圖 : (unit:mm)



- RKP25-□-□-□-OD



- RKP25-□-□-□

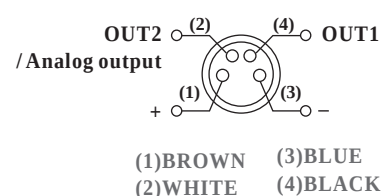
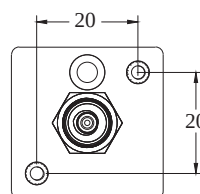
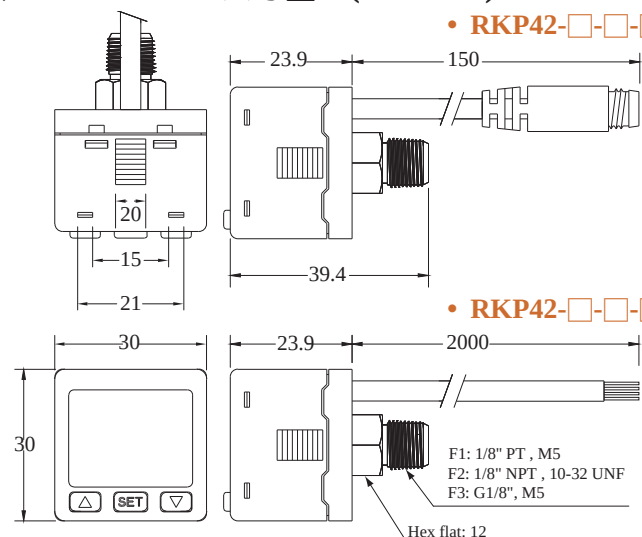
RKP

- 3-color digital LCD display, easy readout.
/ 三色數位LCD顯示，易於判讀。
- Programmable pressure unit. / 壓力單位可變換。
- Dual LCD display allows setting value to be displayed.
/ 子母畫面可直接顯示設定值。
- Key lock indicator / 鎖鍵顯示。



Model / 型號		RKP42C (Compound /連成壓)	RKP42V (Vacuum /負壓)	RKP42P (Positive /正壓)
Rated pressure range / 額定壓力範圍		-100.0~100.0 kPa	0.0~ -101.3 kPa	0.000~1.000 MPa
Setting pressure range / 設定壓力範圍		-100.0~100.0 kPa	10.0~ -101.3 kPa	-0.100~1.000 MPa
Withstand pressure / 耐壓力		300 kPa		1.5 MPa
Fluid / 適用氣體		Air, Non-corrosive, Non-flammable gas / 空氣，非腐蝕性，不可燃性		
Set pressure resolution / 壓力單位 設定最小刻度	kPa	0.1		-
	MPa	-		0.001
	kgf/cm ²	0.001		0.01
	bar	0.001		0.01
	psi	0.01		0.1
	InHg	0.1		-
	mmHg	1		-
Power supply voltage / 電源電壓		12 to 24V DC ±10%, Ripple (P-P) 10% or less / 12 to 24V DC ±10%，漣波峰值10%以下		
Current consumption / 消費電流		≤40mA(With no load) / ≤40mA以下(無負載時)		
Switch output / 開關輸出		NPN : open collector 2 outputs / 2NPN開集極輸出 PNP : open collector 2 outputs / 2PNP開集極輸出 Max. load current : 125mA / 最大負載電流：125mA Max. load current : 125mA / 最大負載電流：125mA Max. supply voltage : 30VDC / 最大供應電壓：30VDC Max. supply voltage : 24VDC / 最大供應電壓：24VDC Residual voltage : ≤1.5V / 內部壓降：1.5V以下 Residual voltage : ≤1.5V / 內部壓降：1.5V以下		
Repeatability(Switch output) / 重複精度		≤±0.2%F.S.±1 digit		
Hysteresis / 應差		Adjustable / 可調		
Response time / 反應時間		≤2.5ms (chattering-proof function : 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selections) / ≤2.5ms (預防誤動作功能：25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms可選擇)		
Output short circuit protection / 輸出短路保護		Yes		
7 segment LED display / 顯示		Two color (Red/Green) main & unit display, Orange sub-display (Sampling rate : 5 times/1sec.) / 3色(紅/綠/橙)顯示(取樣率5次/秒)		
Indicator accuracy / 顯示精度		≤±2% F.S. ±1 digit (ambient temperature : 25±3℃) / ±2% F.S. ±1 digit (在周圍溫度：25±3℃)		
Indicator / 動作顯示燈		Orange (1 & 2 Indicator) OUT1 OUT2 / 橙色(1&2指示燈) OUT1 OUT2		
Environment / 耐環境	Enclosure / 防護等級	IP40		
	Ambient temp. range / 周圍溫度	Operation : 0~50℃, storage : -10~60℃(No condensation or freezing) / 動作：0~50℃,保存：-10~60℃(無水露及不結冰狀況下)		
Temperature characteristic / 溫度特性		≤±2% F.S. of detected pressure (25℃) at temp. range of 0~50℃ / ≤±2% F.S.比較參考溫度25℃ (0~50℃溫度範圍內)		
Port size / 接管口徑		F1 : 1/8"PT, M5; F2 : 1/8"NPT, 10~32 UNF; F3 : G1/8", M5		
Lead wire / 電線規格		Oil-resistance cable (0.15mm ²) / 耐油PVC電線 (0.15mm ²)		
Weight / 重量		Approx. 80g (with 2-meter lead wire), Approx. 45g (with M8, 4Pin male connector) / 約80g (包含2公尺的電線), 約45g (包含M8, 4Pin公頭)		

- RKP42-□-□-□-OD



Others

GM48
G3Y

GC48-A
RTC-
P2400
RTC-
P482CRA

ST-1
ST-T2
R-1189D

ST-5

HTR-3A
HTR-HN
HTR-W

RKP25
RKP42

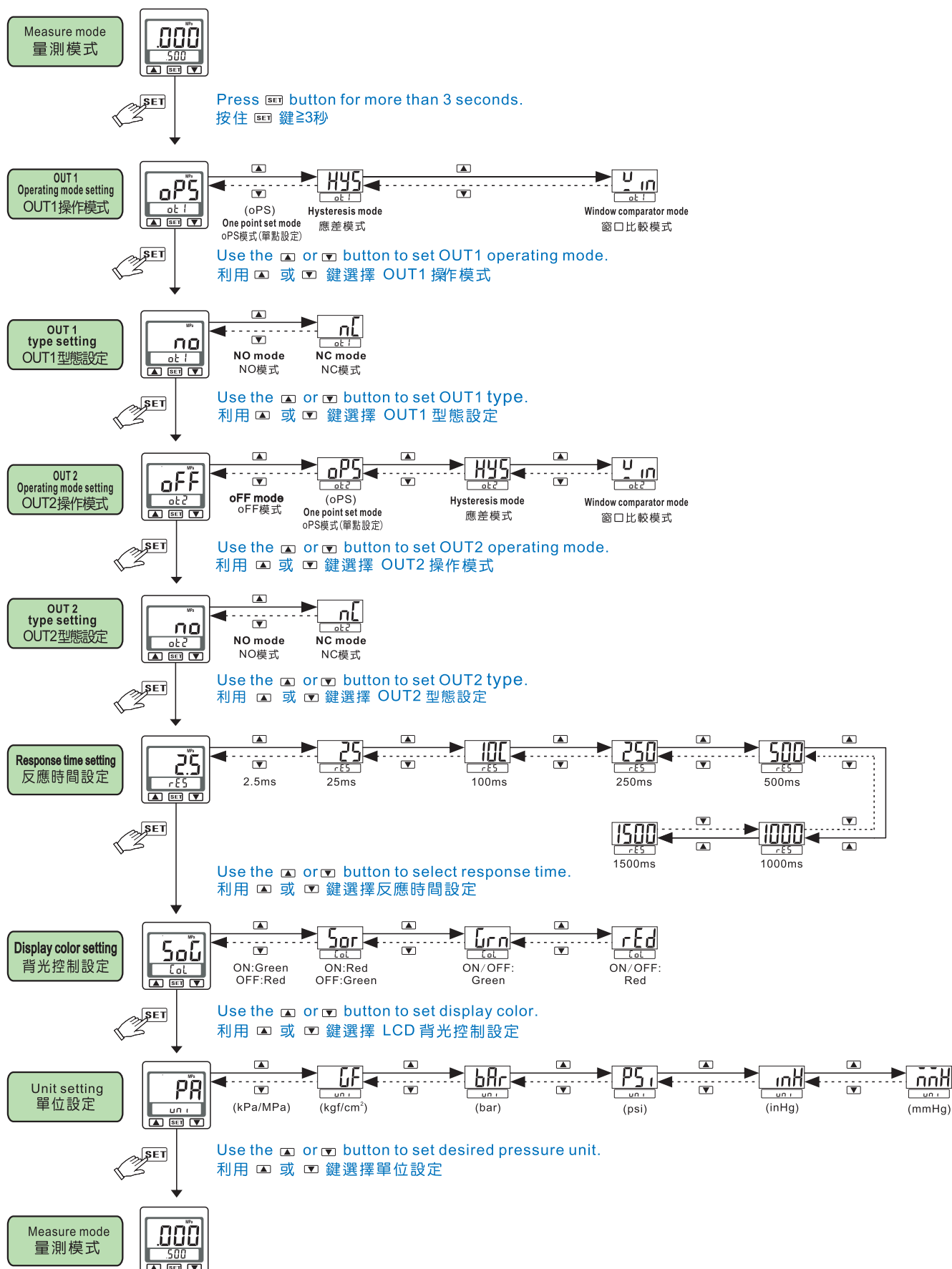
ACC.

◆ Set Mode / 功能設定：



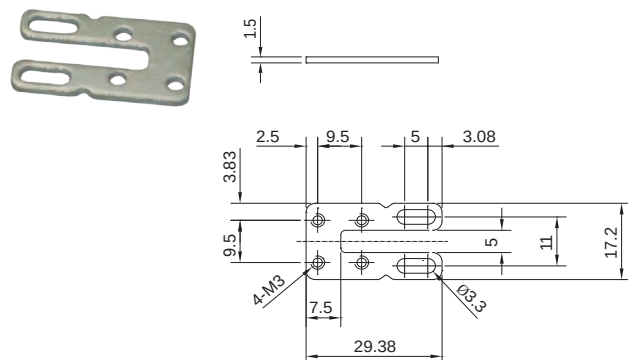
- Press **SET** ≥ 3 seconds. / 按住 **SET** 鍵 ≥ 3 秒，進入設定。
- Use **SET** and **▲** **▼** to select set mode. / 按 **SET** 鍵和 **▲** **▼** 鍵來設定各項功能。

◆ Initial Setting Mode / 基本設定模式：

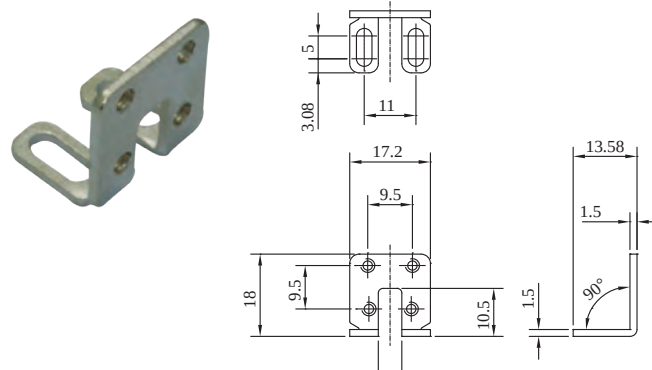


◆ Dimensions / 尺寸圖 : (unit:mm)

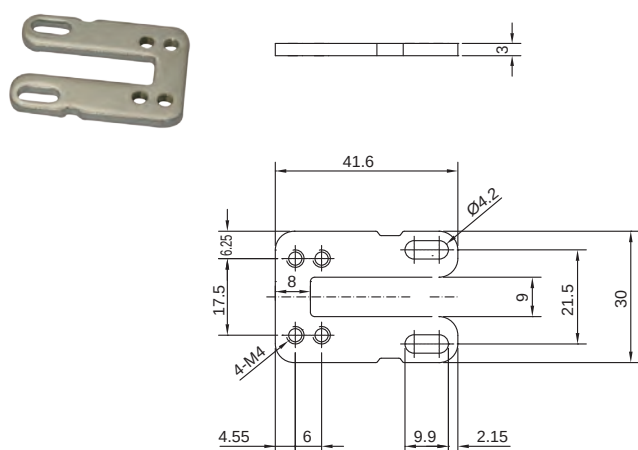
- PN05-M001 Mounting Bracket
- PN05-M001 (180度)固定架



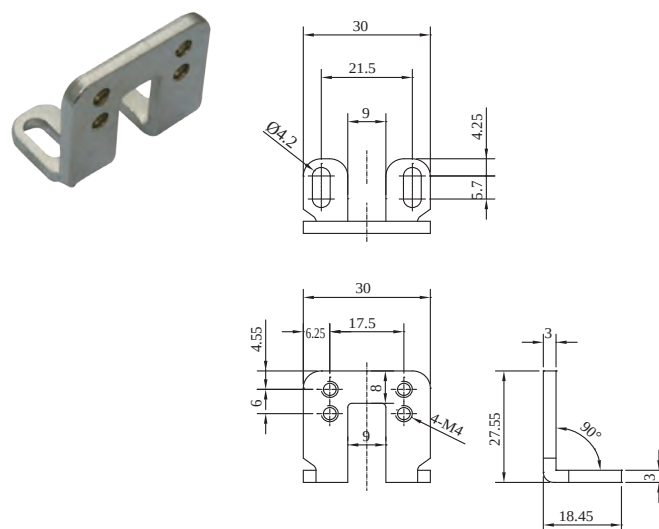
- PN05-M002 Mounting Bracket
- PN05-M002 (90度)固定架



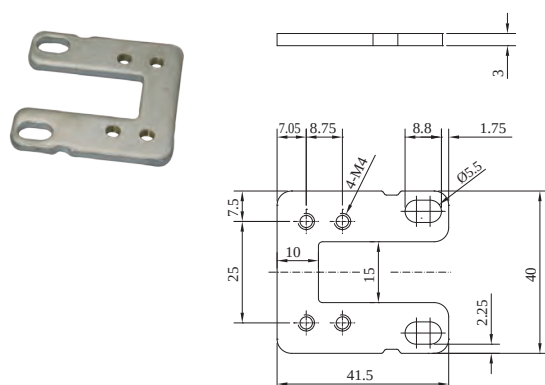
- PN10-M001 Mounting Bracket
- PN10-M001 (180度)固定架



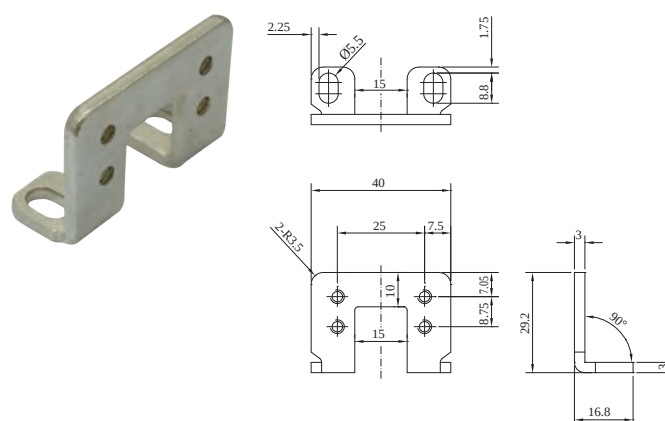
- PN10-M002 Mounting Bracket
- PN10-M002 (90度)固定架



- PN20-M001 Mounting Bracket
- PN20-M001 (180度)固定架



- PN20-M002 Mounting Bracket
- PN20-M002 (90度)固定架



Others

GM48
G3Y

GC48-A
RTC-
P2400
RTC-
P482CRA

ST-1
ST-T2
R-1189D

ST-5

HTR-3A
HTR-HN
HTR-W

RKP25
RKP42

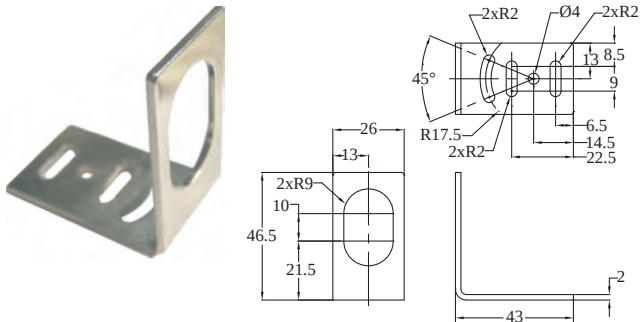
ACC.

Bracket

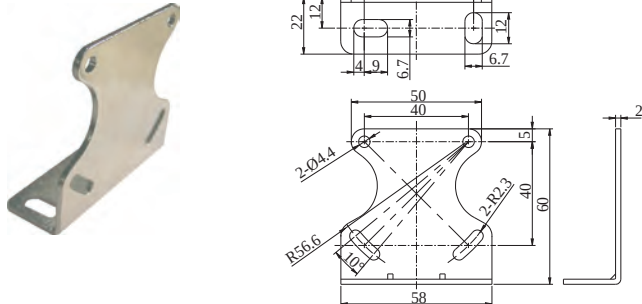
Accessories

◆ Dimensions / 尺寸圖 : (unit:mm)

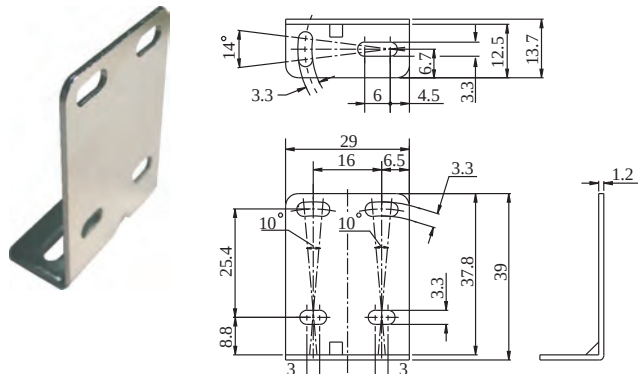
• **MF- 01 Mounting Bracket / MF-01 固定架**



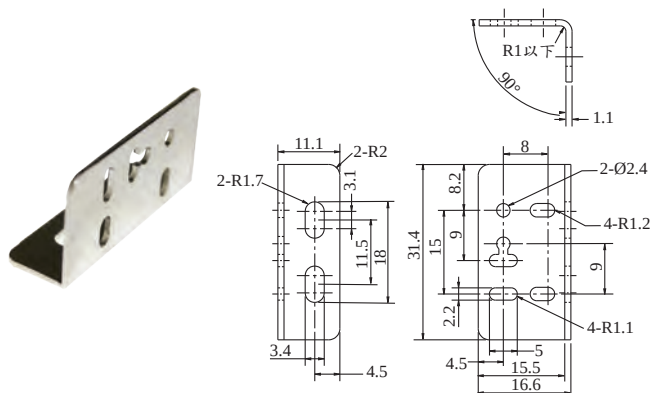
• **R3JK-M001 Mounting Bracket / R3JK-M001 固定架**



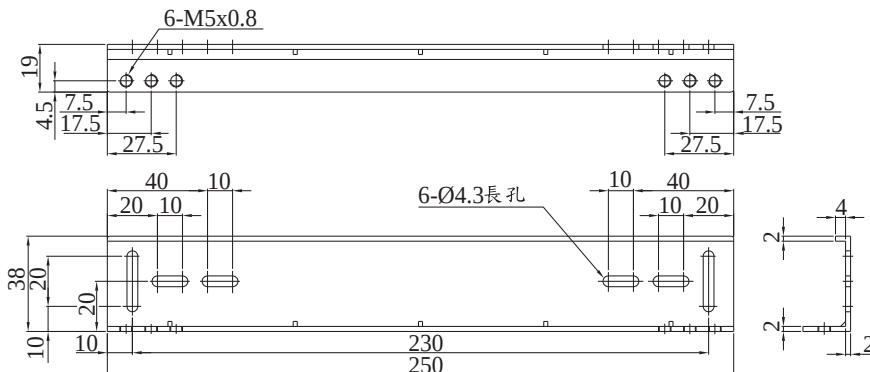
• **PK-M001 Mounting Bracket / PK-M001 固定架**



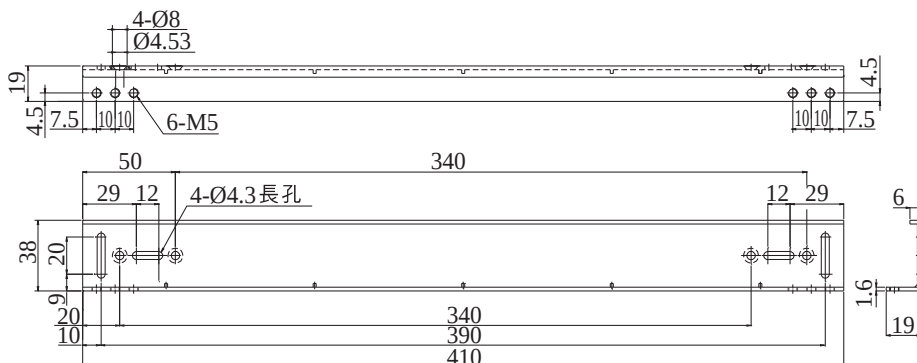
• PK5/PM6 Mounting Bracket / PK5/PM6固定鐵架



• **OAP-M008 Mounting Bracket / OAP-M008固定架**

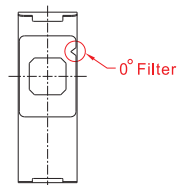
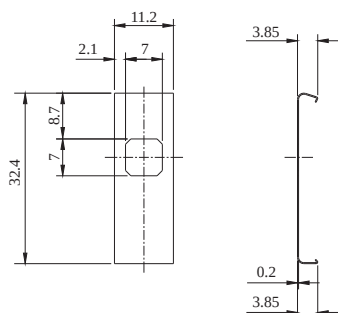


• **OAP-M016 Mounting Bracket / OAP-M016固定架**

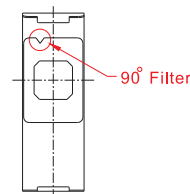
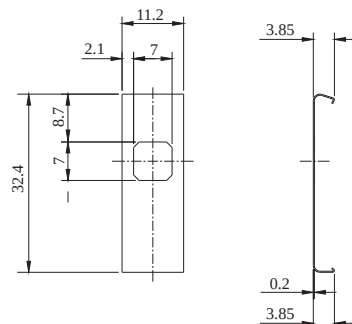


◆ Dimensions / 尺寸圖 : (unit:mm)

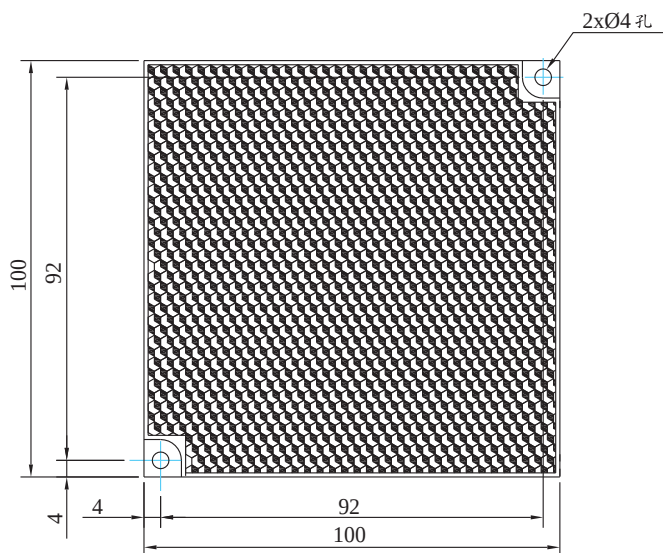
• MT-8808 : PK3 Slit Mask (0 Filter) /PK3偏光片(0度)



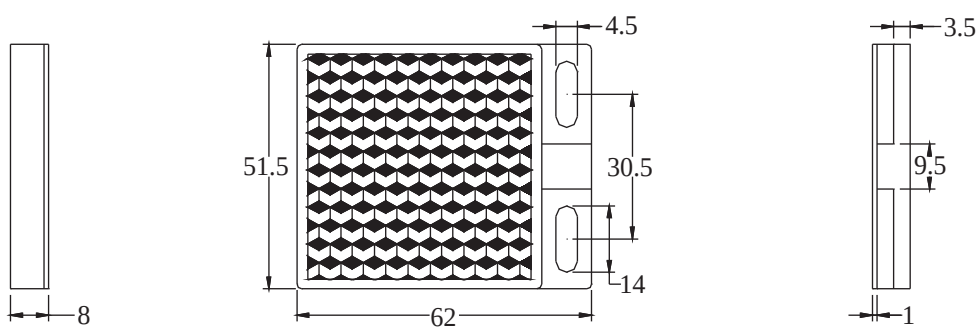
• MT-88081 : PK3 Slit Mask (90 Filter) /PK3偏光片(90度)



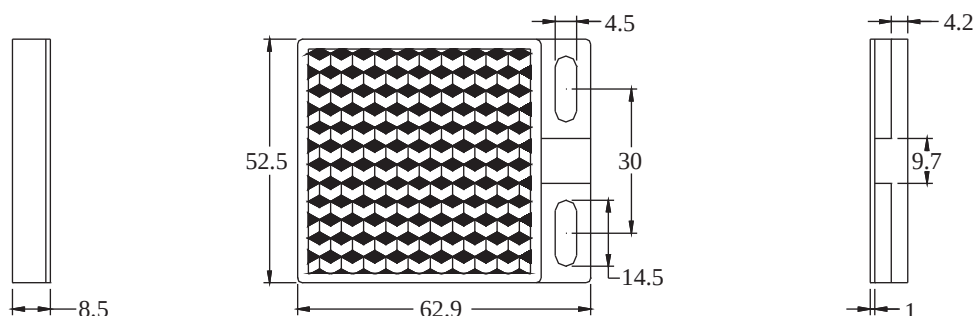
• CTR10 Reflectors / 鏡片 Thickness 6 mm



• RR- 03 Reflectors / 鏡片



• RR- 03-01 Reflectors / 鏡片



Others

GM48
G3Y

GC48-A
RTC-
P2400
RTC-
P482CRA

ST-1
ST-T2
R-1189D

ST-5

HTR-3A
HTR-HN
HTR-W

RKP25
RKP42

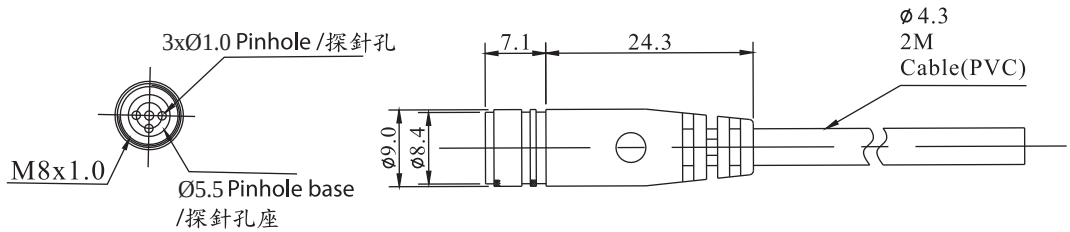
ACC.

◆ Offers a wide range of connectors that comply with the reliability and application requirement in the field of industrial automation.

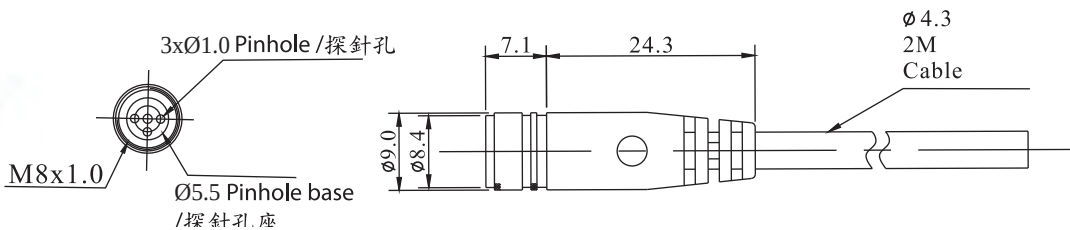
提供在工業自動化領域遵循可靠性和應用要求的大範圍連接器。

◆ Connectors / 連接線:(unit:mm)

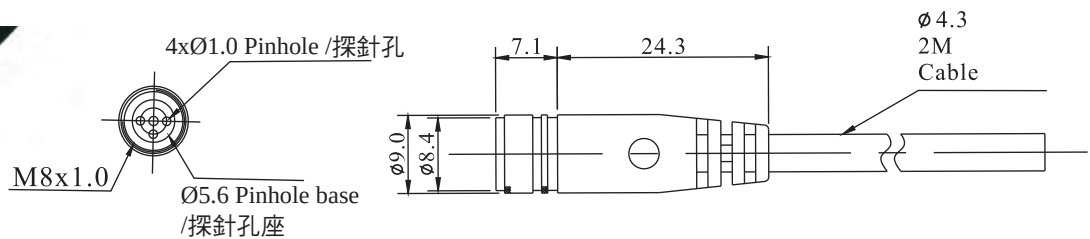
• M83R-2M-PVC



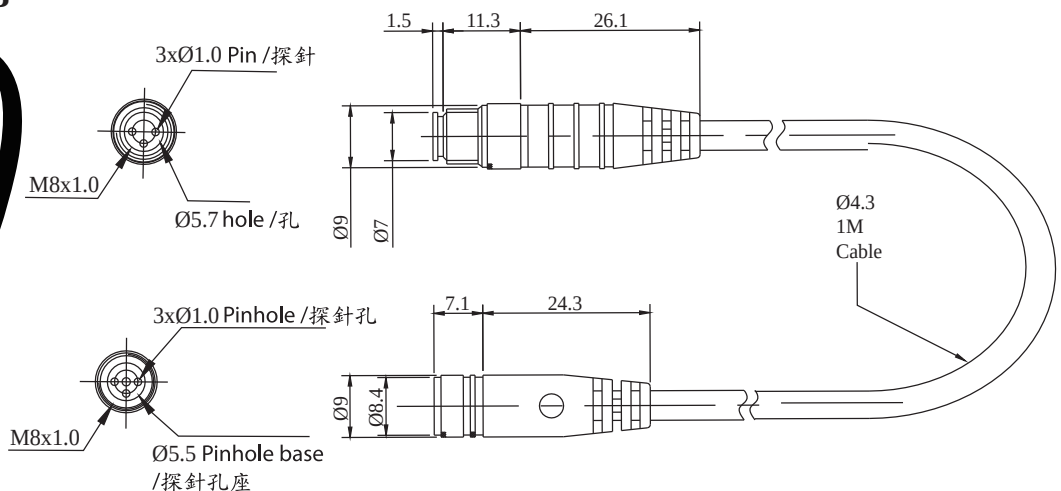
• M83R-2M-PUR-BLK



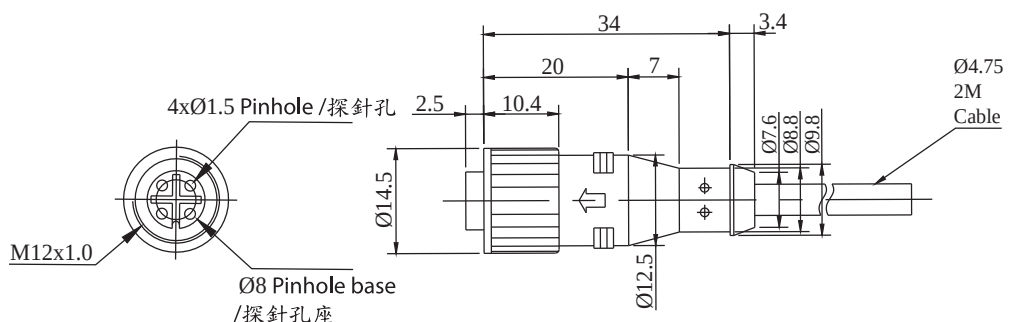
• M84R-PUR-2M



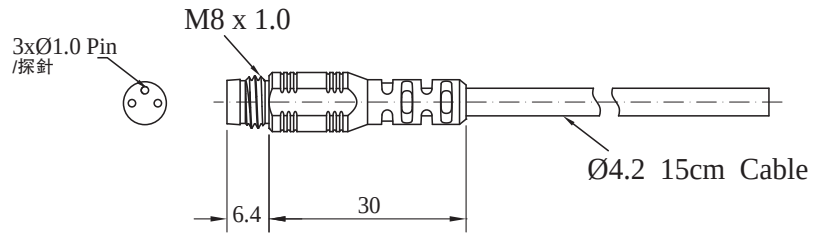
• M83RSW-PUR-1MB



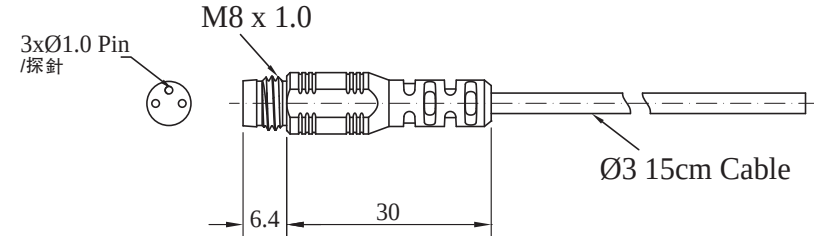
• M624PF2



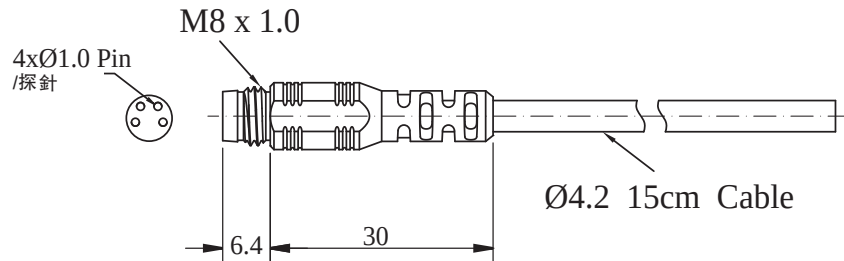
• R83P-015(4.2)



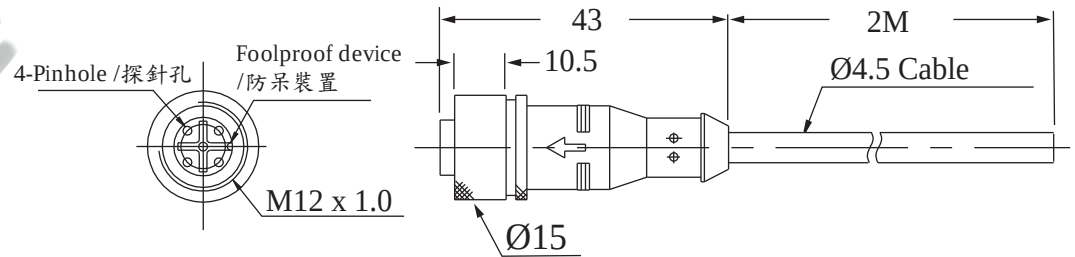
• R83P-015(3)



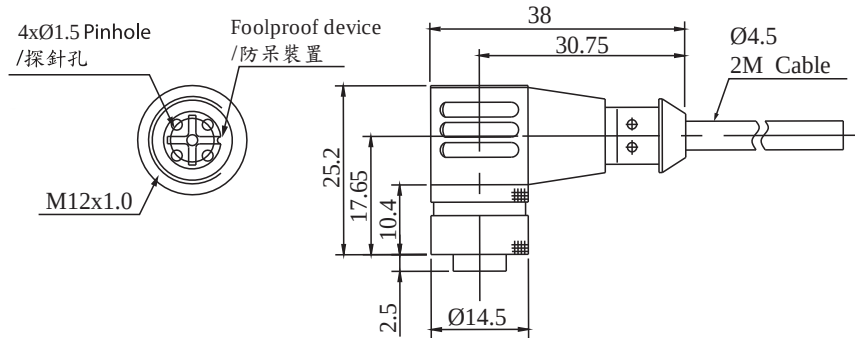
• R84P-015(4.2)



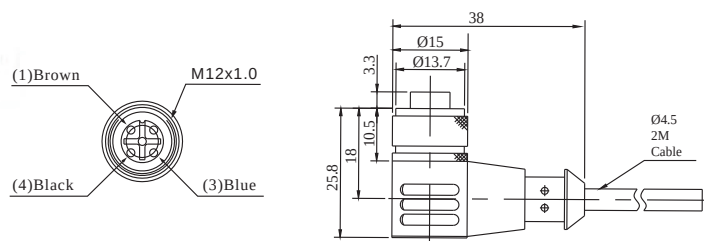
• M124R-PVC-2M



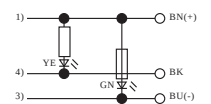
• M124RL-PVC-2M



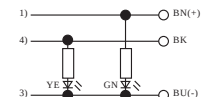
• M123RL-PUR-5M-PNP • M123RL-PUR-5M-NPN



NPN-TYPE



PNP-TYPE



Others

GM48
G3Y

GC48-A
RTC-
P2400
RTC-
P482CRA

ST-1
ST-T2
R-1189D

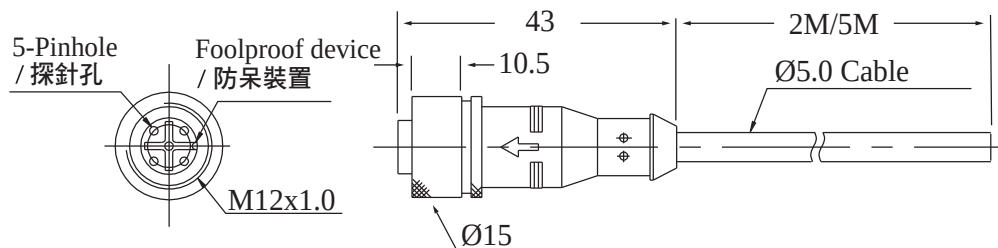
ST-5

HTR-3A
HTR-HN
HTR-W

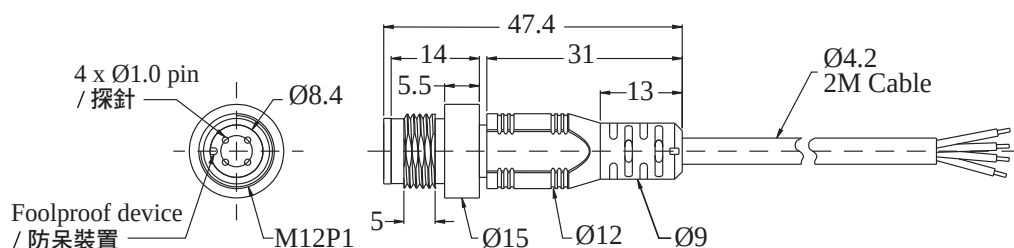
RKP25
RKP42

ACC.

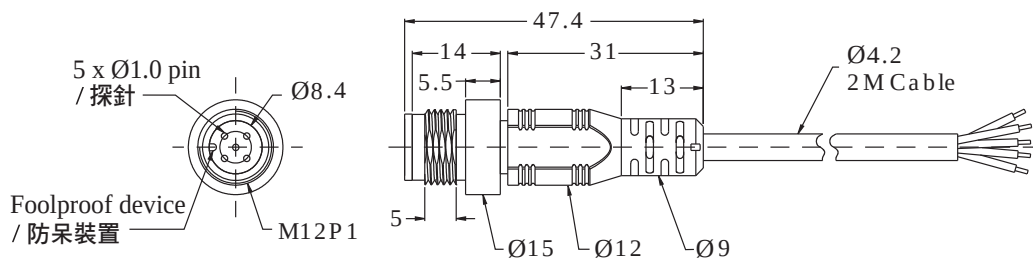
• M125R-PUR-2M / M125R-PUR-5M



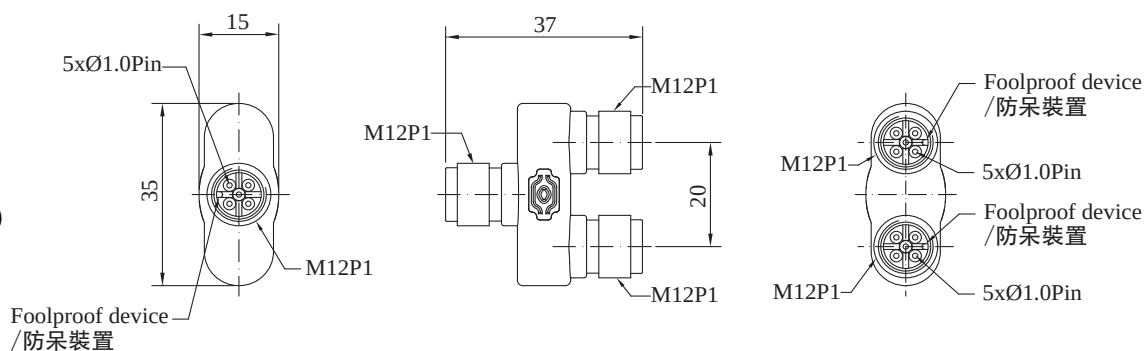
• R124P-20



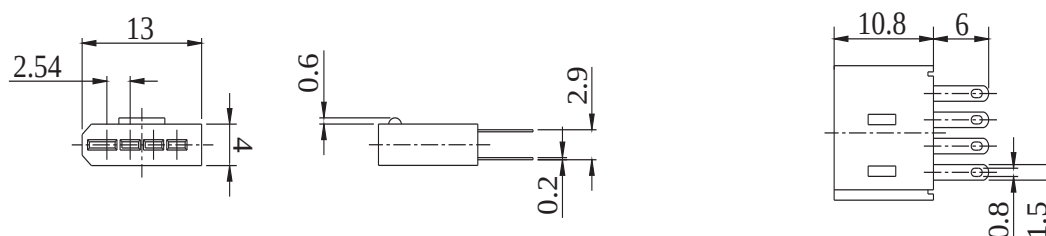
• R125P-20



• RM125-T3



• EE-1001



• RE-1003-PVC-2M

