

HPR 圓柱形遠距離檢測接近開關

Long Distance Proximity Sensor Cylindrical Type

特點 Features

- 可以實現遠距離檢測 (額定檢測距離比原有產品提高 1.5~2倍)
- 採用專用IC提高抗干擾能力
- 內置浪涌保護, 電源反接保護和過流保護電路
- 壽命長, 高可靠性, 操作簡單, 經濟實惠
- 紅色LED狀態指示燈, 易于識別運行狀態
- IP67防護等級(IEC規格)
- 可以代替微動開關或限位開關廣泛使用
- Long sensing distance (1.5 to 2 times longer sensing distance guaranteed compared to existing models)
- Exclusively designed IC for improving anti-jamming capability
- Inside surge protection, reverse polarity protection, overcurrent protection
- Long use-life cycle and high reliability, easy install, economic price
- Red LED status indication, easy to confirm work situation
- Protection structure IP67(IEC standard)
- Replaceable for limit switches

型號說明 Model Number Structure

HPR -

1 2 3 4 5 6 7 8 9

| 項目 Item | 代號 Code | 說明 Description |
|----------------------------|-----------|------------------------------------|
| 1. 公司代號 Company code | H | 公司代號 Company code |
| 2. 產品名稱 Product name | P | 電感式接近開關 Inductive proximity sensor |
| 3. 外殼形狀 Shape of shell | R | 圓柱形 Cylinder-shaped |
| 4. 尺寸代碼 Dimension code | 18 | 18=M18 |
| 5. 產品類型 Product type | L | 遠距離型 Long-range type |
| 6. 檢測距離 Detection distance | 15 | 15=15mm |
| 7. 輸出方式 Output mode | A | AC二線 AC 2wires |
| | D | DC二線 DC 2wires |
| | P | PNP三線 PNP 3wires |
| | N | NPN三線 NPN 3wires |
| 8. 輸出狀態 Output state | 1 | 常開 NO |
| | 2 | 常閉 NC |
| | 3 | 常開+常閉 NO+NC |
| 9. 連接形式 Connection | 無 Without | 引線式 Without: Lead wire |
| | T | 接插式 Plug-in |
| | R | 配線引出接插式 Wiring leads Plug-in |

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規格 Specifications

直流3線式 DC 3-wire type

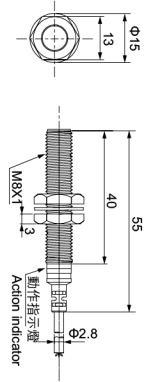
| 型號名 Model | HPR08L-1.5N1 HPR08L-1.5N2 HPR08L-1.5P1 HPR08L-1.5P2 | HPR08L-03N1 HPR08L-03N2 HPR08L-03P1 HPR08L-03P2 | HPR12L-04N1 HPR12L-04N2 HPR12L-04N3 HPR12L-04P1 HPR12L-04P2 HPR12L-04P3 | HPR12L-07N1 HPR12L-07N2 HPR12L-07N3 HPR12L-07P1 HPR12L-07P2 HPR12L-07P3 | HPR18L-10N1 HPR18L-10N2 HPR18L-10N3 HPR18L-10P1 HPR18L-10P2 HPR18L-10P3 | HPR18L-15N1 HPR18L-15N2 HPR18L-15N3 HPR18L-15P1 HPR18L-15P2 HPR18L-15P3 | HPR30L-17N1 HPR30L-17N2 HPR30L-17N3 HPR30L-17P1 HPR30L-17P2 HPR30L-17P3 | HPR30L-25N1 HPR30L-25N2 HPR30L-25N3 HPR30L-25P1 HPR30L-25P2 HPR30L-25P3 | |
|---|--|--|---|--|---|--|--|--|--|
| 檢測距離 Sensing distance | 1.5mm | 3mm | 4mm | 7mm | 10mm | 15mm | 17mm | 25mm | |
| 應差距離 Hysteresis | 檢測距離的10%以下 Max. 10% of sensing distance | | | | | | | | |
| 標準檢測物 Standard sensing target | 8×8×1mm (鐵 Iron) | 8×8×1mm (鐵 Iron) | 12×12×1mm (鐵 Iron) | 25×25×1mm (鐵 Iron) | 20×20×1mm (鐵 Iron) | 40×40×1mm (鐵 Iron) | 45×45×1mm (鐵 Iron) | 75×75×1mm (鐵 Iron) | |
| 設定距離 Setting distance | 0~1.8mm | 0~3.5mm | 0~3.5mm | 0~6.5mm | 0~8.5mm | 0~13.5mm | 0~18.5mm | 0~28.5mm | |
| 電源(使用電壓範圍) Power supply (Operating voltage) | 12-24VDC (10-30VDC) | | | | | | | | |
| 漏電流 Leakage current | 10mA以下 Max.10mA | | | | | | | | |
| 應答頻率(※1) Response frequency (※1) | 450Hz | 400Hz | 400Hz | 300Hz | 300Hz | 200Hz | 100Hz | 100Hz | |
| 殘留電壓(※2) Residual voltage (※2) | 1V以下 Max. 1V | | | | | | | | |
| 溫度的影響 Affection by Temp. | 在-25~+70℃溫度範圍內+20℃時的檢測距離的±10%以內 Max. ±10% for sensing distance at ambient temperature 20℃ | | | | | | | | |
| 控制輸出 Control output | 200mA以下 Max. 200mA | | | | | | | | |
| 絕緣阻抗 Insulation resistance | 50MΩ以上(500VDC為基準) Min. 50MΩ(at 500VDC megger) | | | | | | | | |
| 耐電壓 Dielectric strength | 1500VAC 50/60Hz1分鐘 1500VAC 50/60Hz for 1minute | | | | | | | | |
| 耐振動 Vibration | 10~55Hz(周期1分鐘) 振幅1mm X, Y, Z各方向2小時 1mm amplitude at frequency of 10 to 55Hz(for 1 min.) in each of X, Y, Z directions for 2 hours | | | | | | | | |
| 耐衝擊 Shock | 500m/s ² (50G) X, Y, Z 各方向3次 500m/s ² (approx. 50G) X, Y, Z directions for 3 times | | | | | | | | |
| 顯示燈 Indicator | 動作指示燈(紅色LED) Operation indicator(red LED) | | | | | | | | |
| 使用周圍溫度 Ambient temperature | -25~+70℃(未結冰狀態 No icing) | | | | | | | | |
| 儲存溫度 Storage temperature | -30~+80℃(未結冰狀態 No icing) | | | | | | | | |
| 使用周圍濕度 Ambient humidity | 35~95%RH (未結露狀態 No condensation) | | | | | | | | |
| 保護電路 Protection circuit | 內置浪涌保護, 電源反接保護, 過流保護電路 Surge protection circuit, Reverse polarity protection circuit, Overcurrent protection circuit | | | | | | | | |
| 材質 Material | 外殼/螺母: 鍍鎳黃銅, 墊片: 鍍鎳鐵, 檢測面: PBT, 一般纜纜(灰色): 聚氯乙烯(PVC), 耐油性纜纜(黑色): 聚氯乙炔(耐油強化型PVC) Case/Nut: Nickel plated Brass, Washer: Nickel plated Iron, Sensing surface: PBT, Standard cable(Gray): Polyvinyl chloride(PVC), Oil resistant cable(Black): Oil resistant Polyvinyl chloride(PVC) | | | | | | | | |
| 連接纜纜 Cable | φ 2.8, 3P, 2m (AWG22, 芯線直徑:0.1mm, 芯線數:22, 絕緣皮外徑: φ 1.25mm) (AWG22, Core diameter: 0.1mm, Number of cores: 22, Insulator diameter: φ 1.25) | | φ 3.8, 3P,4P 2m (AWG22, 芯線直徑:0.1mm, 芯線數:25, 絕緣皮外徑: φ 1.25mm) (AWG22, Core diameter: 0.1mm, Number of cores: 25, Insulator diameter: φ 1.25) | | φ 4.8, 3P,4P 2m (AWG22, 芯線直徑:0.1mm, 芯線數:30, 絕緣皮外徑: φ 1.25mm) (AWG22, Core diameter: 0.1mm, Number of cores: 30, Insulator diameter: φ 1.25) | | | | |
| 防護等級 Protection | IP67 | | | | | | | | |

(※1) 開關動作的應答頻率為平均值。測定條件使用標準檢測物, 檢測物的間距為標準檢測物的2倍, 設定距離為檢測距離的1/2。

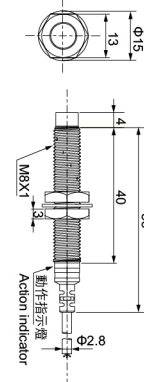
(※1): The response frequency is the average value. The standard sensing target is used and the width is set as 2 times of the standard sensing target, 1/2 of the sensing distance for the distance.

外觀和尺寸 Appearance and Dimension

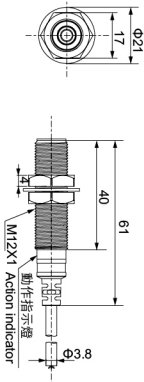
HPR08L-1.5



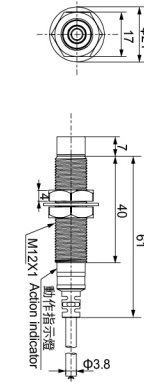
HPR08L-03



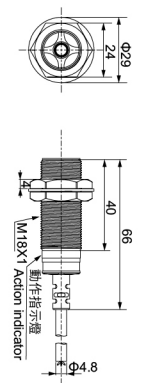
HPR12L-04



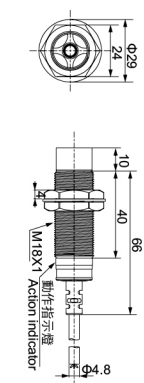
HPR12L-07



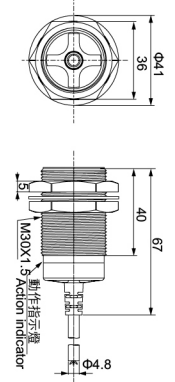
HPR18L-10



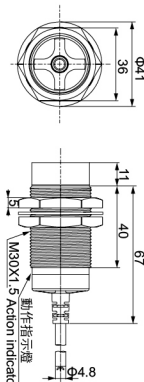
HPR18L-15



HPR30L-17

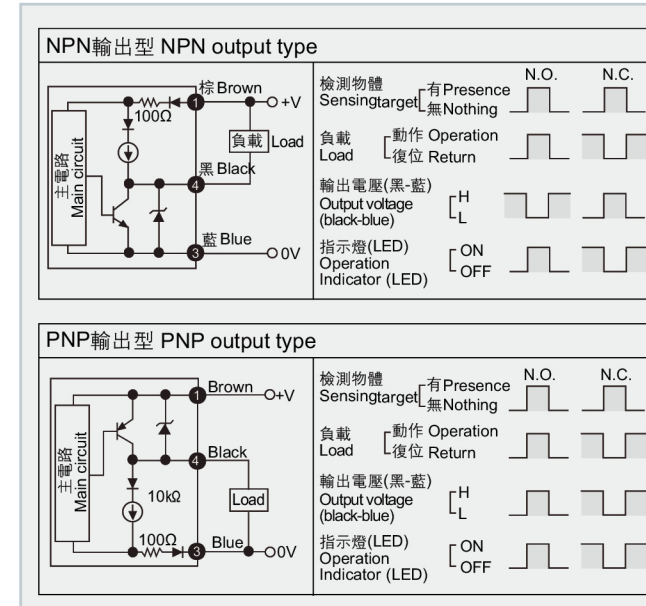


HPR30L-25



輸出電路 Control Output Diagram

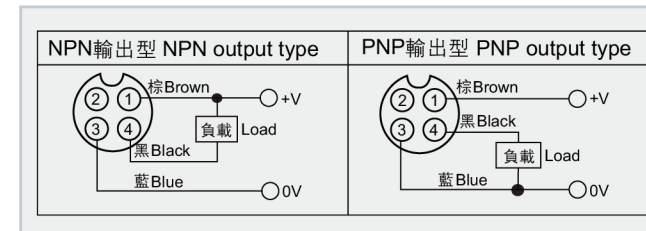
直流3線式 DC 3-wire type



※ 圈裏面的數字是表示插頭(pin)的編號
 ※ The number in a circle is pin no. of connector.

連接器接線圖 Wiring Diagram

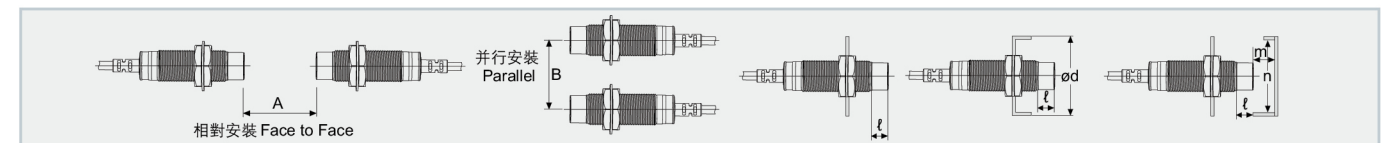
直流3線式(標準型) DC 3-wire type (Standard type)



正確使用 Proper Usage

相互干擾 Mutual-interference

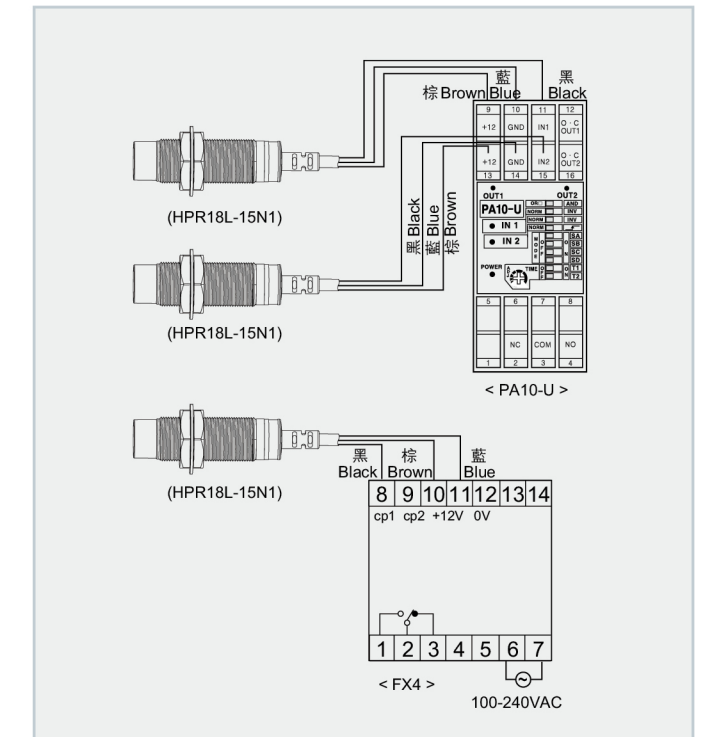
當把兩個以上的接近開關一起安裝使用時，可能會發生相互干擾引起的誤動作，在安裝時請務必滿足下表中規定的尺寸要求進行安裝。
 When several proximity sensors are mounted close to one another a malfunction of the sensor may be caused due to mutual interference. Therefore, be sure to provide a minimum distance between the two sensors as below chart indicates.



| 型號名 Model | HPR08L-1.5 | HPR08L-03 | HPR12L-04 | HPR12L-07 | HPR18L-10 | HPR18L-15 | HPR30L-17 | HPR30L-25 |
|-----------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 項目 Item | | | | | | | | |
| A | 9 | 12 | 24 | 48 | 42 | 84 | 90 | 150 |
| B | 16 | 24 | 24 | 36 | 36 | 54 | 60 | 90 |
| l | 0 | 8 | 0 | 11 | 0 | 14 | 0 | 15 |
| φ d | 8 | 24 | 12 | 36 | 18 | 54 | 30 | 90 |
| m | 4.5 | 6 | 12 | 24 | 21 | 42 | 45 | 75 |
| n | 12 | 24 | 18 | 36 | 27 | 54 | 45 | 90 |

連接 Connections

直流3線式 DC 3-wire type



※ 結合接插頭時，請使用(0.39~0.49N·m)擰緊螺絲。
 ※ 在發生震動的地方請用膠帶纏住連接線纜后使用。
 ※ Please fasten the cleat of connector not to shown the thread. (0.39 to 0.49N.m)
 ※ Please fasten the vibration part with Teflon tape.

周圍金屬的影響 Influence by surrounding metals

當接近傳感器周圍有金屬存在時，為防止復位不正常等誤差發生，安裝時請滿足下表中規定的尺寸要求進行安裝。
 When sensors are mounted on metallic panel, you must prevent the sensors from being affected by any metallic object except target. Therefore, be sure to provide a minimum distance as below chart indicates.