

HPR 圓柱形遠距離接插式接近開關

Long Distance Proximity Sensor Cylindrical Connector 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
- IP65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 improved the noise resistance
- 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 IP65(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	12	12=M12
5. 產品類型 Product type	L	遠距離型 Long-range type
6. 檢測距離 Detection distance	07	07=7mm
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

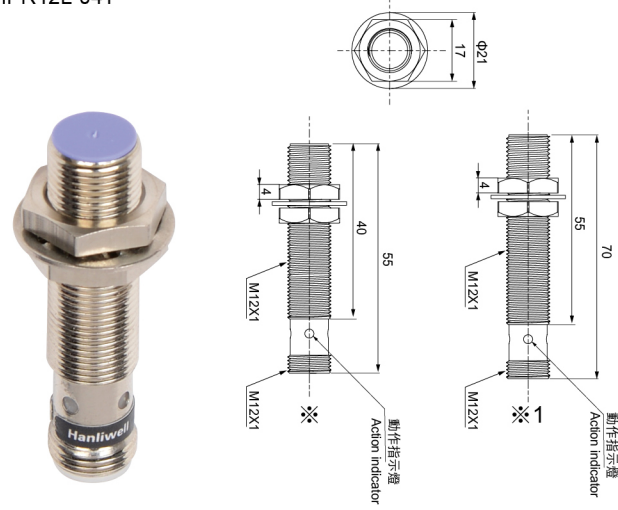
型號名 Model	HPR12L-04N1T HPR12L-04N2T HPR12L-04N3T HPR12L-04P1T HPR12L-04P2T HPR12L-04P3T	HPR12L-07N1T HPR12L-07N2T HPR12L-07N3T HPR12L-07P1T HPR12L-07P2T HPR12L-07P3T	HPR18L-10N1T HPR18L-10N2T HPR18L-10N3T HPR18L-10P1T HPR18L-10P2T HPR18L-10P3T	HPR18L-15N1T HPR18L-15N2T HPR18L-15N3T HPR18L-15P1T HPR18L-15P2T HPR18L-15P3T	HPR30L-17N1T HPR30L-17N2T HPR30L-17N3T HPR30L-17P1T HPR30L-17P2T HPR30L-17P3T	HPR30L-25N1T HPR30L-25N2T HPR30L-25N3T HPR30L-25P1T HPR30L-25P2T HPR30L-25P3T
檢測距離 Sensing distance	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	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	0~2.8mm	0~5.6mm	0~4.9mm	0~9.8mm	0~10.5mm	0~17.5mm
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)	400Hz	300Hz	300Hz	200Hz	100Hz	100Hz
殘留電壓 Residual voltage	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 Case/Nut: Nickel plated Brass, Washer: Nickel plated Iron, Sensing surface: PBT					
防護等級 Protection	IP65					

(※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。

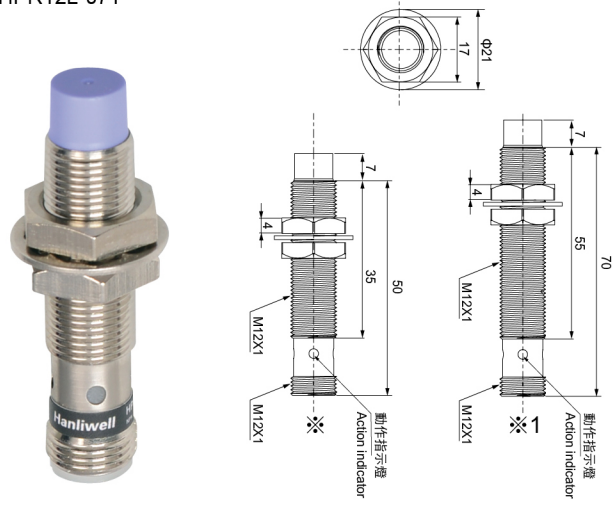
(※1) The response frequency is the average value. The standard sensing target is used and the width is set as 2 times of the standard sensing target, 1/2 of the sensing distance for the distance.

外觀和尺寸 Appearance and Dimension

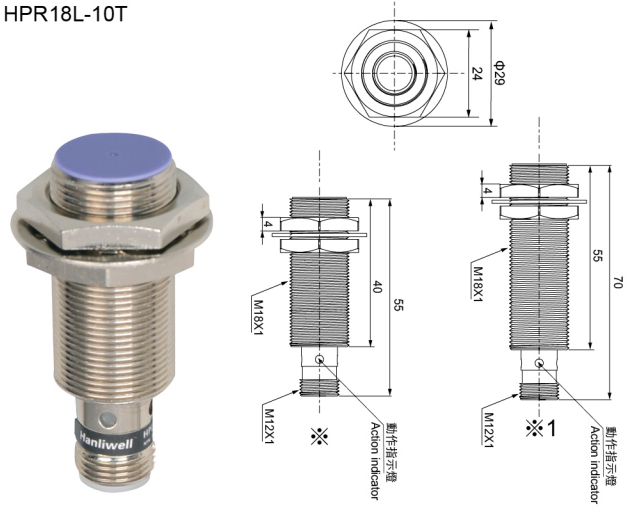
HPR12L-04T



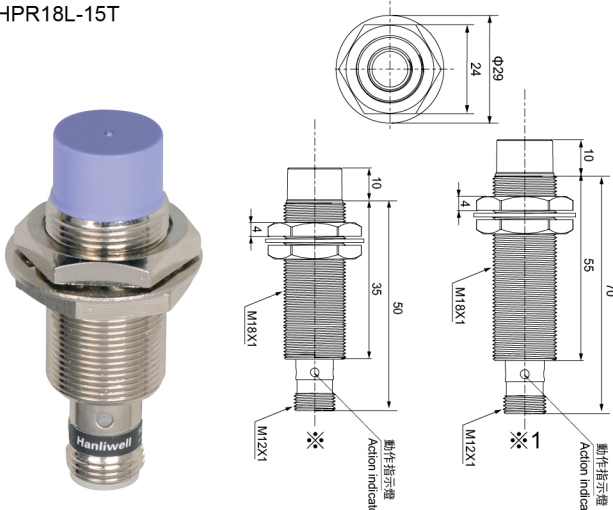
HPR12L-07T



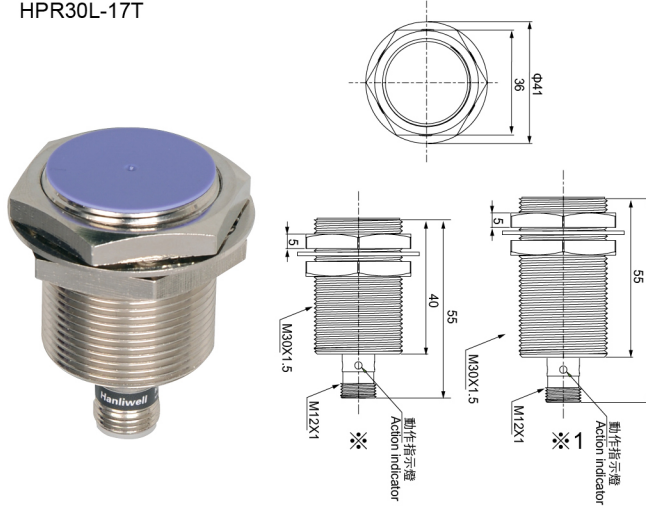
HPR18L-10T



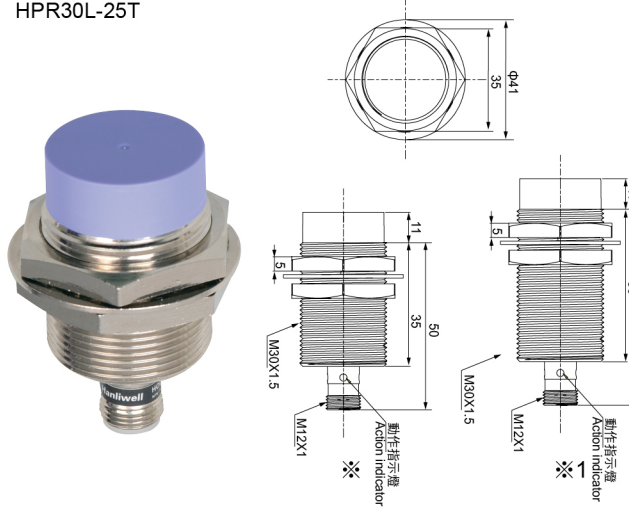
HPR18L-15T



HPR30L-17T



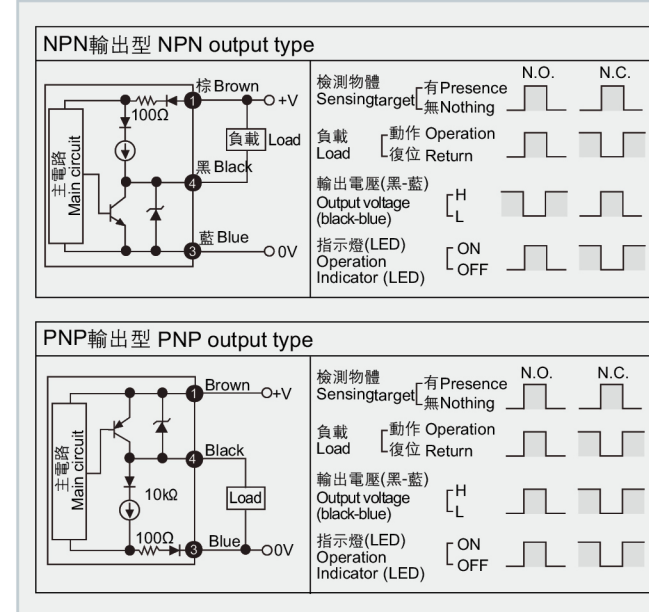
HPR30L-25T



注1: ※代表N1 N2 P1 P2 D1 D2 外形尺寸
 注2: ※1代表N3 P3 A1 A2 外形尺寸
 Note1: ※ Representative N1 N2 P1 P2 D1 D2 Outline size
 Note2: ※1 Representative N3 P3 A1 A2 Outline size

輸出電路 Control Output Diagram

直流3綫式 DC 3-wire type

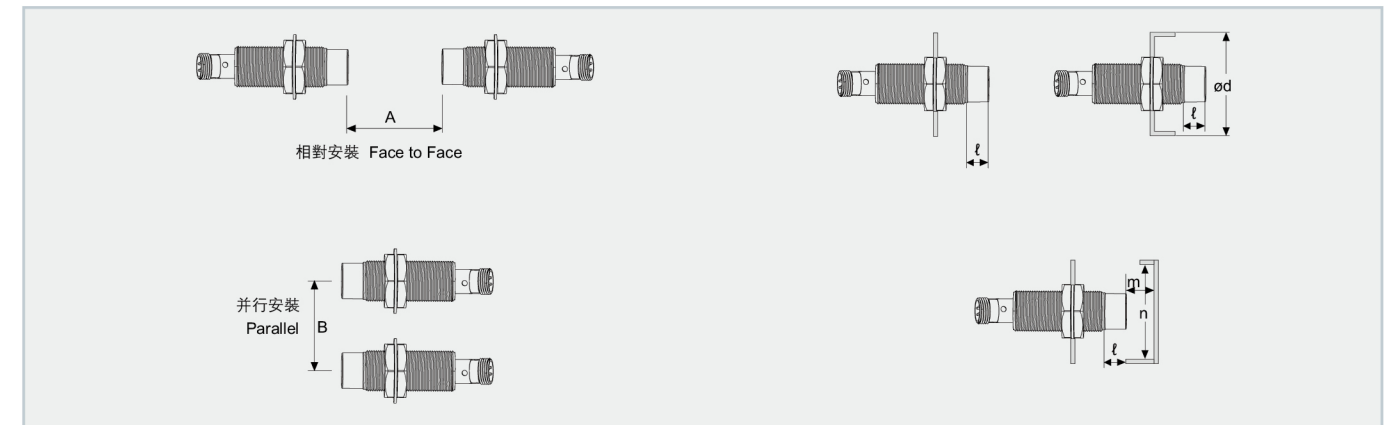


※ 圈裏面的數字是表示插頭(pin)的編號
 ※ The number in a circle is pin no. of connector.

正確使用 Proper Usage

相互干擾 Mutual-interference

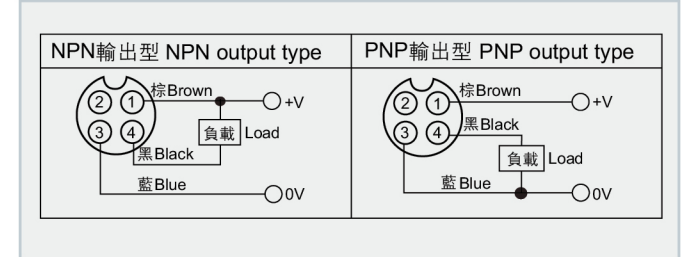
當把兩個以上的接近開關一起安裝使用時，可能會發生相互干擾引起的誤動作，在安裝時請務必滿足下表中所規定的尺寸要求進行安裝。
 When several proximity sensors are mounted close to one another a malfunction of the sensor may be caused due to mutual interference. Therefore, be sure to provide a minimum distance between the two sensors as below chart indicates.



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

連接器接綫圖 Wiring Diagram

直流3綫式(標準型) DC 3-wire type (Standard 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綫纜後使用。
 ※ 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所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.