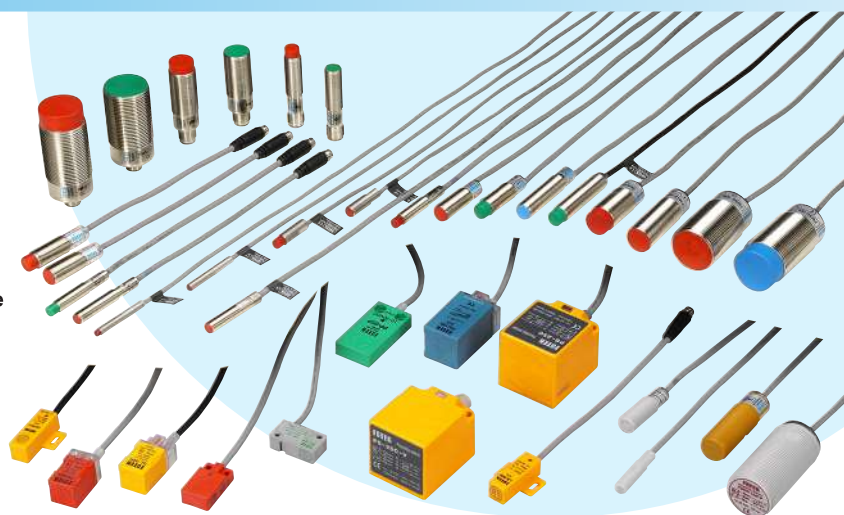


# Inductive Proximity sensor

## PS / PM series

## 電感式 近接感應器

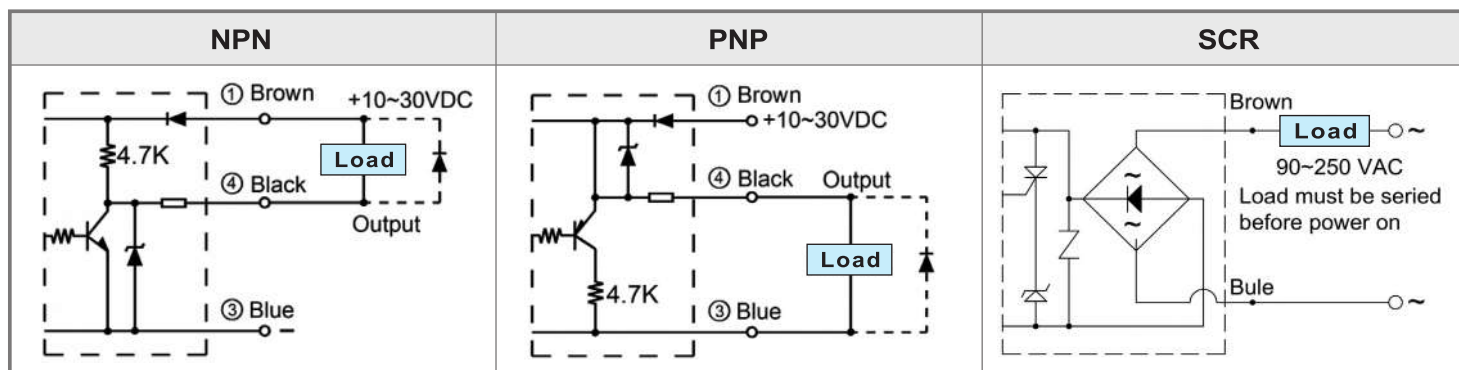
- All DC type with 「Short-circuit」 & 「Polarity reversed」 protection.  
直流型都附「短路保護」及「極性保護」回路
- All AC type with 「surge absorbing circuit」 to avoid surge damage.  
交流型都附「突波吸收回路」可有效防止突波破壞
- High solid compact structure 「IP-67」 suited to applied in any poor circumstance.  
堅固結構「IP-67」適用各種惡劣環境
- All models with 「operating pilot」.  
全機種都附「動作指示」



### ● Guiding of model / 型號索引

| <b>Tubular type</b><br><b>Ex. PM 12 - 04 N B S - M12</b><br>1 2 3 4 5 6 7                                                                                              | <b>Square type</b><br><b>Ex. LS - 04 N B - V - PG</b><br>1 2 3 4 5 6                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1 &gt; Type / 型式</b><br>PM = Screw type / 螺絲型<br>PT = Tubular type / 圓管型                                                                                            | <b>1 &gt; Type / 型式</b><br>SP = Plate type / 扁型<br>LS = Long square type / 長條型<br>BS = Micro switch type / 微動開關型<br>PS = Square type / 方型<br>PL = Long square type / 長方型<br>PP = Plate type / 扁型 |
| <b>2 &gt; Outline diameter / 外徑</b><br>05 = M5 x 0.5 08 = M8 x 1.0 12 = M12 x 1.0<br>18 = M18 x 1.0 30 = M30 x 1.5                                                     | <b>2 &gt; Sensing distance / 感應距離</b><br>02 = 2.0 mm 04 = 4.0 mm<br>05 = 5.0 mm 08 = 8.0 mm 10 = 10.0 mm<br>15 = 15.0 mm 20 = 20.0 mm 25 = 25.0 mm                                               |
| <b>3 &gt; Sensing distance / 感應距離</b><br>01 = 1.0 mm 02 = 2.0 mm 04 = 4.0 mm<br>05 = 5.0 mm 08 = 8.0 mm 10 = 10.0 mm<br>15 = 15.0 mm 20 = 20.0 mm 25 = 25.0 mm         | <b>3 &gt; Output method / 輸出方式</b><br>N = NPN P = PNP S = SCR                                                                                                                                    |
| <b>4 &gt; Output method / 輸出方式</b><br>N = NPN P = PNP S = SCR                                                                                                          | <b>4 &gt; Output status / 輸出狀態</b><br>Non = NO type B = NC type                                                                                                                                  |
| <b>5 &gt; Output status / 輸出狀態</b><br>Non = NO type B = NC type                                                                                                        | <b>5 &gt; Sensing direction / 檢測方向</b><br>Non = Horizontal type / 水平式<br>V = Vertical type / 垂直式                                                                                                 |
| <b>6 &gt; Length or shape or material of body / 本體</b><br>Non = Cu plated Ni / 銅鍍鎳<br>S = Short type / 短型<br>E = Body with all screw / 全牙型<br>K = Stainless steel / 白鐵 | <b>6 &gt; Connection method / 接線方式</b><br>Non = Lead wire type / 出線式<br>PG = M8 lead wire type / M8接頭出線式<br>M12 = M12 connector type / M12接頭式                                                    |
| <b>7 &gt; Connection method / 接線方式</b><br>Non = Lead wire type / 出線式<br>PG = M8 lead wire type / M8接頭出線式<br>M12 = M12 connector type / M12接頭式                          |                                                                                                                                                                                                  |

## ● Output circuit & connection diagram / 輸出回路及接線圖



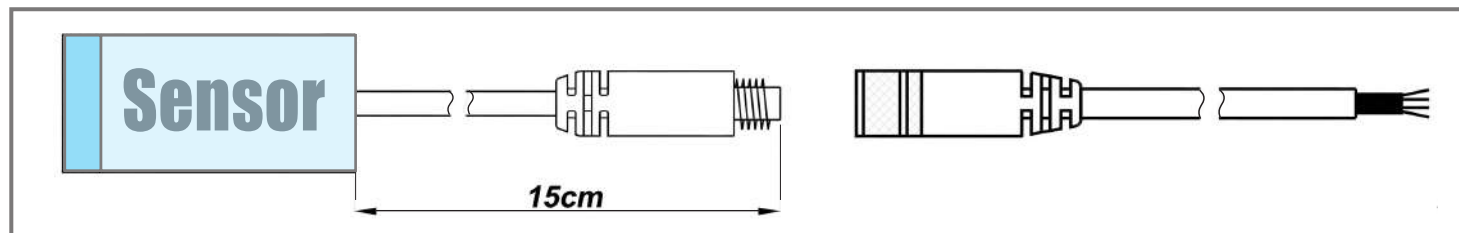
## ● General data / 共同規格

| Specification         |       | DC type                           | AC type                 |
|-----------------------|-------|-----------------------------------|-------------------------|
| Operating voltage     | 工作電壓  | 10 ~ 30 VDC                       | 90 ~ 250 VAC            |
| Power ripple          | 電源漣波  | < 20% of Vp-p                     | 50/60Hz                 |
| Output current        | 輸出電流  | 150 mA max.                       | 100mA max.              |
| Current consumption   | 消耗電流  | 10 mA max.                        | 2.0mA max.              |
| Residual voltage      | 殘留電壓  | < 0.1V                            | < 15V                   |
| Leakage current       | 洩漏電流  | < 0.8 mA                          | < 4.0 mA                |
| Hysteresis            | 應差    | < 10% of sensing distance         |                         |
| Thermal drift         | 溫度漂移  | < 10 $\mu$ m/°C                   |                         |
| Voltage drift         | 電壓漂移  | < 1 $\mu$ m/V                     |                         |
| Protection circuit    | 保護回路  | Short-circuit & Polarity reversed | surge absorbing circuit |
| Operating Temperature | 工作溫度  | - 25°C ~ +80°C                    |                         |
| Operating humidity    | 工作濕度  | 35% ~ 95% RH                      |                         |
| Protection class      | 保護等級  | IP-67                             |                         |
| Color of sensing face | 感應面顏色 | NPN=Red ; PNP=Green               | Blue                    |

## ● Application hints

While a switching power supply is used, please be sure to ground the FG ( Frame ground ) and the G ( Ground ) terminal, if failure to do so, it may resulting malfunction of the sensor for the noise of the switching power supply. Meanwhile, the ripple of the DC power supply is required less than 20% to avoid resulting malfunction of the sensor.

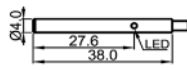
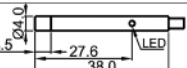
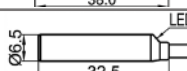
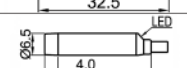
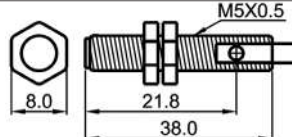
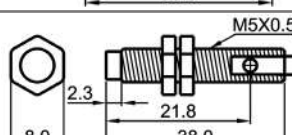
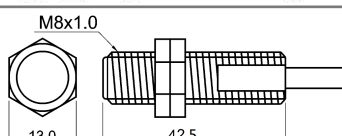
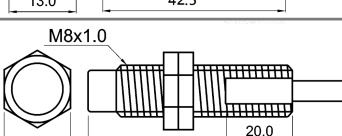
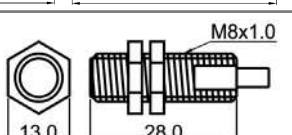
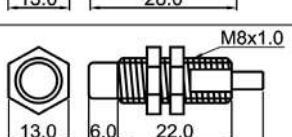
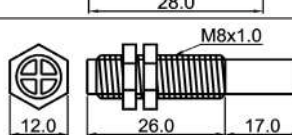
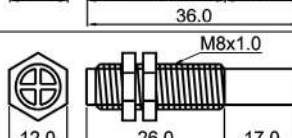
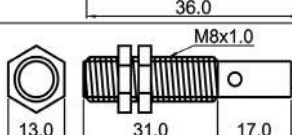
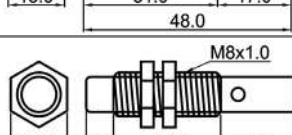
## ● M8 lead wire connection [ Available for all sensor ]



# Inductive Proximity sensor

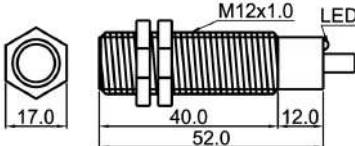
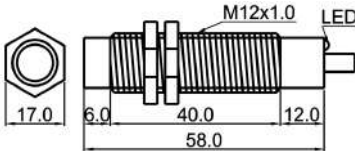
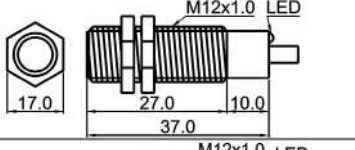
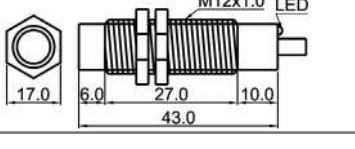
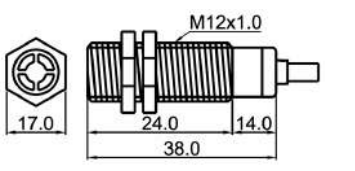
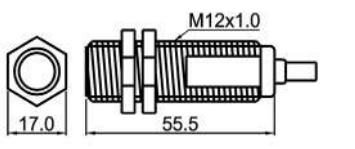
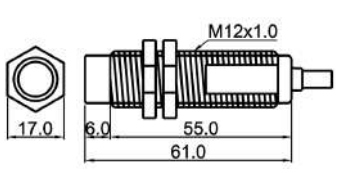
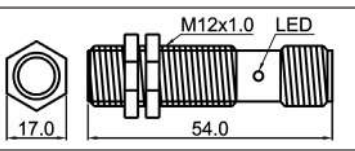
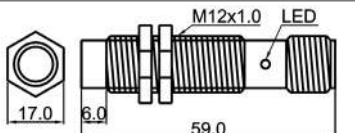
## PM05/08 series 電感式 近接感應器

### ● PT04 / M5 / M8 Tubular type

| Outline                                                                             | Model                                                                             | Output status | Output method | Sensing distance | Mounting method | Response frequency | Operating voltage | Housing material |             |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------|---------------|------------------|-----------------|--------------------|-------------------|------------------|-------------|
|    | PT04-01N                                                                          | NO            | NPN           | 1.2 mm           | Flushed         | 2.5KHz             | 10~30 VDC         | SUS 304          |             |
|                                                                                     | PT04-01P                                                                          | NO            | PNP           |                  |                 |                    |                   |                  |             |
|                                                                                     |  | PT04-02N      | NO            | NPN              | 2.0 mm          |                    |                   |                  | Non-flushed |
|                                                                                     |                                                                                   | PT04-02P      | NO            | PNP              |                 |                    |                   |                  |             |
|    | PT06-01N                                                                          | NO            | NPN           | 2.0 mm           | Flushed         | 2.5KHz             | 10~30 VDC         | SUS 304          |             |
|                                                                                     | PT06-01P                                                                          | NO            | PNP           |                  |                 |                    |                   |                  |             |
|                                                                                     |  | PT06-02N      | NO            | NPN              | 3.0 mm          |                    |                   |                  | Non-flushed |
|                                                                                     |                                                                                   | PT06-02P      | NO            | PNP              |                 |                    |                   |                  |             |
|    | PM05-01N                                                                          | NO            | NPN           | 1.2 mm           | Flushed         | 2.5KHz             | 10~30 VDC         | SUS 304          |             |
|                                                                                     | PM05-01NB                                                                         | NC            |               |                  |                 |                    |                   |                  |             |
|                                                                                     | PM05-01P                                                                          | NO            | PNP           |                  |                 |                    |                   |                  |             |
|                                                                                     | PM05-01PB                                                                         | NC            |               |                  |                 |                    |                   |                  |             |
|    | PM05-02N                                                                          | NO            | NPN           | 2.0 mm           | Non-flushed     | 2.5KHz             | 10~30 VDC         | SUS 304          |             |
|                                                                                     | PM05-02NB                                                                         | NC            |               |                  |                 |                    |                   |                  |             |
|                                                                                     | PM05-02P                                                                          | NO            | PNP           |                  |                 |                    |                   |                  |             |
|                                                                                     | PM05-02PB                                                                         | NC            |               |                  |                 |                    |                   |                  |             |
|  | PM08-01NE                                                                         | NO            | NPN           | 1.0 mm           | Flushed         | 2.5KHz             | 10~30 VDC         | Cu plated Ni     |             |
|                                                                                     | PM08-01NBE                                                                        | NC            |               |                  |                 |                    |                   |                  |             |
|                                                                                     | PM08-01PE                                                                         | NO            | PNP           |                  |                 |                    |                   |                  |             |
|                                                                                     | PM08-01PBE                                                                        | NC            |               |                  |                 |                    |                   |                  |             |
|  | PM08-02NE                                                                         | NO            | NPN           | 2.0 mm           | Non-flushed     | 2.5KHz             | 10~30 VDC         | Cu plated Ni     |             |
|                                                                                     | PM08-02NBE                                                                        | NC            |               |                  |                 |                    |                   |                  |             |
|                                                                                     | PM08-02PE                                                                         | NO            | PNP           |                  |                 |                    |                   |                  |             |
|                                                                                     | PM08-02PBE                                                                        | NC            |               |                  |                 |                    |                   |                  |             |
|  | PM08-01NSE                                                                        | NO            | NPN           | 1.0 mm           | Flushed         | 2.5KHz             | 10~30 VDC         | SUS 304          |             |
|                                                                                     | PM08-01NSBE                                                                       | NC            |               |                  |                 |                    |                   |                  |             |
|                                                                                     | PM08-01PSE                                                                        | NO            | PNP           |                  |                 |                    |                   |                  |             |
|                                                                                     | PM08-01PSBE                                                                       | NC            |               |                  |                 |                    |                   |                  |             |
|  | PM08-02NSE                                                                        | NO            | NPN           | 2.0 mm           | Non-flushed     | 2.5KHz             | 10~30 VDC         | SUS 304          |             |
|                                                                                     | PM08-02NBSE                                                                       | NC            |               |                  |                 |                    |                   |                  |             |
|                                                                                     | PM08-02PSE                                                                        | NO            | PNP           |                  |                 |                    |                   |                  |             |
|                                                                                     | PM08-02PBSE                                                                       | NC            |               |                  |                 |                    |                   |                  |             |
|  | PM08-01N-P                                                                        | NO            | NPN           | 1.0 mm           | Flushed         | 2.5KHz             | 10~30 VDC         | PP               |             |
|                                                                                     | PM08-01NB-P                                                                       | NC            |               |                  |                 |                    |                   |                  |             |
|                                                                                     | PM08-01P-P                                                                        | NO            | PNP           |                  |                 |                    |                   |                  |             |
|                                                                                     | PM08-01PB-P                                                                       | NC            |               |                  |                 |                    |                   |                  |             |
|  | PM08-02N-P                                                                        | NO            | NPN           | 2.0 mm           | Non-flushed     | 2.5KHz             | 10~30 VDC         | PP               |             |
|                                                                                     | PM08-02NB-P                                                                       | NC            |               |                  |                 |                    |                   |                  |             |
|                                                                                     | PM08-02P-P                                                                        | NO            | PNP           |                  |                 |                    |                   |                  |             |
|                                                                                     | PM08-02PB-P                                                                       | NC            |               |                  |                 |                    |                   |                  |             |
|  | PM08-01N-K                                                                        | NO            | NPN           | 1.0 mm           | Flushed         | 2.5KHz             | 10~30 VDC         | SUS 304          |             |
|                                                                                     | PM08-01NB-K                                                                       | NC            |               |                  |                 |                    |                   |                  |             |
|                                                                                     | PM08-01P-K                                                                        | NO            | PNP           |                  |                 |                    |                   |                  |             |
|                                                                                     | PM08-01PB-K                                                                       | NC            |               |                  |                 |                    |                   |                  |             |
|  | PM08-02N-K                                                                        | NO            | NPN           | 2.0 mm           | Non-flushed     | 2.5KHz             | 10~30 VDC         | SUS 304          |             |
|                                                                                     | PM08-02NB-K                                                                       | NC            |               |                  |                 |                    |                   |                  |             |
|                                                                                     | PM08-02P-K                                                                        | NO            | PNP           |                  |                 |                    |                   |                  |             |
|                                                                                     | PM08-02PB-K                                                                       | NC            |               |                  |                 |                    |                   |                  |             |

# PM12 series

## ● M12 Tubular type

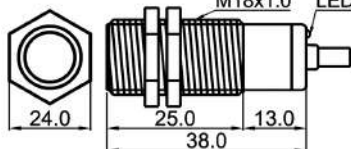
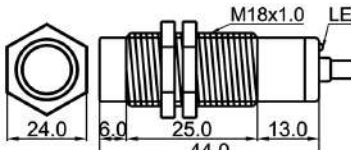
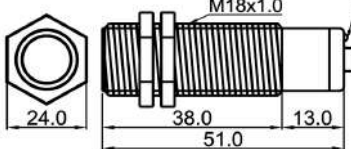
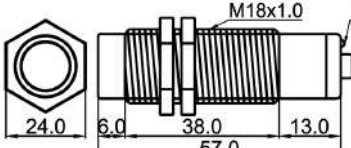
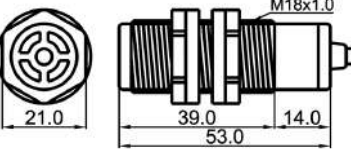
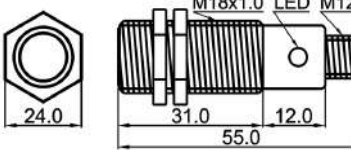
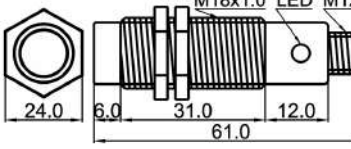
| Outline                                                                             | Model         | Output status | Output method | Sensing distance | Mounting method | Response frequency | Operating voltage | Housing material |
|-------------------------------------------------------------------------------------|---------------|---------------|---------------|------------------|-----------------|--------------------|-------------------|------------------|
|    | PM12-02N      | NO            | NPN           | 2.0 mm           | Flushed         | 2.5KHz             | 10~30 VDC         | Cu plated Ni     |
|                                                                                     | PM12-02NB     | NC            |               |                  |                 |                    |                   |                  |
|                                                                                     | PM12-02P      | NO            | PNP           | 5.0 mm           | Flushed         | 1.2KHz             |                   |                  |
|                                                                                     | PM12-02PB     | NC            |               |                  |                 |                    |                   |                  |
|                                                                                     | PM12E-05N     | NO            | NPN           | 5.0 mm           | Flushed         | 1.2KHz             |                   |                  |
|                                                                                     | PM12E-05NB    | NC            |               |                  |                 |                    |                   |                  |
|                                                                                     | PM12-02S      | NO            | SCR           | 2.0 mm           | Flushed         | 20Hz               | 90~250 VAC        |                  |
|                                                                                     | PM12-02SB     | NC            |               |                  |                 |                    |                   |                  |
|    | PM12-04N      | NO            | NPN           | 4.0 mm           | Non-flushed     | 2.5KHz             | 10~30 VDC         | Cu plated Ni     |
|                                                                                     | PM12-04NB     | NC            |               |                  |                 |                    |                   |                  |
|                                                                                     | PM12-04P      | NO            | PNP           | 8.0 mm           | Non-flushed     | 1.2KHz             |                   |                  |
|                                                                                     | PM12-04PB     | NC            |               |                  |                 |                    |                   |                  |
|                                                                                     | PM12E-08N     | NO            | NPN           | 8.0 mm           | Non-flushed     | 1.2KHz             |                   |                  |
|                                                                                     | PM12E-08NB    | NC            |               |                  |                 |                    |                   |                  |
|                                                                                     | PM12-04S      | NO            | SCR           | 4.0 mm           | Non-flushed     | 20Hz               | 90~250 VAC        |                  |
|                                                                                     | PM12-04SB     | NC            |               |                  |                 |                    |                   |                  |
|   | PM12-02NS     | NO            | NPN           | 2.0 mm           | Flushed         | 2.5KHz             | 10~30 VDC         | Cu plated Ni     |
|                                                                                     | PM12-02NBS    | NC            |               |                  |                 |                    |                   |                  |
|                                                                                     | PM12-02PS     | NO            | PNP           |                  |                 |                    |                   |                  |
|                                                                                     | PM12-02PBS    | NC            |               |                  |                 |                    |                   |                  |
|  | PM12-04NS     | NO            | NPN           | 4.0 mm           | Non-flushed     | 2.5KHz             | 10~30 VDC         | Cu plated Ni     |
|                                                                                     | PM12-04NBS    | NC            |               |                  |                 |                    |                   |                  |
|                                                                                     | PM12-04PS     | NO            | PNP           |                  |                 |                    |                   |                  |
|                                                                                     | PM12-04PBS    | NC            |               |                  |                 |                    |                   |                  |
|  | PM12-04N-P    | NO            | NPN           | 4.0 mm           | Non-flushed     | 2.5KHz             | 10~30 VDC         | PP               |
|                                                                                     | PM12-04NB-P   | NC            |               |                  |                 |                    |                   |                  |
|                                                                                     | PM12-04P-P    | NO            | PNP           |                  |                 |                    |                   |                  |
|                                                                                     | PM12-04PB-P   | NC            |               |                  |                 |                    |                   |                  |
|                                                                                     | PM12-04S-P    | NO            | SCR           | 4.0 mm           | Non-flushed     | 20Hz               | 90~250 VAC        |                  |
|                                                                                     | PM12-04SB-P   | NC            |               |                  |                 |                    |                   |                  |
|  | PM12-02N-E    | NO            | NPN           | 2.0 mm           | Flushed         | 2.5KHz             | 10~30 VDC         | Cu plated Ni     |
|                                                                                     | PM12-02NB-E   | NC            |               |                  |                 |                    |                   |                  |
|                                                                                     | PM12-02P-E    | NO            | PNP           | 5.0 mm           |                 | 1.2KHz             |                   |                  |
|                                                                                     | PM12-02PB-E   | NC            |               |                  |                 |                    |                   |                  |
|                                                                                     | PM12E-05N-E   | NO            | NPN           | 5.0 mm           |                 |                    |                   |                  |
|                                                                                     | PM12E-05NB-E  | NC            |               |                  |                 |                    |                   |                  |
|  | PM12-04N-E    | NO            | NPN           | 4.0 mm           | Non-flushed     | 2.5KHz             | 10~30 VDC         | Cu plated Ni     |
|                                                                                     | PM12-04NB-E   | NC            |               |                  |                 |                    |                   |                  |
|                                                                                     | PM12-04P-E    | NO            | PNP           | 8.0 mm           |                 | 1.2KHz             |                   |                  |
|                                                                                     | PM12-04PB-E   | NC            |               |                  |                 |                    |                   |                  |
|                                                                                     | PM12E-08N-E   | NO            | NPN           | 8.0 mm           |                 |                    |                   |                  |
|                                                                                     | PM12E-08NB-E  | NC            |               |                  |                 |                    |                   |                  |
|  | PM12-02N-M12  | NO            | NPN           | 2.0 mm           | flushed         | 2.5KHz             | 10~30 VDC         | Cu plated Ni     |
|                                                                                     | PM12-02NB-M12 | NC            |               |                  |                 |                    |                   |                  |
|                                                                                     | PM12-02P-M12  | NO            | PNP           |                  |                 |                    |                   |                  |
|                                                                                     | PM12-02PB-M12 | NC            |               |                  |                 |                    |                   |                  |
|  | PM12-04N-M12  | NO            | NPN           | 4.0 mm           | Non-flushed     | 2.5KHz             | 10~30 VDC         | Cu plated Ni     |
|                                                                                     | PM12-04NB-M12 | NC            |               |                  |                 |                    |                   |                  |
|                                                                                     | PM12-04P-M12  | NO            | PNP           |                  |                 |                    |                   |                  |
|                                                                                     | PM12-04PB-M12 | NC            |               |                  |                 |                    |                   |                  |

# Inductive Proximity sensor

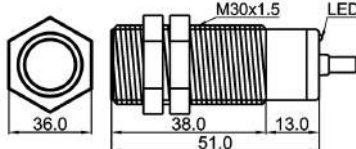
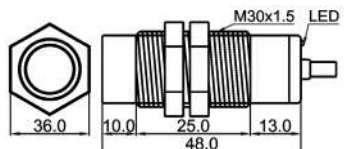
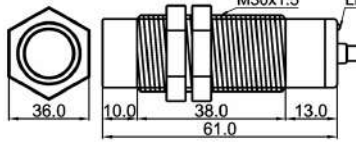
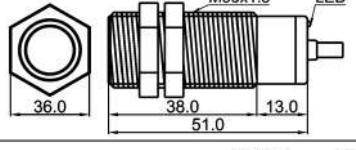
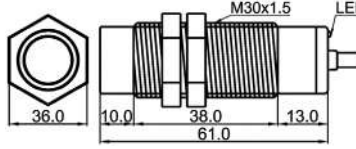
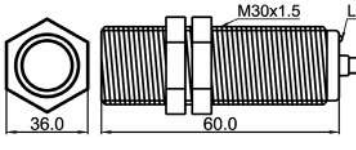
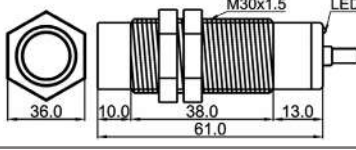
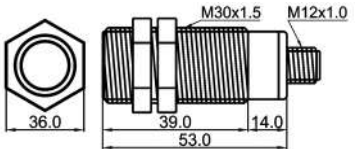
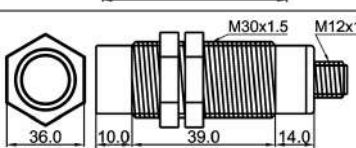
## PM18 series

## 電感式 近接感應器

### ● M18 Tubular type

| Outline                                                                            | Model         | Output status | Output method | Sensing distance | Mounting method | Response frequency | Operating voltage | Housing material |
|------------------------------------------------------------------------------------|---------------|---------------|---------------|------------------|-----------------|--------------------|-------------------|------------------|
|    | PM18-05NS     | NO            | NPN           | 5.0 mm           | Flushed         | 800Hz              | 10~30 VDC         | Cu plated Ni     |
|                                                                                    | PM18-05NBS    | NC            |               |                  |                 |                    |                   |                  |
|                                                                                    | PM18-05PS     | NO            | PNP           |                  |                 |                    |                   |                  |
|                                                                                    | PM18-05PBS    | NC            |               |                  |                 |                    |                   |                  |
|    | PM18-08NS     | NO            | NPN           | 8.0 mm           | Non-flushed     | 800Hz              | 10~30 VDC         | Cu plated Ni     |
|                                                                                    | PM18-08NBS    | NC            |               |                  |                 |                    |                   |                  |
|                                                                                    | PM18-08PS     | NO            | PNP           |                  |                 |                    |                   |                  |
|                                                                                    | PM18-08PBS    | NC            |               |                  |                 |                    |                   |                  |
|   | PM18-05N      | NO            | NPN           | 5.0 mm           | Flushed         | 800Hz              | 10~30 VDC         | Cu plated Ni     |
|                                                                                    | PM18-05NB     | NC            |               |                  |                 |                    |                   |                  |
|                                                                                    | PM18-05P      | NO            | PNP           |                  |                 |                    |                   |                  |
|                                                                                    | PM18-05PB     | NC            |               |                  |                 |                    |                   |                  |
|                                                                                    | PM18E-10N     | NO            | NPN           | 10.0 mm          | Flushed         | 500Hz              |                   |                  |
|                                                                                    | PM18E-10NB    | NC            |               |                  |                 |                    |                   |                  |
|                                                                                    | PM18-05S      | NO            | SCR           | 5.0 mm           | Flushed         | 20Hz               | 90~250 VAC        |                  |
|                                                                                    | PM18-05SB     | NC            |               |                  |                 |                    |                   |                  |
|  | PM18-08N      | NO            | NPN           | 8.0 mm           | Non-flushed     | 800Hz              | 10~30 VDC         | Cu plated Ni     |
|                                                                                    | PM18-08NB     | NC            |               |                  |                 |                    |                   |                  |
|                                                                                    | PM18-08P      | NO            | PNP           |                  |                 |                    |                   |                  |
|                                                                                    | PM18-08PB     | NC            |               |                  |                 |                    |                   |                  |
|                                                                                    | PM18E-16N     | NO            | NPN           | 16.0 mm          | Non-flushed     | 500Hz              |                   |                  |
|                                                                                    | PM18E-16NB    | NC            |               |                  |                 |                    |                   |                  |
|                                                                                    | PM18-08S      | NO            | SCR           | 8.0 mm           | Non-flushed     | 20Hz               | 90~250 VAC        |                  |
|                                                                                    | PM18-08SB     | NC            |               |                  |                 |                    |                   |                  |
|  | PM18-08N-P    | NO            | NPN           | 8.0 mm           | Non-flushed     | 800Hz              | 10~30 VDC         | PP               |
|                                                                                    | PM18-08NB-P   | NC            |               |                  |                 |                    |                   |                  |
|                                                                                    | PM18-08P-P    | NO            | PNP           |                  |                 |                    |                   |                  |
|                                                                                    | PM18-08PB-P   | NC            |               |                  |                 |                    |                   |                  |
|                                                                                    | PM18-08S-P    | NO            | SCR           | 8.0 mm           | Non-flushed     | 20Hz               | 90~250 VAC        |                  |
|                                                                                    | PM18-08SB-P   | NC            |               |                  |                 |                    |                   |                  |
|  | PM18-05N-M12  | NO            | NPN           | 5.0 mm           | Flushed         | 800Hz              | 10~30 VDC         | Cu plated Ni     |
|                                                                                    | PM18-05NB-M12 | NC            |               |                  |                 |                    |                   |                  |
|                                                                                    | PM18-05P-M12  | NO            | PNP           |                  |                 |                    |                   |                  |
|                                                                                    | PM18-05PB-M12 | NC            |               |                  |                 |                    |                   |                  |
|  | PM18-08N-M12  | NO            | NPN           | 8.0 mm           | Non-flushed     | 800Hz              | 10~30 VDC         | Cu plated Ni     |
|                                                                                    | PM18-08NB-M12 | NC            |               |                  |                 |                    |                   |                  |
|                                                                                    | PM18-08P-M12  | NO            | PNP           |                  |                 |                    |                   |                  |
|                                                                                    | PM18-08PB-M12 | NC            |               |                  |                 |                    |                   |                  |

## ● M30 Tubular type

| Outline                                                                            | Model         | Output status | Output method | Sensing distance | Mounting method | Response frequency | Operating voltage | Housing material |  |
|------------------------------------------------------------------------------------|---------------|---------------|---------------|------------------|-----------------|--------------------|-------------------|------------------|--|
|    | PM30-10N      | NO            | NPN           | 10.0 mm          | Flushed         | 500Hz              | 10~30 VDC         | Cu plated Ni     |  |
|                                                                                    | PM30-10NB     | NC            |               |                  |                 |                    |                   |                  |  |
|                                                                                    | PM30-10P      | NO            | PNP           |                  |                 |                    |                   |                  |  |
|                                                                                    | PM30-10PB     | NC            |               |                  |                 |                    |                   |                  |  |
|                                                                                    | PM30E-20N     | NO            | NPN           | 20.0 mm          |                 |                    |                   |                  |  |
|                                                                                    | PM30E-20NB    | NC            |               |                  |                 |                    |                   |                  |  |
|    | PM30-15N-S    | NO            | NPN           | 15.0 mm          | Non-flushed     | 500Hz              | 10~30 VDC         | Cu plated Ni     |  |
|                                                                                    | PM30-15NB-S   | NC            |               |                  |                 |                    |                   |                  |  |
|                                                                                    | PM30-15P-S    | NO            | PNP           |                  |                 |                    |                   |                  |  |
|                                                                                    | PM30-15PB-S   | NC            |               |                  |                 |                    |                   |                  |  |
|   | PM30-15N      | NO            | NPN           | 15.0 mm          | Non-flushed     | 500Hz              | 10~30 VDC         | Cu plated Ni     |  |
|                                                                                    | PM30-15NB     | NC            |               |                  |                 |                    |                   |                  |  |
|                                                                                    | PM30-15P      | NO            | PNP           |                  |                 |                    |                   |                  |  |
|                                                                                    | PM30-15PB     | NC            |               |                  |                 |                    |                   |                  |  |
|                                                                                    | PM30E-30N     | NO            | NPN           | 30.0 mm          |                 |                    |                   |                  |  |
|                                                                                    | PM30E-30NB    | NC            |               |                  |                 |                    |                   |                  |  |
|  | PM30-10S      | NO            | SCR           | 10.0 mm          | Flushed         | 20Hz               | 90~250 VAC        | Cu plated Ni     |  |
|                                                                                    | PM30-10SB     | NC            | SCR           |                  |                 |                    |                   |                  |  |
|  | PM30-15S      | NO            | SCR           | 15.0 mm          | Non-flushed     | 20Hz               | 90~250 VAC        | Cu plated Ni     |  |
|                                                                                    | PM30-15SB     | NC            | SCR           |                  |                 |                    |                   |                  |  |
|  | PM30-15N-P    | NO            | NPN           | 15.0 mm          | Non-flushed     | 500Hz              | 10~30 VDC         | PP               |  |
|                                                                                    | PM30-15NB-P   | NC            |               |                  |                 |                    |                   |                  |  |
|                                                                                    | PM30-15P-P    | NO            | PNP           |                  |                 |                    |                   |                  |  |
|                                                                                    | PM30-15PB-P   | NC            |               |                  |                 |                    |                   |                  |  |
|                                                                                    | PM30E-30N-P   | NO            | NPN           | 30.0 mm          | Non-flushed     | 200Hz              | 10~30 VDC         |                  |  |
|                                                                                    | PM30E-30NB-P  | NC            |               |                  |                 |                    |                   |                  |  |
|                                                                                    | PM30-15S-P    | NO            | SCR           | 15.0 mm          | Non-flushed     | 20Hz               | 90~250 VAC        |                  |  |
|                                                                                    | PM30-15SB-P   | NC            |               |                  |                 |                    |                   |                  |  |
|  | PM30-20N      | NO            | NPN           | 20.0 mm          | Non-flushed     | 200Hz              | 10~30 VDC         | Cu plated Ni     |  |
|                                                                                    | PM30-20NB     | NC            |               |                  |                 |                    |                   |                  |  |
|                                                                                    | PM30-20P      | NO            | PNP           |                  |                 |                    |                   |                  |  |
|                                                                                    | PM30-20PB     | NC            |               |                  |                 |                    |                   |                  |  |
|  | PM30-10N-M12  | NO            | NPN           | 10.0 mm          | Flushed         | 500Hz              | 10~30 VDC         | Cu plated Ni     |  |
|                                                                                    | PM30-10NB-M12 | NC            |               |                  |                 |                    |                   |                  |  |
|                                                                                    | PM30-10P-M12  | NO            | PNP           |                  |                 |                    |                   |                  |  |
|                                                                                    | PM30-10PB-M12 | NC            |               |                  |                 |                    |                   |                  |  |
|  | PM30-15N-M12  | NO            | NPN           | 15.0 mm          | Non-flushed     | 500Hz              | 10~30 VDC         | Cu plated Ni     |  |
|                                                                                    | PM30-15NB-M12 | NC            |               |                  |                 |                    |                   |                  |  |
|                                                                                    | PM30-15P-M12  | NO            | PNP           |                  |                 |                    |                   |                  |  |
|                                                                                    | PM30-15PB-M12 | NC            |               |                  |                 |                    |                   |                  |  |

# Inductive Proximity sensor

## PS / PM series 電感式 近接感應器

### ● Basic definition of Inductive proximity sensor / 基本定義

#### ※ Target / 標準檢測物

Which is a steel, 1mm thickness, square form with width equal to the diameter of the sensing surface, if the target is made of a different material, the sensing distance must be multiplied by the Correction factor.

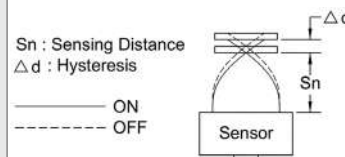
標準檢測物是方型鐵片，厚度1mm，長寬等於感測器的感應面直徑。如果標準檢測物的材質不是鐵則感測距離須依右圖的修正係數修正。

| Sn : Sensing Distance | Target   |
|-----------------------|----------|
| Chrome                | 0.9 x Sn |
| Nickle                | 0.9 x Sn |
| Brass                 | 0.5 x Sn |
| Aluminium             | 0.4 x Sn |
| Copper                | 0.4 x Sn |

#### ※ Hysteresis / 應差

Hysteresis is the different distance between the operating points that the target is approaching and leaving the sensing area of the sensor, the value is expressed as a percentage of the sensing distance ( $\Delta d / Sn\%$ )

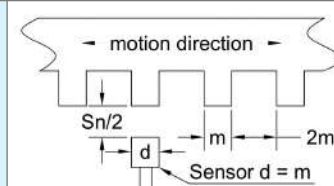
應差是感測器的動作點與復歸點的距離，一般是以動作點與復歸點的距離除以感應距離後以百分比表示。



#### ※ Switch frequency / 響應頻率

It is the maximum response frequency per second, based on a pulse ratio 1 : 2, the sketch shows the condition of test.

響應頻率是以ON / OFF 比 = 1 : 2 的條件所測得每秒最高響應頻率。測試條件如右圖所示。



#### ※ Accuracy (Repetition) / 重複精度

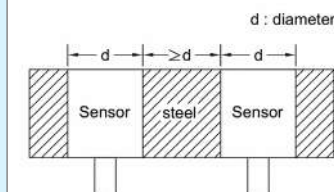
Tolerance of operating position that sensor is certainly operated under the same condition.

在相同的條件下所測得的最大動作點與最小動作點的差值。

#### ※ Flushed type / 埋入式

A proximity sensor can be flushed mounted in metal and surrounded by metal up to the level of the sensing face.

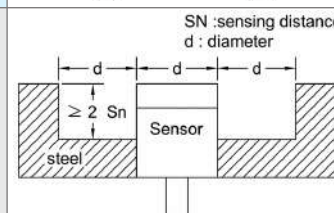
近接感測器可完全埋入金屬物即感應面四周可受金屬物包圍。



#### ※ Non-flushed / 非埋入式

A proximity sensor cannot be mounted in metal, clear zone of 3 times of the diameter of the sensing surface must be keep.

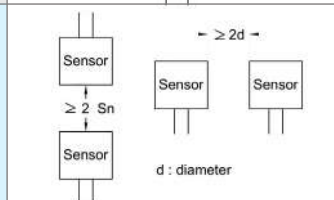
近接感測器感應面四周不可受金屬物包圍，淨空範圍必須是近接感測器感應面直徑的三倍距離以上。



#### ※ Mutual interference / 互相干擾

To install the inductive proximity sensors of the same model by face to face or side by side, please set the minimum distance between the sensors larger than the diameter of sensor, to avoid the malfunction.

近接感測器不可以面對面或並排方式安裝，如果要以上述方式安裝務必保持近接感測器感應面直徑的一倍距離以上。



#### ※ Clamping torque / 鎖緊扭力

Be sure to set a spring washer when fixing the sensor, Don't tighten the mounting screw of PM series with a clamping torque higher than the right value.

安裝近接感測器時務必使用止滑墊圈以防止鬆脫。安裝PM系列近接感測器時鎖緊扭力請勿超出最大扭力值以免損壞近接感測器。

| Diameter | Max. Clamping Torque |
|----------|----------------------|
| M5       | 10 kg-cm             |
| M8       | 90 kg-cm             |
| M12      | 100 kg-cm            |
| M18      | 200 kg-cm            |
| M30      | 300 kg-cm            |

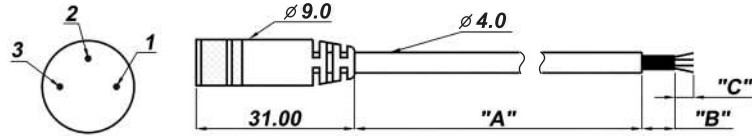
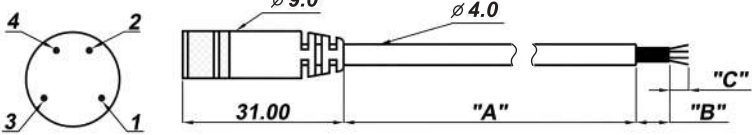
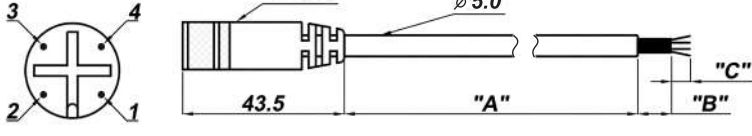
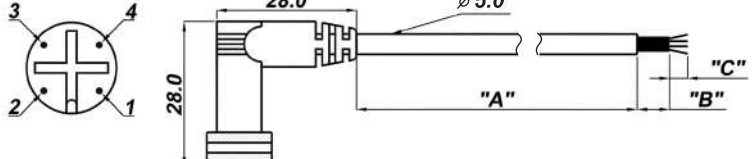
#### ※ Notice of Wiring / 配線注意事項

To avoid being influenced by noise, try best to separate the cable of the sensor from the power lines and high tension lines. if extend the sensor cable, please use a cable which diameter as same as that.

避免雜訊干擾，請儘量將感測器的電線與動力線或高壓線分離，不要綁在以起。

如果要延長感測器的電線請儘量使用和感測器的電線相同規格的電線。

● M8 & M12 lead wire cable/ M8 & M12 接頭線

| Model                                                                                                                                                                                                     | Outline                                                                                                                                                                                   |         |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------|-----|---------|----|--------|-------|---------|------------------------------------------------------------------------------------|--------|--------------------------------------------------------------------------------------|--|--|--|
| M8-3C-□m                                                                                                                                                                                                  | <table><tr><th>4P PLUG</th><th>COLOR</th></tr><tr><td>1</td><td>BROWN</td></tr><tr><td>2</td><td>BLACK</td></tr><tr><td>3</td><td>BLUE</td></tr></table>                                  | 4P PLUG | COLOR | 1   | BROWN   | 2  | BLACK  | 3     | BLUE    |  |        |                                                                                      |  |  |  |
|                                                                                                                                                                                                           | 4P PLUG                                                                                                                                                                                   | COLOR   |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
|                                                                                                                                                                                                           | 1                                                                                                                                                                                         | BROWN   |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
|                                                                                                                                                                                                           | 2                                                                                                                                                                                         | BLACK   |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
| 3                                                                                                                                                                                                         | BLUE                                                                                                                                                                                      |         |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
| <table><tr><th>規格</th><th>"A"</th><th>"B"</th><th>"C"</th></tr><tr><td>M8-3m</td><td>3m</td><td>50+3mm</td><td>5+1mm</td></tr><tr><td>M8-5m</td><td>5m</td><td>50+3mm</td><td>5+1mm</td></tr></table>     | 規格                                                                                                                                                                                        | "A"     | "B"   | "C" | M8-3m   | 3m | 50+3mm | 5+1mm | M8-5m   | 5m                                                                                 | 50+3mm | 5+1mm                                                                                |  |  |  |
| 規格                                                                                                                                                                                                        | "A"                                                                                                                                                                                       | "B"     | "C"   |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
| M8-3m                                                                                                                                                                                                     | 3m                                                                                                                                                                                        | 50+3mm  | 5+1mm |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
| M8-5m                                                                                                                                                                                                     | 5m                                                                                                                                                                                        | 50+3mm  | 5+1mm |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
|                                                                                                                                                                                                           |                                                                                                                                                                                           |         |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
|                                                                                                                                                                                                           |                                                                                                                                                                                           |         |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
| M8-4C-□m                                                                                                                                                                                                  | <table><tr><th>4P PLUG</th><th>COLOR</th></tr><tr><td>1</td><td>BROWN</td></tr><tr><td>2</td><td>WHITE</td></tr><tr><td>3</td><td>BLUE</td></tr><tr><td>4</td><td>BLACK</td></tr></table> | 4P PLUG | COLOR | 1   | BROWN   | 2  | WHITE  | 3     | BLUE    | 4                                                                                  | BLACK  |    |  |  |  |
|                                                                                                                                                                                                           | 4P PLUG                                                                                                                                                                                   | COLOR   |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
|                                                                                                                                                                                                           | 1                                                                                                                                                                                         | BROWN   |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
|                                                                                                                                                                                                           | 2                                                                                                                                                                                         | WHITE   |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
| 3                                                                                                                                                                                                         | BLUE                                                                                                                                                                                      |         |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
| 4                                                                                                                                                                                                         | BLACK                                                                                                                                                                                     |         |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
| <table><tr><th>規格</th><th>"A"</th><th>"B"</th><th>"C"</th></tr><tr><td>M8-3m</td><td>3m</td><td>50+3mm</td><td>5+1mm</td></tr><tr><td>M8-5m</td><td>5m</td><td>50+3mm</td><td>5+1mm</td></tr></table>     | 規格                                                                                                                                                                                        | "A"     | "B"   | "C" | M8-3m   | 3m | 50+3mm | 5+1mm | M8-5m   | 5m                                                                                 | 50+3mm | 5+1mm                                                                                |  |  |  |
| 規格                                                                                                                                                                                                        | "A"                                                                                                                                                                                       | "B"     | "C"   |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
| M8-3m                                                                                                                                                                                                     | 3m                                                                                                                                                                                        | 50+3mm  | 5+1mm |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
| M8-5m                                                                                                                                                                                                     | 5m                                                                                                                                                                                        | 50+3mm  | 5+1mm |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
|                                                                                                                                                                                                           |                                                                                                                                                                                           |         |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
|                                                                                                                                                                                                           |                                                                                                                                                                                           |         |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
| M12-4C-□m                                                                                                                                                                                                 | <table><tr><th>4P PLUG</th><th>COLOR</th></tr><tr><td>1</td><td>BROWN</td></tr><tr><td>2</td><td>WHITE</td></tr><tr><td>3</td><td>BLUE</td></tr><tr><td>4</td><td>BLACK</td></tr></table> | 4P PLUG | COLOR | 1   | BROWN   | 2  | WHITE  | 3     | BLUE    | 4                                                                                  | BLACK  |    |  |  |  |
|                                                                                                                                                                                                           | 4P PLUG                                                                                                                                                                                   | COLOR   |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
|                                                                                                                                                                                                           | 1                                                                                                                                                                                         | BROWN   |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
|                                                                                                                                                                                                           | 2                                                                                                                                                                                         | WHITE   |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
| 3                                                                                                                                                                                                         | BLUE                                                                                                                                                                                      |         |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
| 4                                                                                                                                                                                                         | BLACK                                                                                                                                                                                     |         |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
| <table><tr><th>規格</th><th>"A"</th><th>"B"</th><th>"C"</th></tr><tr><td>M12-3m</td><td>3m</td><td>50+3mm</td><td>5+1mm</td></tr><tr><td>M12-5m</td><td>5m</td><td>50+3mm</td><td>5+1mm</td></tr></table>   | 規格                                                                                                                                                                                        | "A"     | "B"   | "C" | M12-3m  | 3m | 50+3mm | 5+1mm | M12-5m  | 5m                                                                                 | 50+3mm | 5+1mm                                                                                |  |  |  |
| 規格                                                                                                                                                                                                        | "A"                                                                                                                                                                                       | "B"     | "C"   |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
| M12-3m                                                                                                                                                                                                    | 3m                                                                                                                                                                                        | 50+3mm  | 5+1mm |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
| M12-5m                                                                                                                                                                                                    | 5m                                                                                                                                                                                        | 50+3mm  | 5+1mm |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
|                                                                                                                                                                                                           |                                                                                                                                                                                           |         |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
|                                                                                                                                                                                                           |                                                                                                                                                                                           |         |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
| M12-4C- L-□m                                                                                                                                                                                              | <table><tr><th>4P PLUG</th><th>COLOR</th></tr><tr><td>1</td><td>BROWN</td></tr><tr><td>2</td><td>WHITE</td></tr><tr><td>3</td><td>BLUE</td></tr><tr><td>4</td><td>BLACK</td></tr></table> | 4P PLUG | COLOR | 1   | BROWN   | 2  | WHITE  | 3     | BLUE    | 4                                                                                  | BLACK  |  |  |  |  |
|                                                                                                                                                                                                           | 4P PLUG                                                                                                                                                                                   | COLOR   |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
|                                                                                                                                                                                                           | 1                                                                                                                                                                                         | BROWN   |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
|                                                                                                                                                                                                           | 2                                                                                                                                                                                         | WHITE   |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
| 3                                                                                                                                                                                                         | BLUE                                                                                                                                                                                      |         |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
| 4                                                                                                                                                                                                         | BLACK                                                                                                                                                                                     |         |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
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| 規格                                                                                                                                                                                                        | "A"                                                                                                                                                                                       | "B"     | "C"   |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
| M12-L3m                                                                                                                                                                                                   | 3m                                                                                                                                                                                        | 50+3mm  | 5+1mm |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
| M12-L5m                                                                                                                                                                                                   | 5m                                                                                                                                                                                        | 50+3mm  | 5+1mm |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
|                                                                                                                                                                                                           |                                                                                                                                                                                           |         |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |
|                                                                                                                                                                                                           |                                                                                                                                                                                           |         |       |     |         |    |        |       |         |                                                                                    |        |                                                                                      |  |  |  |

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