

Sensori di prossimità induttivi IP 67/68 per ambienti gravosi M12 e M18 - DC

Inductive proximity sensors IP 67/68 for harsh environments M12 and M18 - DC



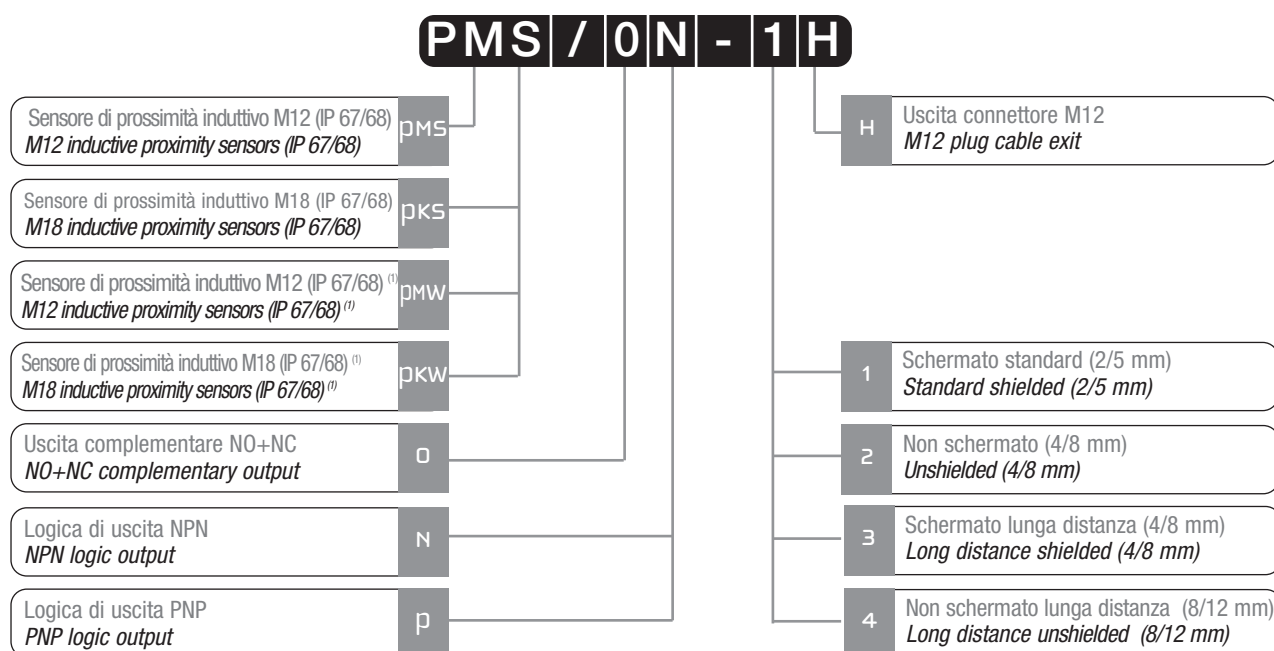
Caratteristiche principali Main features

- > Contenitore innovativo (con doppio involucro)
Innovative housing (double enclosure)
- > Resiste agli olii da taglio (per le macchine utensili)
Cutting oils resistant (for machines tool)
- > Protetto all'immersione (tenuta IP 67/68)
Immersion proof (sealing IP 67/68)
- > Alta frequenza di commutazione
High frequency switching
- > Uscita complementare (NO+NC)
Complementary output (NO+NC)

Disponibili, su richiesta, modelli ATEX, cat. 3
ATEX models, cat. 3, available on request

- > Indicatore LED ad ampio raggio di visibilità
LED indicator visible at wide angle
- > Uscita connettore M12
M12 plug cable exit
- > Totalmente protetti contro danneggiamenti di tipo elettrico
Complete protection against electrical damages
- > Marchio CE
CE Mark

Descrizione del codice - Code structure



(1) Versione in acciaio inox / *Stainless steel housing version*

Modelli disponibili - Available models

Diametro Diameter	Corpo Housing	Montaggio Installation	Portata Distance	Conn. Plug	NPN NO + NC	PNP NO + NC
M12	Ottone / Nickel plated brass	Sch. / Flush	2 mm	M12	PMS/ON-1H	PMS/OP-1H
		Non sch. / Not flush	4 mm	M12	PMS/ON-2H	PMS/OP-2H
	Acciaio inox / Stainless steel	Sch. / Flush	2 mm	M12	PMW/ON-1H	PMW/OP-1H
		Non sch. / Not flush	4 mm	M12	PMW/ON-2H	PMW/OP-2H
	Ottone / Nickel plated brass	Sch. / Flush	4 mm	M12	PMS/ON-3H	PMS/OP-3H
		Non sch. / Not flush	8 mm	M12	PMS/ON-4H	PMS/OP-4H
	Acciaio inox / Stainless steel	Sch. / Flush	4 mm	M12	PMW/ON-3H	PMW/OP-3H
		Non sch. / Not flush	8 mm	M12	PMW/ON-4H	PMW/OP-4H

Diametro Diameter	Corpo Housing	Montaggio Installation	Portata Distance	Conn. Plug	NPN NO + NC	PNP NO + NC
M18	Ottone / Nickel plated brass	Sch. / Flush	5 mm	M12	PKS/ON-1H	PKS/OP-1H
		Non sch. / Not flush	8 mm	M12	PKS/ON-2H	PKS/OP-2H
	Acciaio inox / Stainless steel	Sch. / Flush	5 mm	M12	PKW/ON-1H	PKW/OP-1H
		Non sch. / Not flush	8 mm	M12	PKW/ON-2H	PKW/OP-2H
	Ottone / Nickel plated brass	Sch. / Flush	8 mm	M12	PKS/ON-3H	PKS/OP-3H
		Non sch. / Not flush	12 mm	M12	PKS/ON-4H	PKS/OP-4H
	Acciaio inox / Stainless steel	Sch. / Flush	8 mm	M12	PKW/ON-3H	PKW/OP-3H
		Non sch. / Not flush	12 mm	M12	PKW/ON-4H	PKW/OP-4H

Specifiche (In accordo con IEC EN 60947-5-2 / DIN 44030) - Specifications (According to IEC EN 60947-5-2 / DIN 44030)

Modelli / Models	PM*/O*-1H	PM*/O*-2H	PM*/O*-3H	PM*/O*-4H
Distanza di rilevamento nominale <i>Sn / Nominal sensing distance Sn</i>	2 mm	4 mm	4 mm	8 mm
Distanza di lavoro / <i>Operating distance</i>	0...1,62 mm	0...3,24 mm	0...3,24 mm	0...6,48 mm
Corsa differenziale / <i>Differential travel</i>	1...20%			
Ripetibilità / <i>Repeat accuracy</i> U_b 20-30 V $T_a = 23^\circ\text{C} \pm 5^\circ\text{C}$	5%			
Campo di tensione di alimentazione / <i>Supply voltage range</i>	$10 \div 30 \text{ Vcc} / V_{dc}$			
Massima ondulazione residua / <i>Max ripple content</i>	$\leq 10 \%$			
Corrente assorbita / <i>No-load supply current</i>	15 mA			
Corrente di uscita / <i>Load current</i>	$\leq 200 \text{ mA}$			
Corrente di perdita / <i>Leakage current</i>	10 μA			
Caduta di tensione in uscita / <i>Voltage drop</i>	2 V@200 mA			
Tipo uscita / <i>Output type</i>	NPN o PNP - NO/NC complementare/complementary			
Frequenza di commutazione / <i>Switching frequency</i>	2 kHz			
Ritardo alla disponibilità / <i>Time delay before availability</i>	50 ms			
Protezioni elettriche alimentazione / <i>Supply electrical protections</i>	All'inversione di polarità, sovratensioni impulsive / <i>Polarity reversal, transient</i>			
Protezioni elettriche uscita / <i>Output electrical protections</i>	Al cortocircuito (autoripristinante) / <i>Short circuit (autoreset)</i>			
Limiti di temperatura / <i>Temperature range</i>	$-25^\circ\text{C} \dots +70^\circ\text{C}$			
Deriva termica / <i>Temperature drift</i>	10% Sr			
Grado di protezione (DIN 40 050) / <i>Protection degree (DIN 40 050)</i>	IEC IP 67/68 ⁽¹⁾			
Indicatori / <i>LED indicators</i>	LED giallo (uscita NO in stato eccitato) / <i>Yellow LED (NO output energized)</i>			
Materiali corpo / <i>Housing materials</i>	Ottone nichelato / <i>Nickel-plated brass (PMS)</i> Acciaio inox AISI303 / <i>Stainless steel AISI303 (PMW)</i>			
Materiali faccia attiva / <i>Sensing face materials</i>	PPS			
Coppia di serraggio / <i>Tightening torque</i>	8 Nm			
Peso (appross.) / <i>Weight (approx.)</i>	35 g			

(1) Solo in coppia con il connettore completamente avvitato. Note. Buona resistenza chimica ed agli olii, ma sono necessari dei test per un utilizzo in ambiente gravoso.

(1) Only in fully locked position with its plugs. Note.

Good chemicals and oils resistance, but test should be made in advance when using in harsh environment.

Modelli / Models	PK*/O*-1H	PK*/O*-2H	PK*/O*-3H	PK*/O*-4H
Distanza di rilevamento nominale S_n / Nominal sensing distance S_n	5 mm	8 mm	8 mm	12 mm
Distanza di lavoro / Operating distance	0...4,05 mm	0...6,48 mm	0...6,48 mm	0...9,7 mm
Corsa differenziale / Differential travel	1...20%			
Ripetibilità / Repeat accuracy U_b 20-30 V $T_a = 23^\circ\text{C} \pm 5^\circ\text{C}$	5%			
Campo di tensione di alimentazione / Supply voltage range	10 ÷ 30 Vcc / Vdc			
Massima ondulazione residua / Max ripple content	≤ 10 %			
Corrente assorbita / No-load supply current	15 mA			
Corrente di uscita / Load current	≤ 400 mA			
Corrente di perdita / Leakage current	10 µA			
Caduta di tensione in uscita / Voltage drop	2 V@200 mA			
Tipo uscita / Output type	NPN o PNP - NO/NC complementare / complementary			
Frequenza di commutazione / Switching frequency	1,5 kHz			
Ritardo alla disponibilità / Time delay before availability	50 ms			
Protezioni elettriche alimentazione / Supply electrical protections	All'inversione di polarità, sovratensioni impulsive / Polarity reversal, transient			
Protezioni elettriche uscita / Output electrical protections	Al cortocircuito (autoripristinante) / Short circuit (autoreset)			
Limiti di temperatura / Temperature range	-25°...+70°C			
Deriva termica / Temperature drift	10% Sr			
Grado di protezione (DIN 40 050) / Protection degree (DIN 40 050)	IEC IP 67/68 ⁽¹⁾			
Indicatori / LED indicators	LED Giallo (uscita NO in stato eccitato) / Yellow (NO output energized)			
Materiali corpo / Housing materials	Ottone nichelato / Nickel-plated brass (PKS) Acciaio inox AISI303 / Stainless steel AISI303 (PKW)			
Materiali faccia attiva / Sensing face materials	PPS			
Coppia di serraggio / Tightening torque	40 Nm			
Peso (appross.) / Weight (approx.)	70 g			

(1) Solo in coppia con il connettore completamente avvitato. Note. Buona resistenza chimica ed agli olii, ma sono necessari dei test per un utilizzo in ambiente gravoso.

(1) Only in fully locked position with its plugs. Note.

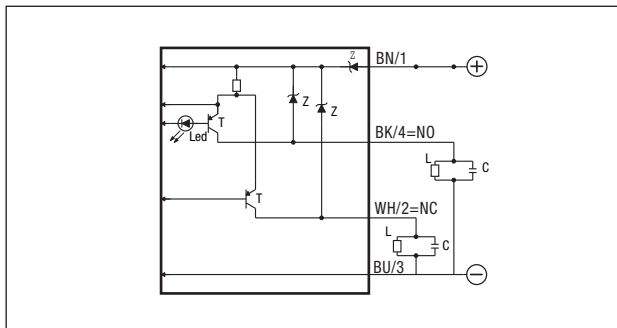
Good chemicals and oils resistance, but test should be made in advance when using in harsh environment.

Coefficienti di riduzione - Correction factors

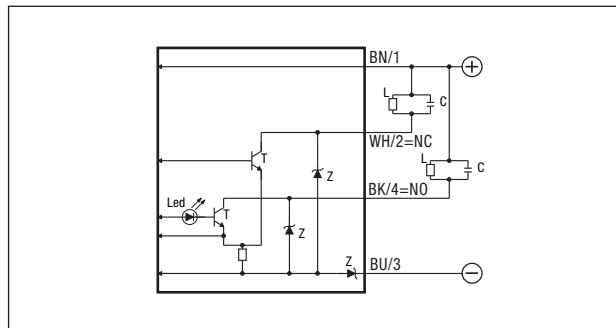
Codice / Code	Acciaio / Steel FE 360	Rame Copper	Alluminio Aluminium	Ottone Brass	Acciaio INOX Stainless steel
PMS/**-1*	1	0.22	0.31	0.41	0.77
PMS/**-2*	1	0.41	0.47	0.56	1.15
PMS/**-3*	1	0.33	0.4	0.5	1.05
PMS/**-4*	1	0.41	0.46	0.52	0.71
PMW/**-1*	1	0.02	0.08	0.2	0.68
PMW/**-2*	1	0.34	0.41	0.51	0.88
PMW/**-3*	1	0.08	0.14	0.23	0.78
PMW/**-4*	1	0.39	0.46	0.5	0.74
PKS/**-1*	1	0.3	0.35	0.65	0.76
PKS/**-2*	1	0.38	0.48	0.5	0.7
PKS/**-3*	1	0.3	0.33	0.41	0.68
PKS/**-4*	1	0.38	0.48	0.5	0.7
PKW/**-1*	1	0.12	0.2	0.26	0.62
PKW/**-2*	1	0.3	0.37	0.46	0.78
PKW/**-3*	1	0.13	0.2	0.24	0.61
PKW/**-4*	1	0.32	0.39	0.42	0.69

Schemi elettrici delle connessioni - Electrical diagrams of the connections

Schema di collegamento PNP
Wiring diagram PNP



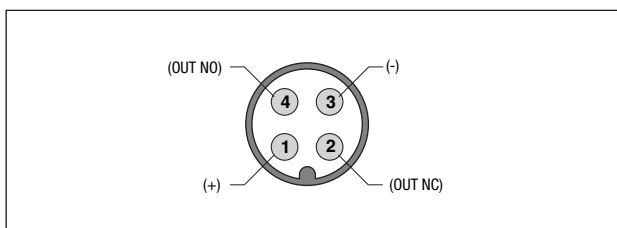
Schema di collegamento NPN
Wiring diagram NPN



Massima capacità ammissibile $C = 1\mu F$ per tensioni e correnti di uscite massime
The max. admissible capacity $C = 1\mu F$ for max. output voltage and current.

Connettore - Plug

M12 NO/NC



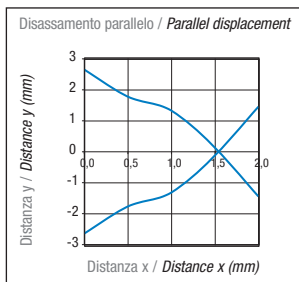
Connettori serie CD / Connectors CD series

Legenda Key

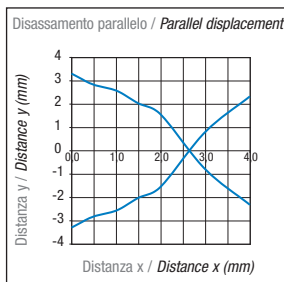
BN → marrone/brown
BK → nero/black
PK → rosa/pink
BU → blu/blue
WH → bianco/white
GY → grigio/gray

Curva di risposta - Response diagram

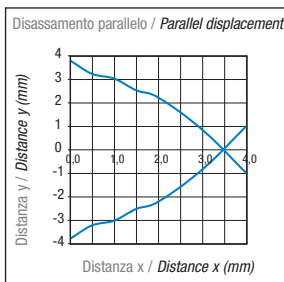
PMS/**-1*



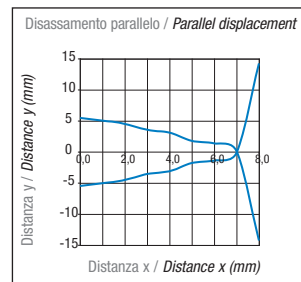
PMS/**-2*



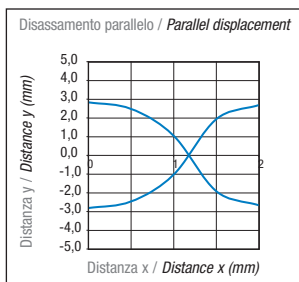
PMS/**-3*



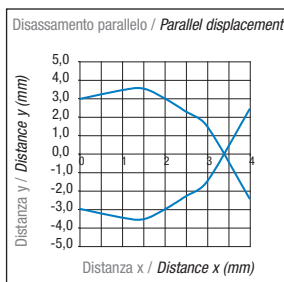
PMS/**-4*



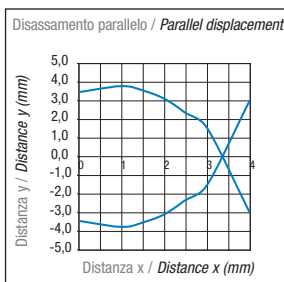
PMW/**-1*



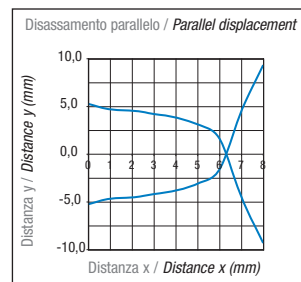
PMW/**-2*



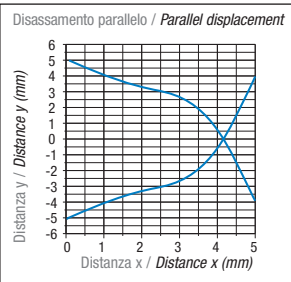
PMW/**-3*



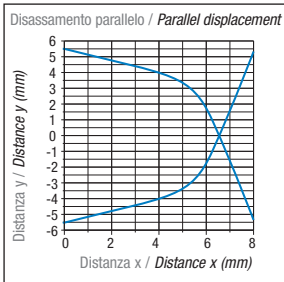
PMW/**-4*



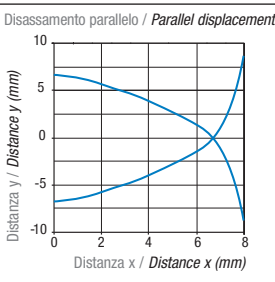
PKS/**-1*



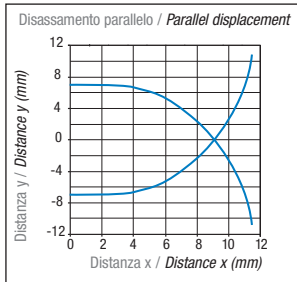
PKS/**-2*



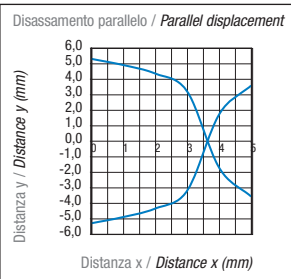
PKS/**-3*



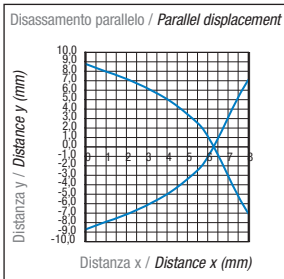
PKS/**-4*



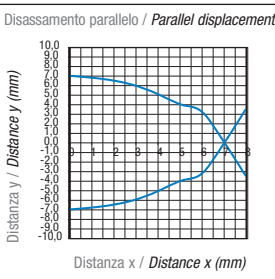
PKW/**-1*



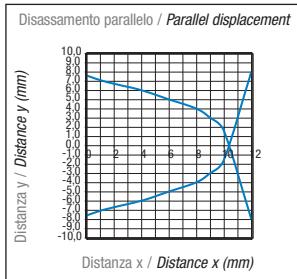
PKW/**-2*



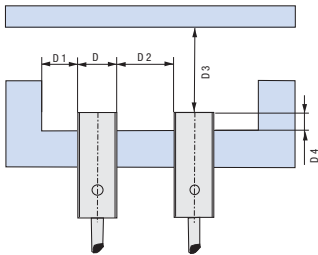
PKW/**-3*



PKW/**-4*



Montaggio - Installation

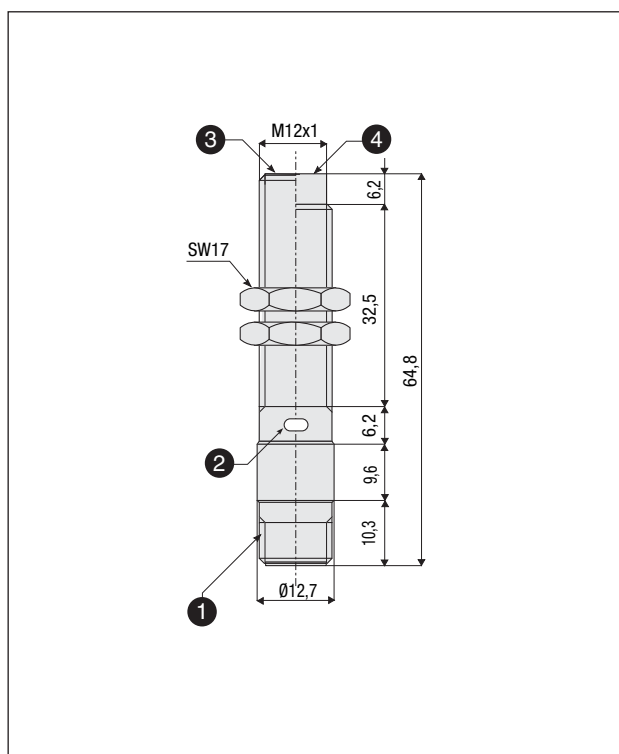


	D4	D1	D2	D3
PMS/**-1*	≥ 0 mm	≥ 6 mm	≥ 12 mm	≥ 6 mm
PMS/**-2*	≥ 1.2 mm	≥ 12 mm	≥ 24 mm	≥ 12 mm
PMS/**-3*	≥ 6 mm ⁽¹⁾	≥ 6 mm	≥ 12 mm	≥ 12 mm
PMS/**-4*	≥ 8 mm	≥ 12 mm	≥ 24 mm	≥ 24 mm
PMW/**-1*	≥ 0 mm ⁽²⁾	≥ 6 mm	≥ 12 mm	≥ 6 mm
PMW/**-2*	≥ 6 mm ⁽³⁾	≥ 12 mm	≥ 24 mm	≥ 12 mm
PMW/**-3*	≥ 1.2 mm ⁽⁴⁾	≥ 6 mm	≥ 12 mm	≥ 12 mm
PMW/**-4*	≥ 12 mm	≥ 12 mm	≥ 24 mm	≥ 24 mm
PKS/**-1*	≥ 3 mm	≥ 9 mm	≥ 18 mm	≥ 15 mm
PKS/**-2*	≥ 12 mm	≥ 18 mm	≥ 36 mm	≥ 24 mm
PKS/**-3*	≥ 2 mm	≥ 9 mm	≥ 18 mm	≥ 24 mm
PKS/**-4*	≥ 16 mm	≥ 18 mm	≥ 36 mm	≥ 36 mm
PKW/**-1*	≥ 3.6 mm	≥ 9 mm	≥ 18 mm	≥ 15 mm
PKW/**-2*	≥ 12 mm	≥ 18 mm	≥ 36 mm	≥ 24 mm
PKW/**-3*	≥ 1.8 mm ⁽⁵⁾	≥ 9 mm	≥ 18 mm	≥ 24 mm
PKW/**-4*	≥ 16 mm	≥ 18 mm	≥ 36 mm	≥ 36 mm

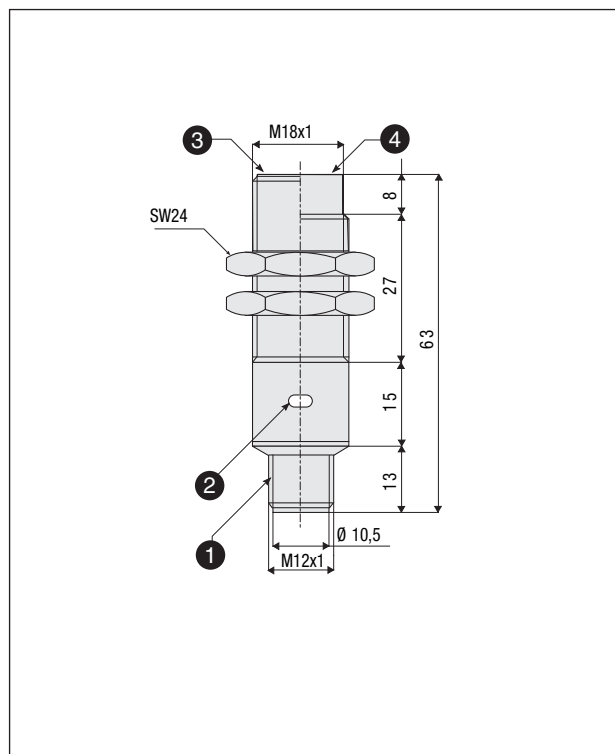
- (1) ≥ 2 mm per materiali non magnetici / for non magnetic material
 (2) ≥ 2.4 mm per materiali non magnetici / for non magnetic material
 (3) ≥ 0 mm per materiali non magnetici / for non magnetic material
 (4) ≥ 3.6 mm per materiali non magnetici / for non magnetic material
 (5) ≥ 3.6 mm per materiali non magnetici / for non magnetic material

Dimensioni - Dimensions

PM*/**-*H



PK*/**-*H



Legenda / Key

- | | |
|---|---|
| ① Uscita connettore M12
<i>M12 plug cable exit</i> | ③ Versione schermata
<i>Shielded version</i> |
| ② LED indicatore di stato (uscita NO eccitata)
<i>LED status indicator (NO output energized)</i> | ④ Versione non schermata
<i>Unshielded version</i> |