

### Sensori di prossimità induttivi M12 serie AM e PM

#### M12 inductive proximity sensors AM & PM series



#### Caratteristiche principali Main features

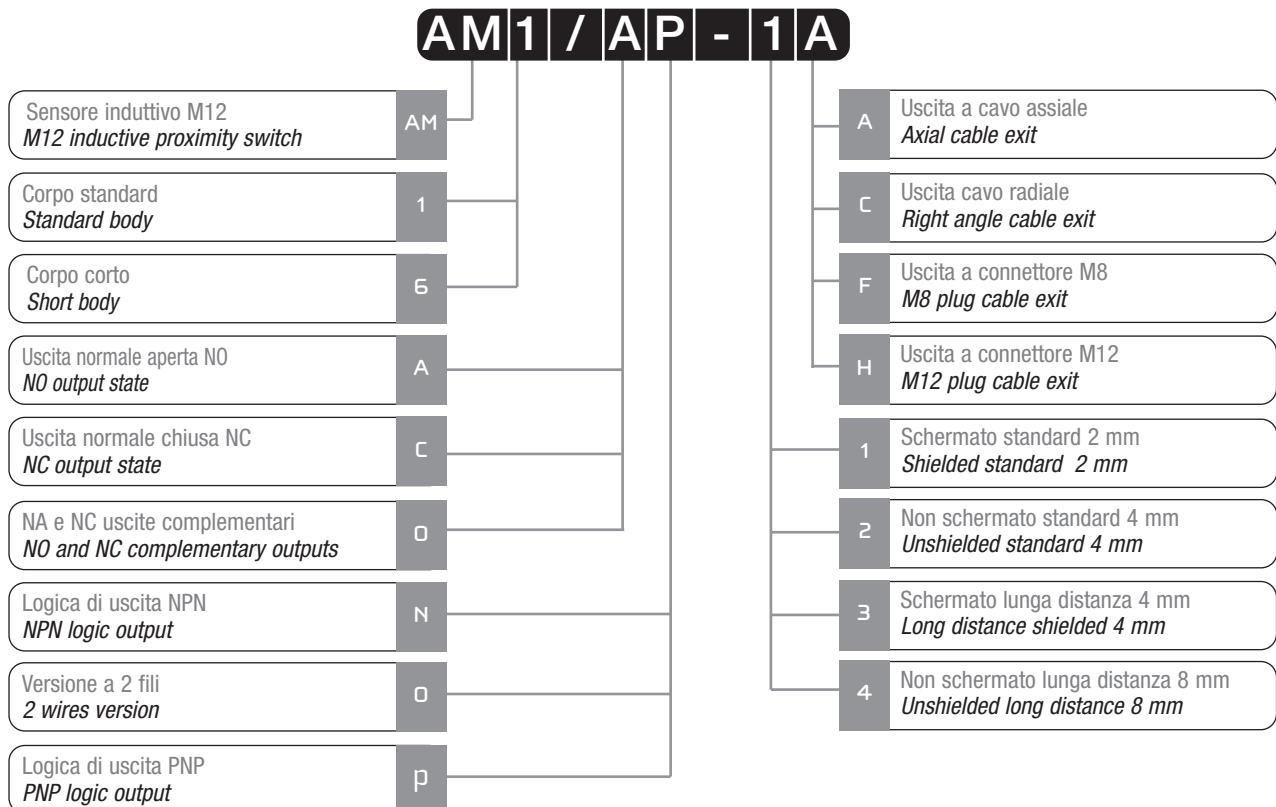
- > Vasta gamma di modelli: standard, corpo corto, lunga distanza, con uscita DECOUT
- > *Wide range of models: standard, short body, long distance, DECOUT output*
- > Uscite: cavo, connettore M12 e M8
- > *Output: cable, M12 and M8 plug cable exit*
- > Modelli a 2, 3 e 4 fili
- > *Models with 2, 3, and 4 wires*

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

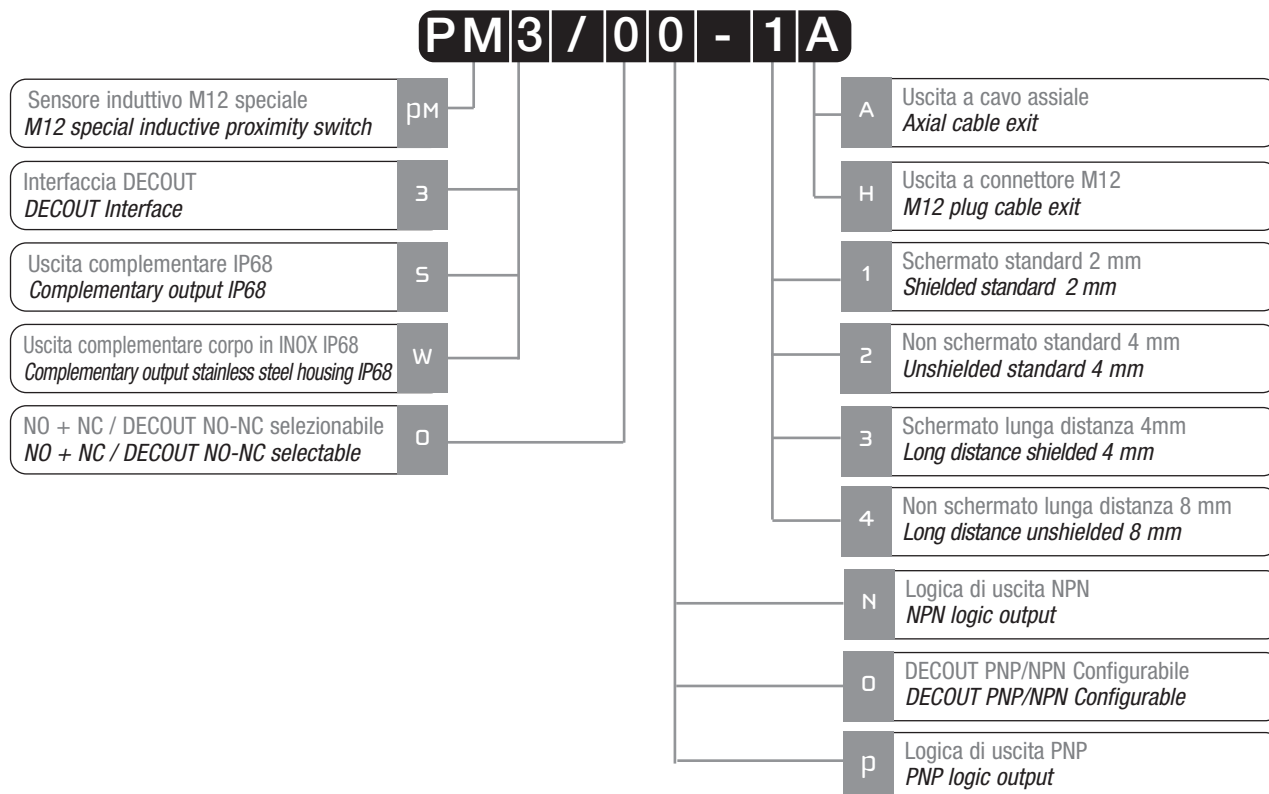
- > Modelli speciali a doppio involucro protetti all'immersione (IP 68)
- > *Special models with double enclosure immersion proof (IP 68)*
- > Modelli con uscita antivalente (NO+NC)
- > *Models with complementary output (NO + NC)*
- > Marchio CEE
- > **CEE Mark**

#### Descrizione del codice - Code structure

##### > M12 serie AM - M12 AM series



### > M12 serie PM - M12 PM series



### Modelli disponibili - Available models

#### Corpo Standard / Standard housing

Diametro <i>Diameter</i>	Montaggio <i>Installation</i>	Portata <i>Distance</i>	Conn. <i>Plug</i>	Distanza <i>Distance</i>	NPN/NO	PNP/NO	NPN/NC	PNP/NC
M12	Schermato <i>Shielded</i>	Standard	Cavo / Wire	2 mm	AM1/AN-1A	AM1/AP-1A	AM1/CN-1A	AM1/CP-1A
			Cavo / Wire 90°	2 mm	AM1/AN-1C	AM1/AP-1C	AM1/CN-1C	AM1/CP-1C
			M8	2 mm	AM1/AN-1F	AM1/AP-1F	AM1/CN-1F	AM1/CP-1F
			M12	2 mm	AM1/AN-1H	AM1/AP-1H	AM1/CN-1H	AM1/CP-1H
	Non schermato <i>Unshielded</i>	Standard	Cavo / Wire	4 mm	AM1/AN-2A	AM1/AP-2A	AM1/CN-2A	AM1/CP-2A
			Cavo / Wire 90°	4 mm	AM1/AN-2C	AM1/AP-2C	AM1/CN-2C	AM1/CP-2C
			M8	4 mm	AM1/AN-2F	AM1/AP-2F	AM1/CN-2F	AM1/CP-2F
			M12	4 mm	AM1/AN-2H	AM1/AP-2H	AM1/CN-2H	AM1/CP-2H
	Schermato <i>Shielded</i>	Lunga distanza <i>Long distance</i>	Cavo / Wire	4 mm	AM1/AN-3A	AM1/AP-3A	AM1/CN-3A	AM1/CP-3A
			M12	4 mm	AM1/AN-3H	AM1/AP-3H	AM1/CN-3H	AM1/CP-3H
	Non schermato <i>Unshielded</i>	Lunga distanza <i>Long distance</i>	Cavo / Wire	8 mm	AM1/AN-4A	AM1/AP-4A	AM1/CN-4A	AM1/CP-4A
			M12	8 mm	AM1/AN-4H	AM1/AP-4H	AM1/CN-4H	AM1/CP-4H

#### Corpo corto / Short housing

Diametro <i>Diameter</i>	Montaggio <i>Installation</i>	Portata <i>Distance</i>	Conn. <i>Plug</i>	Distanza <i>Distance</i>	NPN/NO	PNP/NO	NPN/NC	PNP/NC
M12	Schermato <i>Shielded</i>	Standard	Cavo / Wire	2 mm	AM6/AN-1A	AM6/AP-1A	AM6/CN-1A	AM6/CP-1A
			Cavo / Wire 90°	2 mm	AM6/AN-1C	AM6/AP-1C	AM6/CN-1C	AM6/CP-1C
			M8	2 mm	AM6/AN-1F	AM6/AP-1F	AM6/CN-1F	AM6/CP-1F
			M12	2 mm	AM6/AN-1H	AM6/AP-1H	AM6/CN-1H	AM6/CP-1H
	Non schermato <i>Unshielded</i>	Standard	Cavo / Wire	4 mm	AM6/AN-2A	AM6/AP-2A	AM6/CN-2A	AM6/CP-2A
			Cavo / Wire 90°	4 mm	AM6/AN-2C	AM6/AP-2C	AM6/CN-2C	AM6/CP-2C
			M8	4 mm	AM6/AN-2F	AM6/AP-2F	AM6/CN-2F	AM6/CP-2F
			M12	4 mm	AM6/AN-2H	AM6/AP-2H	AM6/CN-2H	AM6/CP-2H
	Schermato <i>Shielded</i>	Lunga distanza <i>Long distance</i>	Cavo / Wire	4 mm	AM6/AN-3A	AM6/AP-3A	AM6/CN-3A	AM6/CP-3A
			M12	4 mm	AM6/AN-3H	AM6/AP-3H	AM6/CN-3H	AM6/CP-3H
	Non schermato <i>Unshielded</i>	Lunga distanza <i>Long distance</i>	Cavo / Wire	8 mm	AM6/AN-4A	AM6/AP-4A	AM6/CN-4A	AM6/CP-4A
			M12	8 mm	AM6/AN-4H	AM6/AP-4H	AM6/CN-4H	AM6/CP-4H

## AM & PM series - inductive sensors

### Modelli 2 fili DC / DC 2 wires models

Diametro Diameter	Montaggio Installation	Portata Distance	Conn. Plug	Distanza Distance	NO	NC
M12	Schermato Shielded	Standard	Cavo / Wire	2 mm	AM1/A0-1A	AM1/C0-1A
			M12	2 mm	AM1/A0-1H	AM1/C0-1H
	Non schermato Unshielded	Standard	Cavo / Wire	4 mm	AM1/A0-2A	AM1/C0-2A
			M12	4 mm	AM1/A0-2H	AM1/C0-2H
	Schermato Shielded	Lunga distanza Long distance	Cavo / Wire	4 mm	AM1/A0-3A	AM1/C0-3A
			M12	4 mm	AM1/A0-3H	AM1/C0-3H
	Non schermato Unshielded	Lunga distanza Long distance	Cavo / Wire	8 mm	AM1/A0-4A	AM1/C0-4A
			M12	8 mm	AM1/A0-4H	AM1/C0-4H

### Modelli DECOUT / DECOUT models

Diametro Diameter	Montaggio Installation	Portata Distance	Conn. Plug	Distanza Distance	NO/NC-PNP/NPN
M12	Schermato Shielded	Standard	Cavo / Wire	2 mm	PM3/00-1A
			M12	2 mm	PM3/00-1H
	Non schermato Unshielded	Standard	Cavo / Wire	4 mm	PM3/00-2A
			M12	4 mm	PM3/00-2H

### Modelli IP 67-IP 68 con corpo in ottone / IP 67-IP 68 models with nickel-plated brass housing

Diametro Diameter	Montaggio Installation	Portata Distance	Conn. Plug	Distanza Distance	NPN - NO+NC	PNP - NO+NC
M12	Schermato / Shielded	Standard	M12	2 mm	PMS/ON-1H	PMS/OP-1H
	Non schermato / Unshielded	Standard	M12	4 mm	PMS/ON-2H	PMS/OP-2H
	Schermato / Shielded	Lunga distanza / Long distance	M12	4 mm	PMS/ON-3H	PMS/OP-3H
	Non schermato / Unshielded	Lunga distanza / Long distance	M12	8 mm	PMS/ON-4H	PMS/OP-4H

### Modelli IP 67-IP 68 corpo in inox / IP 67-IP 68 models with stainless steel housing

Diametro Diameter	Montaggio Installation	Portata Distance	Conn. Plug	Distanza Distance	NPN - NO+NC	PNP - NO+NC
M12	Schermato / Shielded	Standard	M12	2 mm	PMW/ON-1H	PMW/OP-1H
	Non scherm. / Unshielded	Standard	M12	4 mm	PMW/ON-2H	PMW/OP-2H
	Schermato / Shielded	Lunga distanza / Long distance	M12	4 mm	PMW/ON-3H	PMW/OP-3H
	Non scherm. / Unshielded	Lunga distanza / Long distance	M12	8 mm	PMW/ON-4H	PMW/OP-4H

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

#### > Serie AM - AM series

Modelli / Models	AM*/**-1*	AM*/**-2*	AM*/**-3*	AM*/**-4*
Distanza nominale $S_n$ / Nominal sensing distance $S_n$	2 mm	4 mm	4 mm	8 mm
Distanza di lavoro / Operating distance	0 ÷ 1,6 mm	0 ÷ 3,2 mm	0 ÷ 3,2 mm	0 ÷ 6,4 mm
Corsa differenziale / Hysteresis	1 ÷ 20%			
Dimensione azionatore normalizzato / Standard target	12x12 mm FE 360			24x24mm FE 360
Ripetibilità / Repeat accuracy	5% $U_B$ 20-30 V $T_a = 23^\circ\text{C} \pm 5^\circ\text{C}$			
Campo di tensione di alimentazione / Supply voltage range	10 ÷ 30 $V_{cc} / V_{dc}$			
Massima ondulazione residua / Max ripple content	≤ 10%			
Corrente di uscita / Output current	≤ 200 mA (3 ÷ 100 mA per versioni a 2 fili / for 2 wires versions)			
Tensione di saturazione di uscita / Output voltage drop	1,8 V @ 200 mA (2,8 V @ 100 mA per versioni a 2 fili / for 2 wires versions)			
Corrente di alimentazione senza carico / No load supply current	10 mA (per versioni a 3 fili / for 3 wires versions)			
Corrente di perdita / Leakage current	10 $\mu\text{A}$ (≤ 0,8 mA per versioni a 2 fili / for 2 wires versions)			
Frequenza di commutazione / Switching frequency	2 kHz (1,5 kHz per 2 fili / for 2 wires)		2 kHz (750Hz per 2 fili / for 2 wires)	
Ritardo all'accensione / Time delay before availability	50 ms			
Campo di temperature ambiente / Ambient temperature range	-25 ÷ +70 °C			
Deriva termica di $S_r$ / Temperature drift of $S_r$	10%			
Protezione al corto circuito / Short-circuit protection	Sì (auto ripristinante) / Yes (auto reset)			
Protezione all'inversione di polarità / Voltage reversal protection	Sì / Yes			
Protezione ai carichi induttivi / Induction protection	Sì / Yes			
Colpi e vibrazioni / Shocks and vibrations	IEC/EN60947-5-2 / 7.4			
Peso / Weight	30 g versione a connettore / plug version 70 g versione a cavo / cable version <sup>(2)</sup>			
Indicatori LED / LED indicators	LED giallo stato dell'uscita / Yellow LED output state			
Grado di protezione / Degree of protection	IP 67 <sup>(1)</sup> (EN60529)			
Protezione EMC / EMC protection:	Secondo / According to IEC/EN60947-5-2			
	IEC 60255-5 1 kV			
	IEC 61000-4-2 Livello 3 / Level 3 aria / air 8 kV			
	IEC 61000-4-3 Livello 3 / Level 3 10 V/m			
	IEC 61000-4-4 Livello 3 / Level 3 2 kV			
Materiale del corpo / Housing material	Ottone nichelato / Nickel-plated brass			
Superficie sensibile / Sensing face	PBT			
Connessione / Connection	Cavo / Cable 2 m PVC Connettore / Plug M8 o / or M12			

(1) Protezione garantita solo con il cavo a connettore correttamente montato / Protection guaranteed only with plug cable wall mounted

(2) 20 g versione connettore corpo corto; 60 g versione cavo corpo corto / 20 g plug version short body; 60 g cable version short body

### > Serie PM - PM series

Modelli / Models	PM3/00-1*	PM3/00-2*	PM*/0*-1H	PM*/0*-2H	PM*/0*-3H	PM*/0*-4H
Distanza nominale Sn / Nominal sensing distance Sn	2 mm	4 mm	2 mm	4 mm	4 mm	8 mm
Distanza di lavoro / Operating distance	0 ÷ 1,6 mm	0 ÷ 3,2 mm	0 ÷ 1,6 mm	0 ÷ 3,2 mm	0 ÷ 3,2 mm	0 ÷ 6,4 mm
Corsa differenziale / Hysteresis	1 ÷ 20%					
Dimensione azionatore normalizzato / Standard target	12x12 mm FE 360					24x24mm FE 360
Ripetitività / Repeat accuracy	5% (U <sub>s</sub> 20-30 V Ta = 23°C ± 5°C)					
Campo di tensione di alimentazione / Supply voltage range	10 ÷ 30 Vcc / Vdc					
Massima ondulazione residua / Max ripple content	≤ 10 %					
Corrente di uscita / Output current	≤ 100 mA			≤ 200 mA		
Tensione di saturazione di uscita / Output voltage drop	≤ 1,2 V @ 100 mA			≤ 2 V @ 200 mA		
Corrente di alimentazione senza carico / No load supply current	30 mA			15 mA		
Corrente di perdita / Leakage current	≤ 10 µA					
Frequenza di commutazione / Switching frequency	1 kHz			2 kHz		
Ritardo all'accensione / Time delay before availability	100 ms			50 ms		
Campo di temperature ambiente / Ambient temperature range	-25 ÷ +70 °C					
Deriva termica di Sr / Temperature drift of Sr	10%					
Protezione al corto circuito / Short-circuit protection	Sì / Yes			Sì (auto ripristinante) / Yes (auto reset)		
Protezione all'inversione di polarità / Voltage reversal protection	Sì / Yes					
Protezione ai carichi induttivi / Induction protection	Sì / Yes					
Colpi e vibrazioni / Shocks and vibrations	IEC/EN60947-5-2 / 7. 4					
Peso / Weight	30 g connettore / plug 70 g cavo / cable			35 g		
Indicatori LED giallo / Yellow LED indicators	Stato dell'uscita / Output state			Stato dell'uscita NO / NO output state		
Grado di protezione / Degree of protection	IP 67 <sup>(1)</sup> ( EN60529 )			IP 67/68 <sup>(1)</sup> ( EN60529 )		
Protezione EMC / EMC protection:	Secondo / According to IEC/EN60947-5-2					
IEC 60255-5	1 kV					
IEC 61000-4-2	Livello 3 / Level 3 aria / air 8 kV					
IEC 61000-4-3	Livello 3 / Level 3 10 V/m					
IEC 61000-4-4	Livello 3 / Level 3 2 kV					
Materiale del corpo / Housing material	Ottone nichelato / Nickel-plated brass (INOX per versioni "W" / Stainless steel for "W" version)					
Superficie sensibile / Sensing face	PBT			PPS		
Connessione / Connection	Cavo / Cable 2 m PVC Connettore / Plug M12			Connettore / Plug M12		

(1) protezione garantita solo con il cavo a connettore correttamente montato / Protection guaranteed only with plug cable well mounted

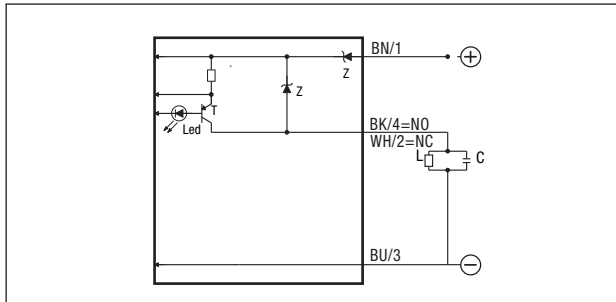
### Coefficienti di riduzione - Correction factors

Codice / Code	Acciaio / Steel FE 360	Rame Copper	Alluminio Aluminium	Ottone Brass	Acciaio INOX Stainless steel
AM*/**-1* - PMS/**-1*	1	0.22	0.31	0.41	0.77
AM*/**-2* - PMS/**-2*	1	0.41	0.47	0.56	1.15
AM*/**-3* - PMS/**-3*	1	0.33	0.4	0.5	1.05
AM*/**-4* - PMS/**-4*	1	0.41	0.46	0.52	0.71
AM*/0-1* - PM3/00-1*	1	0.3	0.35	0.5	0.8
AM*/0-2* - PM3/00-2*	1	0.52	0.57	0.62	0.87
AM*/0-3*	1	0.42	0.47	0.55	0.8
AM*/0-4*	1	0.51	0.56	0.62	0.78
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

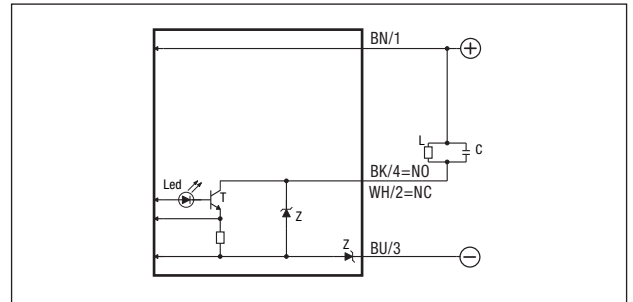
### Schemi elettrici delle connessioni - Electrical diagrams of the connections

#### > Versioni a 3 fili - 3 wires versions

Schema di collegamento PNP  
Wiring diagram PNP

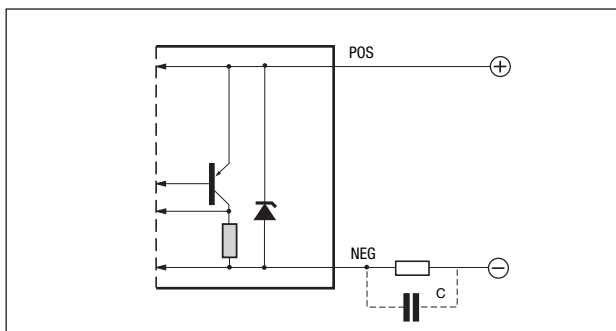


Schema di collegamento NPN  
Wiring diagram NPN

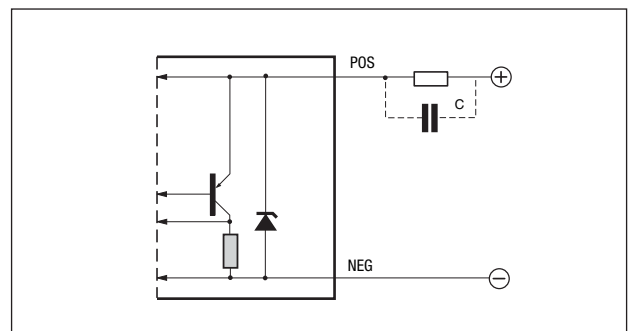


#### > Versioni a 2 fili - 2 wires versions

Schema di collegamento PNP  
Wiring diagram PNP

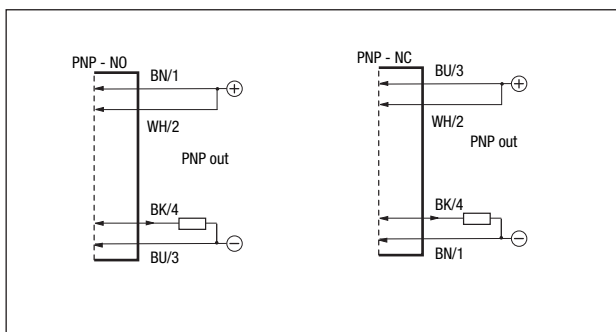


Schema di collegamento NPN  
Wiring diagram NPN

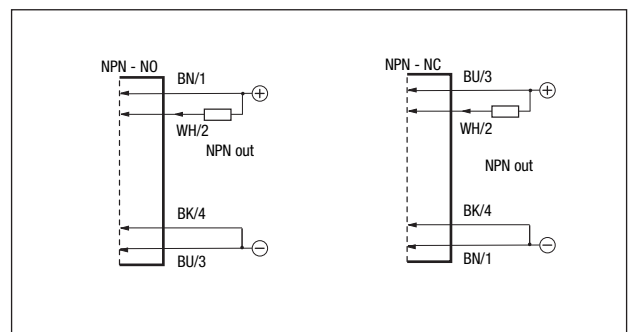


#### > Versioni PM3 DECOUT - PM3 DECOUT versions

Schema di collegamento PNP-NO/NC  
Wiring diagram PNP-NO/NC

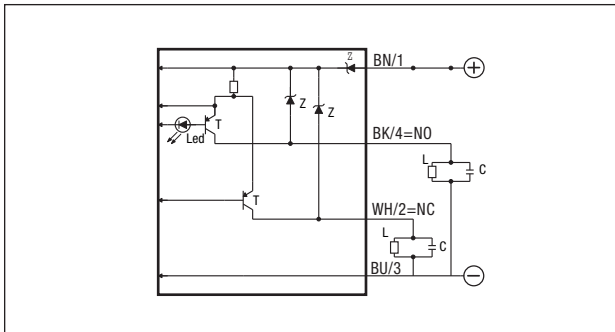


Schema di collegamento NPN-NO/NC  
Wiring diagram NPN-NO/NC

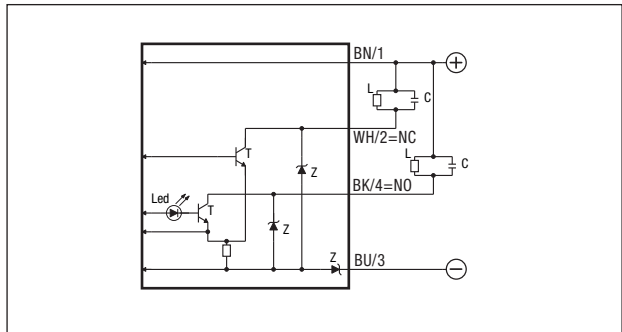


### > Versioni PMS-PMW uscite complementari - Complementary outputs versions

Schema di collegamento PNP  
Wiring diagram PNP



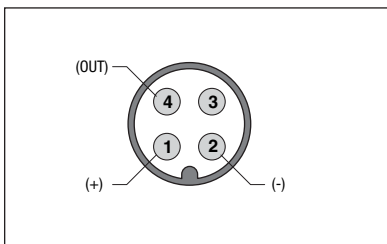
Schema di collegamento NPN  
Wiring diagram NPN



### Connettore - Plug

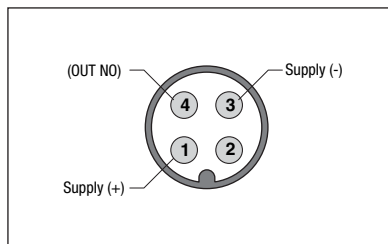
#### > Versioni a 3 fili - 3 wires versions

M8

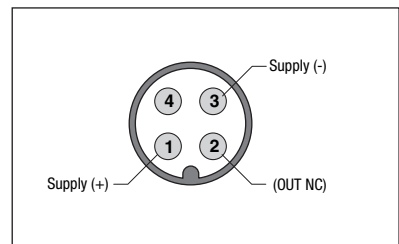


Connettori serie CD / Connectors CD series

M12 - NO

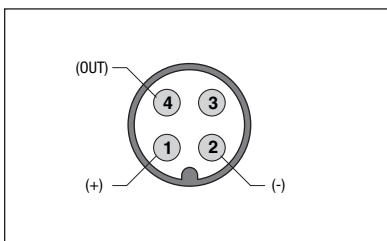


M12 - NC



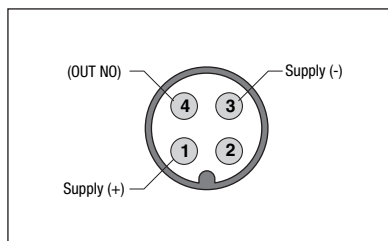
#### > Versioni a 2 fili - 2 wires versions

M12 - NO



Connettori serie CD / Connectors CD series

M12 - NC

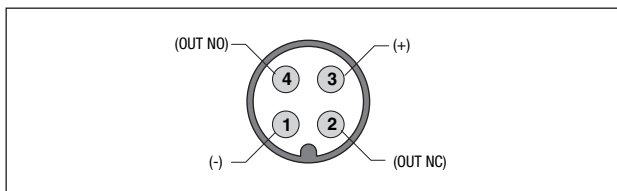


#### Legenda Key

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

### > Versioni PM3 DECOU - PM3 DECOU versions

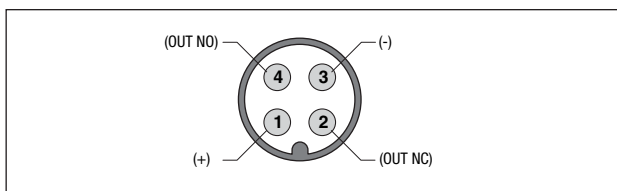
#### M12 - NO/NC



Connettori serie CD / Connectors CD series

### > Versioni PMS-PMW con uscite complementari - Complementary outputs versions

#### M12 - NO+NC



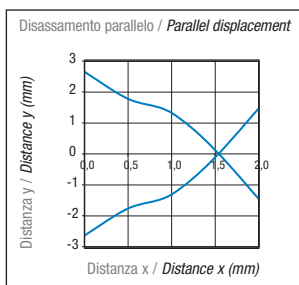
Connettori serie CD / Connectors CD series

#### Legenda Key

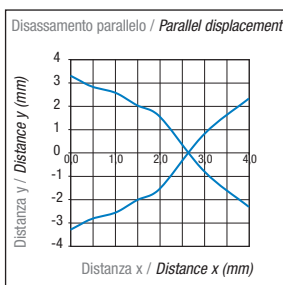
- BN → marrone/brown
- BK → nero/black
- PK → rosa/pink
- BU → blu/blue
- WH → bianco/white
- GY → grigio/gray

### Curva di risposta - Response diagram

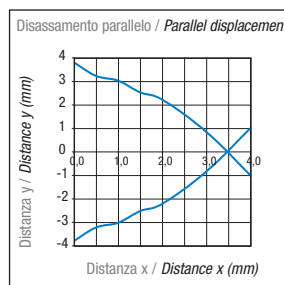
#### AM\*/\*\* -1\*



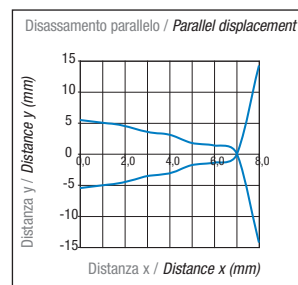
#### AM\*/\*\* -2\*



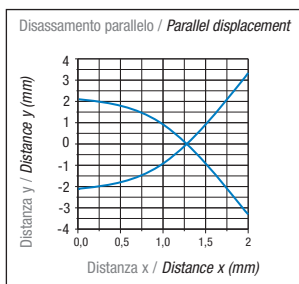
#### AM\*/\*\* -3\*



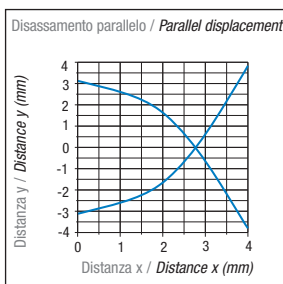
#### AM\*/\*\* -4\*



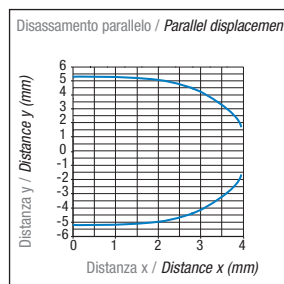
#### AM1/\*0 -1\*



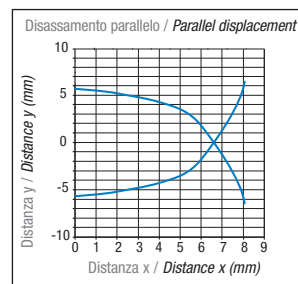
#### AM1/\*0 -2\*



#### AM1/\*0 -3\*

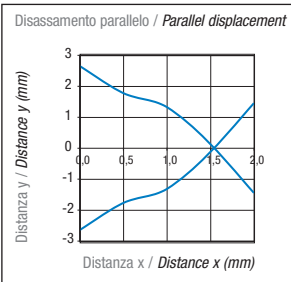


#### AM1/\*0 -4\*

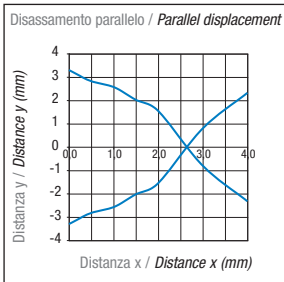




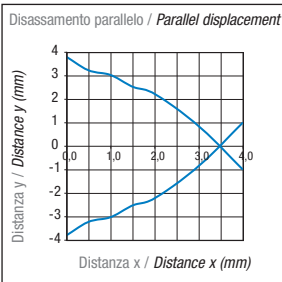
PMS/\*\*-1\*



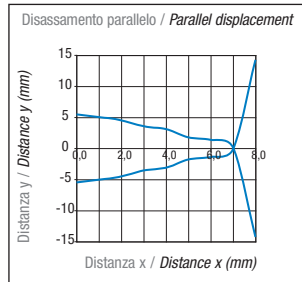
PMS/\*\*-2\*



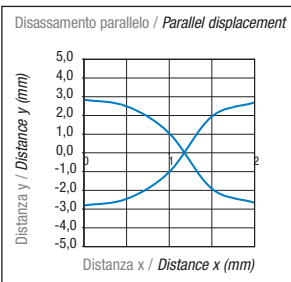
PMS/\*\*-3\*



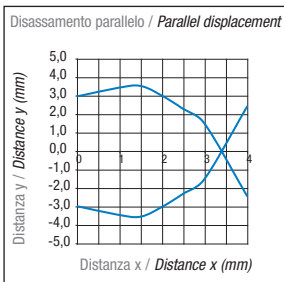
PMS/\*\*-4\*



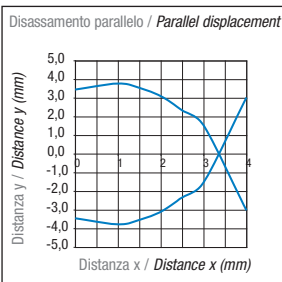
PMW/\*\*-1\*



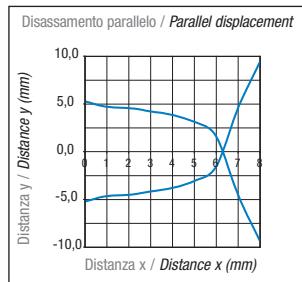
PMW/\*\*-2\*



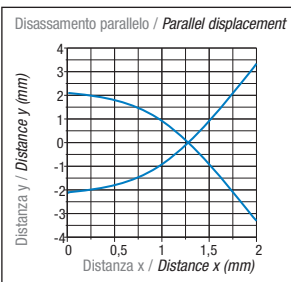
PMW/\*\*-3\*



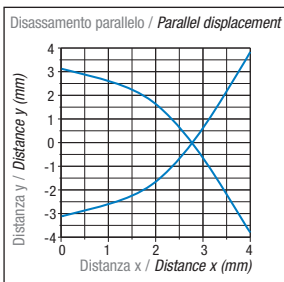
PMW/\*\*-4\*



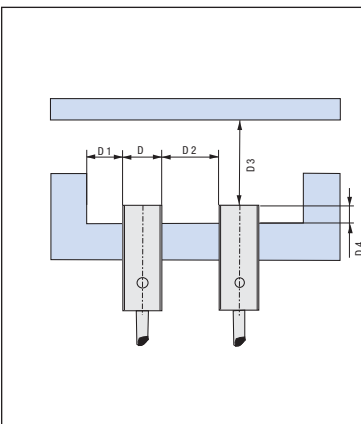
PM3/\*\*-1\*



PM3/\*\*-2\*



### Montaggio - Installation

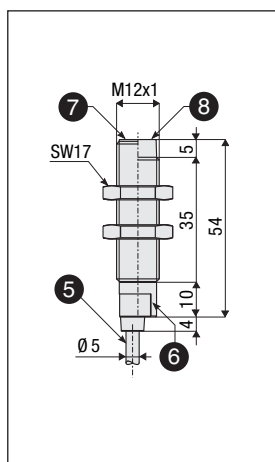


	D4	D1	D2	D3
AM/**-1* - PMS/**-1*	≥ 0 mm	≥ 6 mm	≥ 12 mm	≥ 6 mm
AM/**-2* - PMS/**-2*	≥ 1.2 mm	≥ 12 mm	≥ 24 mm	≥ 12 mm
AM/**-3* - PMS/**-3*	≥ 12 mm <sup>(1)</sup>	≥ 6 mm	≥ 12 mm	≥ 12 mm
AM/**-4* - PMS/**-4*	≥ 8 mm	≥ 12 mm	≥ 24 mm	≥ 24 mm
AM*/0-1* - PMS/00-1*	≥ 2.4 mm	≥ 6 mm	≥ 12 mm	≥ 6 mm
AM*/0-2* - PMS/00-2*	≥ 8 mm	≥ 12 mm	≥ 24 mm	≥ 12 mm
AM*/0-3*	≥ 2.4 mm	≥ 6 mm	≥ 12 mm	≥ 12 mm
AM*/0-4*	≥ 16 mm	≥ 12 mm	≥ 24 mm	≥ 24 mm
PMW/**-1*	≥ 0 mm <sup>(2)</sup>	≥ 6 mm	≥ 12 mm	≥ 6 mm
PMW/**-2*	≥ 6 mm <sup>(3)</sup>	≥ 12 mm	≥ 24 mm	≥ 12 mm
PMW/**-3*	≥ 1.2 mm <sup>(4)</sup>	≥ 6 mm	≥ 12 mm	≥ 12 mm
PMW/**-4*	≥ 12 mm	≥ 12 mm	≥ 24 mm	≥ 24 mm

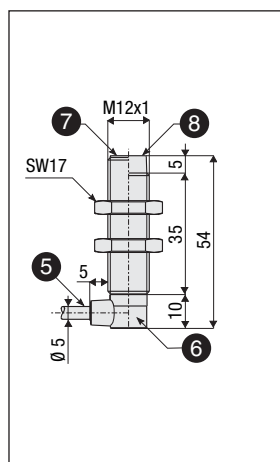
- (1) ≥ 2 mm per materiali non magnetici / for non magnetic material
- (2) ≥ 2.4 mm per materiali non magnetici / for non magnetic material
- (3) ≥ 0 mm per materiali non magnetici / for non magnetic material
- (4) ≥ 3.6 mm per materiali non magnetici / for non magnetic material

### Dimensioni - Dimensions

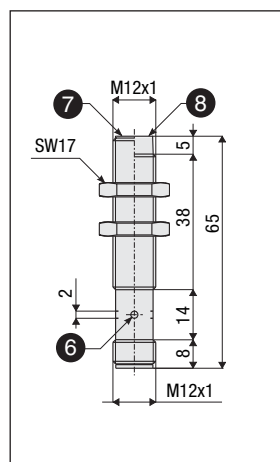
AM1/\*\*-A



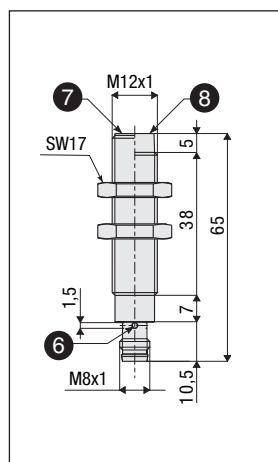
AM1/\*\*-C



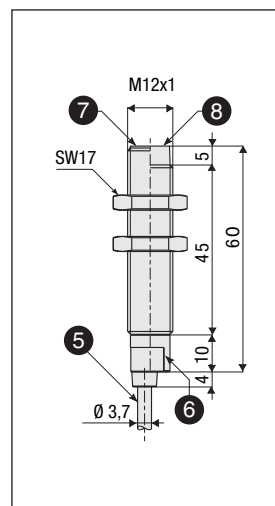
AM1/\*\*-H



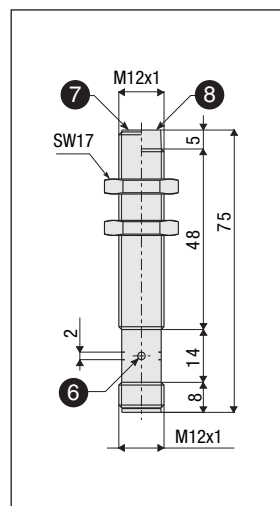
AM1/\*\*-F



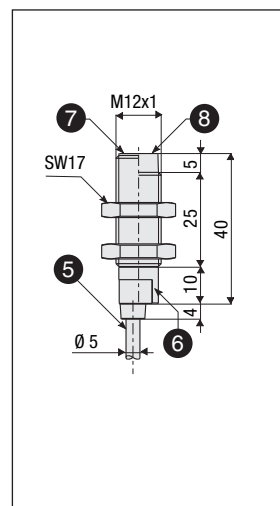
PM3/00-A  
AM1/0-A



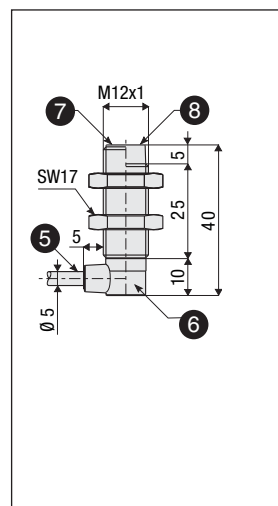
PM3/00-H  
AM1/0-H



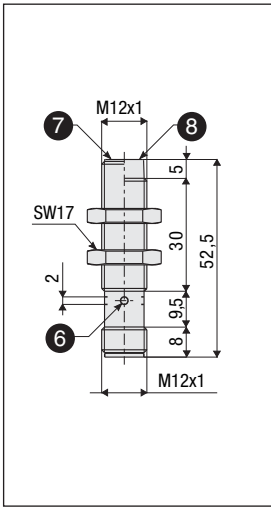
AM6/\*\*-A



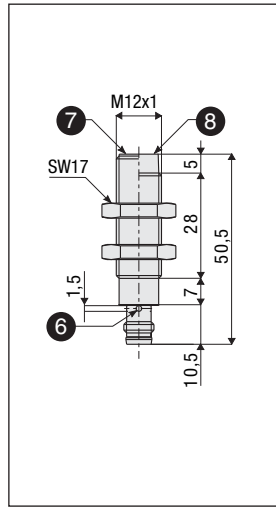
AM6/\*\*-C



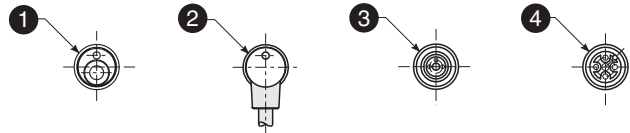
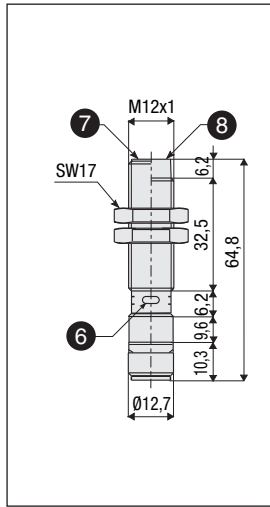
AM6/\*\*-\*H



AM6/\*\*-\*F



PMS/\*0-\*H  
PMW/\*0-\*H



### Legenda / Key

- ① Uscita cavo assiale  
*Axial cable exit*
- ② Uscita cavo a 90°  
*Right angle cable exit*
- ③ Uscita connettore miniaturizzato M8  
*M8 miniature plug cable exit*
- ④ Uscita connettore M12  
*M12 plug cable exit*
- ⑤ Cavo 3(4)x0,022 mm<sup>2</sup>, Ø 3,75 mm, PVC, 2 m  
*Cable 3(4)x0,022 mm<sup>2</sup>, Ø 3,75 mm, PVC, 2 m*
- ⑥ LED indicatore di stato (uscita NO eccitata)  
*LED status indicators (NO output energized)*
- ⑦ Versione schermata  
*Shielded version*
- ⑧ Versione non schermata  
*Unshielded version*

a