



Micro Detectors



SENSORI INDUTTIVI E CAPACITIVI

INDUCTIVE AND CAPACITIVE SENSORS

INDICE INDEX

SENSORI INDUTTIVI INDUCTIVE SENSORS	3	
SERIE pA / pA SERIES	Ø 3 mm	5
SERIE pB / pB SERIES	M4	9
SERIE pC / pC SERIES	Ø 4 mm	13
SERIE pD / pD SERIES	M5	17
SERIE pP / pP SERIES	5X5X25 mm	21
SERIE pH / pH SERIES	Ø 6,5 mm	25
SERIE pE / pE SERIES	M8	29
SERIE IL / IL SERIES	10X16X28 mm	33
SERIE AH / AH SERIES	Ø 6,5 mm	37
SERIE AE / AE SERIES	M8	41
SERIE AM / pM / AM & pM SERIES	M12	47
SERIE AK / pK / AK & pK SERIES	M18	59
SERIE pMS-pKS / pMW-pKW / pMS-pKS/pMW-pKW SERIES	M12 / M18 – IP68	69
SERIE AT / AT SERIES	M30	75
SERIE VM / VM SERIES	M12 CA/AC	81
SERIE VK / VK SERIES	M18 CA/AC	85
SERIE VT / VT SERIES	M30 CA/AC	89
SENSORI INDUTTIVI PER APPLICAZIONI ALIMENTARI INDUCTIVE SENSORS FOR FOOD AND BEVERAGE APPLICATIONS	93	
SERIE pFM / pFM SERIES	M12	97
SERIE pFK / pFK SERIES	M18	103
SENSORI INDUTTIVI ANALOGICI INDUCTIVE analogue sensors	109	
SERIE AE / AM / AK / AE / AM / AK SERIES	M8 / M12 / M18	111
SENSORI CAPACITIVI capacitive sensors	117	
SERIE CE / CE SERIES	Ø 20 mm	119
SERIE CT / CT SERIES	M30	123
MODELLI SPECIALI special models	127	
MODELLI SPECIALI / SPECIAL MODELS	129	
ACCESSORI DI INSTALLAZIONE MOUNTING accessories	131	



Micro Detectors

a

H



SENSORI INDUTTIVI
INDUCTIVE SENSORS



Sensori di prossimità induttivi miniatura Ø 3 mm serie PA1

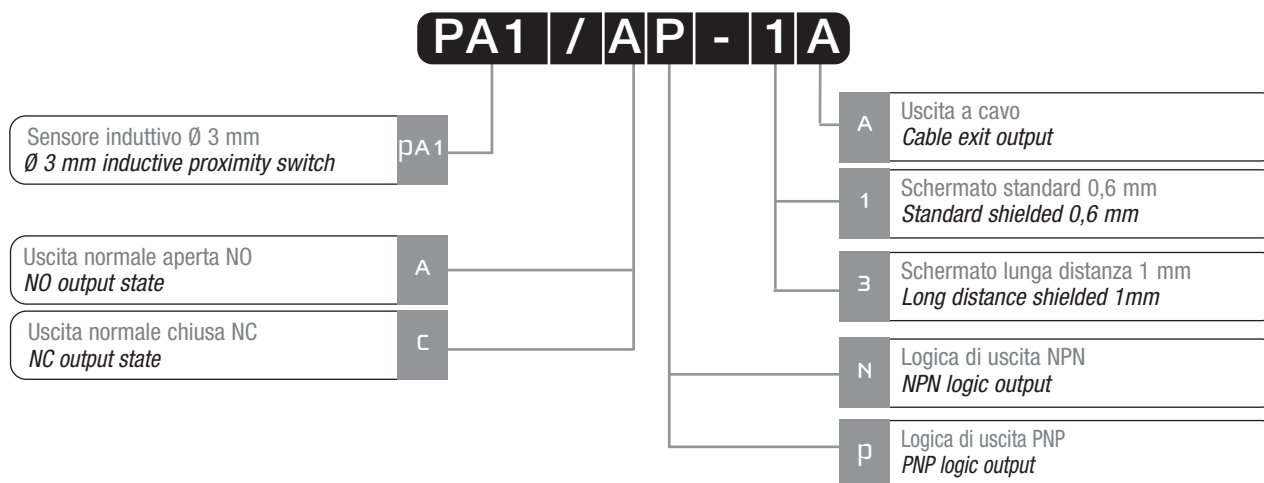
Miniature Ø 3 mm inductive
proximity switches PA1 series



Caratteristiche principali Main features

- > Dimensioni estremamente ridotte: Ø 3 mm x 22 mm di lunghezza
- > *Extremely reduced dimensions: Ø 3 mm x 22 mm length*
- > Tensione di alimentazione: 10 ÷ 30 Vcc,
corrente di uscita: 100 mA
- > *Supply voltage 10 ÷ 30 Vdc, output current 100 mA*
- > LED indicatore di uscita
- > *Led status indicator*
- > Contenitore con protezione IP 67
- > *IP 67 housing protection*
- > Protezione completa contro i guasti elettrici
- > *Complete protection against electrical damages*
- > Marchio
- > *CE Mark*

Descrizione del codice - Code structure



Modelli disponibili - Available models

Diametro <i>Diameter</i>	Montaggio <i>Installation</i>	Portata <i>Distance</i>	Conn. <i>Plug</i>	Distanza <i>Distance</i>	NPN/NO	NPN/NC	PNP/NO	PNP/NC
Ø 3	Schermato / <i>Flush</i>	Standard	Cavo / <i>Cable</i>	0,6 mm	PA1/AN-1A	PA1/CN-1A	PA1/AP-1A	PA1/CP-1A
		Lunga dist. / <i>Long dist.</i>		1 mm	PA1/AN-3A	-	PA1/AP-3A	-

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

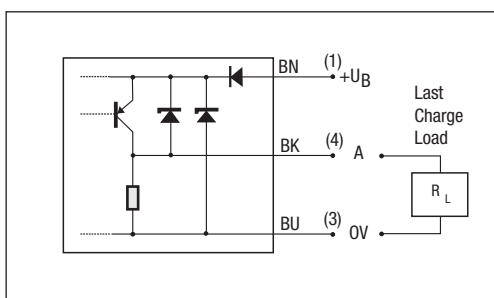
Modelli / Models	PA1/**-1A	PA1/**-3A
Distanza nominale S_n / Nominal sensing distance S_n	0,6 mm	1 mm
Corsa differenziale / Hysteresis		$\leq 10\% S_r$
Dimensione oggetto normalizzato / Standard target		3x3x1 mm
Ripetitività / Repeat accuracy - U_b 20-30 V $T_a = 23^\circ\text{C} \pm 5^\circ\text{C}$		2%
Campo di tensione di alimentazione / Supply voltage range		10 ÷ 30 Vcc / Vdc
Massima ondulazione residua / Max ripple content		$\leq 20\%$
Corrente di uscita / Output current		≤ 100 mA
Tensione di saturazione di uscita / Output voltage drop		$\leq 2,0$ V @ 100 mA
Corrente di alimentazione senza carico / No load supply current		≤ 10 mA
Corrente di perdita / Leakage current		$\leq 0,1$ mA
Frequenza di commutazione / Switching frequency	≤ 5000 Hz	≤ 3000 Hz
Ritardo all'accensione / Time delay before availability		10 ms
Campo di temperature ambiente / Ambient temperature range		$-25 \div +70$ °C
Deriva termica di S_r / Temperature drift of S_r		$\leq 10\%$
Protezione al corto circuito / Short-circuit protection		Si / Yes
Protezione all'inversione di polarità di alimentazione / Voltage reversal protection		Si / Yes
Protezione ai carichi induttivi / Induction protection		Si / Yes
Colpi e vibrazioni / Shocks and vibrations		IEC 60947-5-2 / 7.4
Peso / Weight		18 g
Grado di protezione / Degree of protection		IP 67
Protezione EMC / EMC protection:		1 kV
	IEC 60255-5	
	IEC 61000-4-2	Livello 2 / Level 2
	IEC 61000-4-3	Livello 3 / Level 3
	IEC 61000-4-4	Livello 2 / Level 2
		Livello 3 / Level 3
		Livello 3 / Level 3
		Livello 3 / Level 3
Materiale del corpo / Housing material		Acciaio INOX / Stainless steel
Superficie sensibile / Sensing face		Poliestere / Polyester
Connessione / Connection		2 m PUR cavo / Cable 3x0,055 mm ²

Coefficienti di riduzione - Correction factors

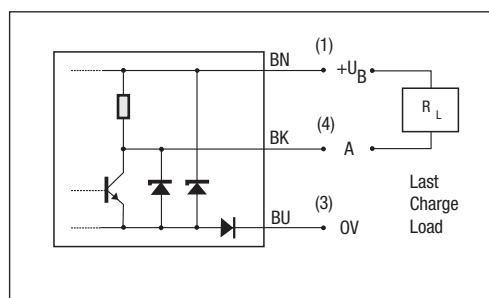
Acciaio / Steel FE 360		Rame Copper		Alluminio Aluminium		Ottone Brass		Acciaio INOX Stainless steel	
PA1/**-1*	PA1/**-3*	PA1/**-1*	PA1/**-3*	PA1/**-1*	PA1/**-3*	PA1/**-1*	PA1/**-3*	PA1/**-1*	PA1/**-3*
1,0	1,0	0,50	0,45	0,55	0,50	0,65	0,60	0,80	0,80

Schemi elettrici delle connessioni - Electrical diagrams of the connections

Schema di collegamento PNP
Wiring diagram PNP



Schema di collegamento NPN
Wiring diagram NPN

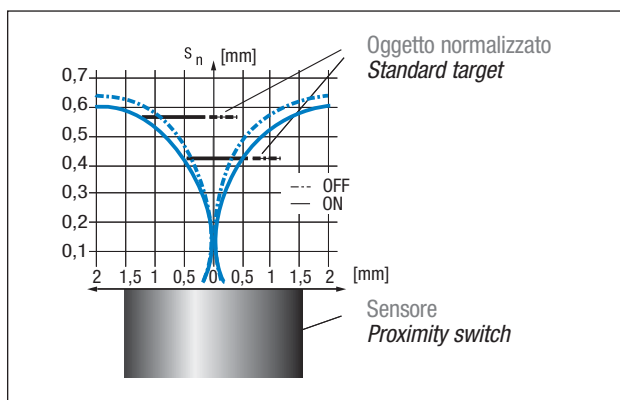


Legenda Key

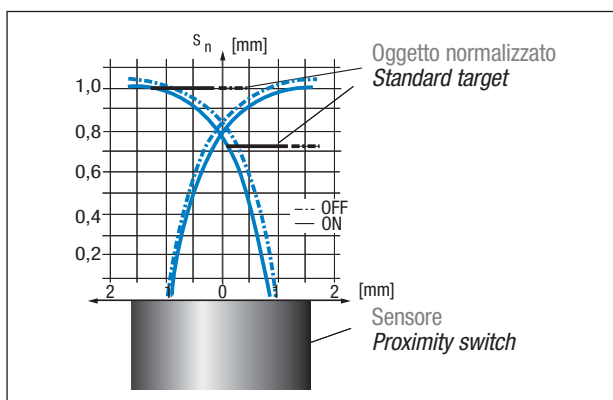
BN → marrone/brown
BK → nero/black
PK → rosa/pink
BU → blu/blue
WH → bianco/white
GY → grigio/gray

Curva di risposta - Response diagram

PA1/**-1A

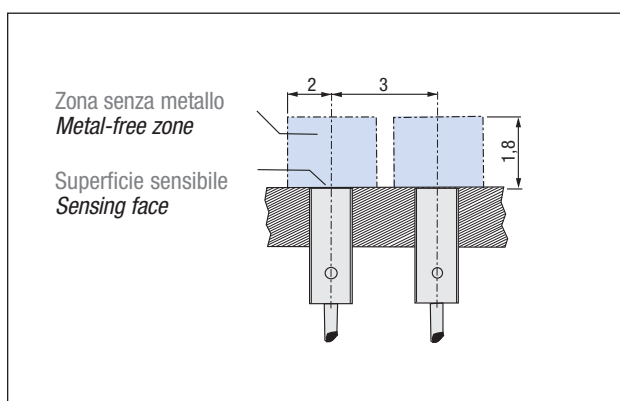


PA1/**-3A

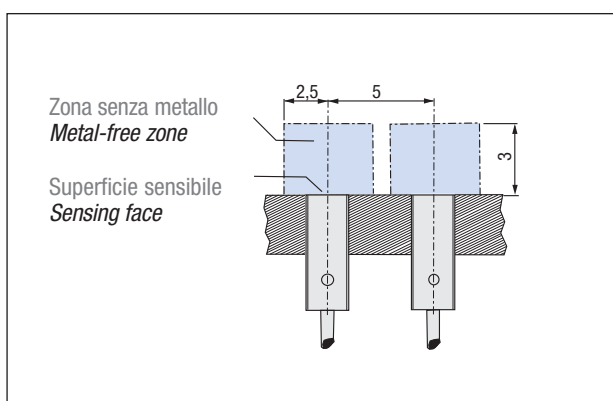


Montaggio - Installation

PA1/**-1A

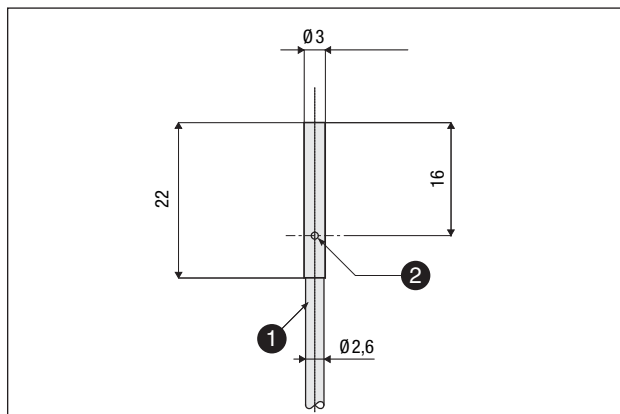


PA1/**-3A



Dimensioni - Dimensions

PA1/**-*A



Legenda / Key

- ① Cavo 3x0,055 mm², $\varnothing 2,6$ mm, PUR, 2 m
Cable 3x0,055 mm², $\varnothing 2,6$ mm, PUR, 2 m
- ② LED indicatore di stato (uscita eccitata)
LED status indicator (output energized)

a

pa series

Sensori di prossimità induttivi miniatura M4 serie PB1

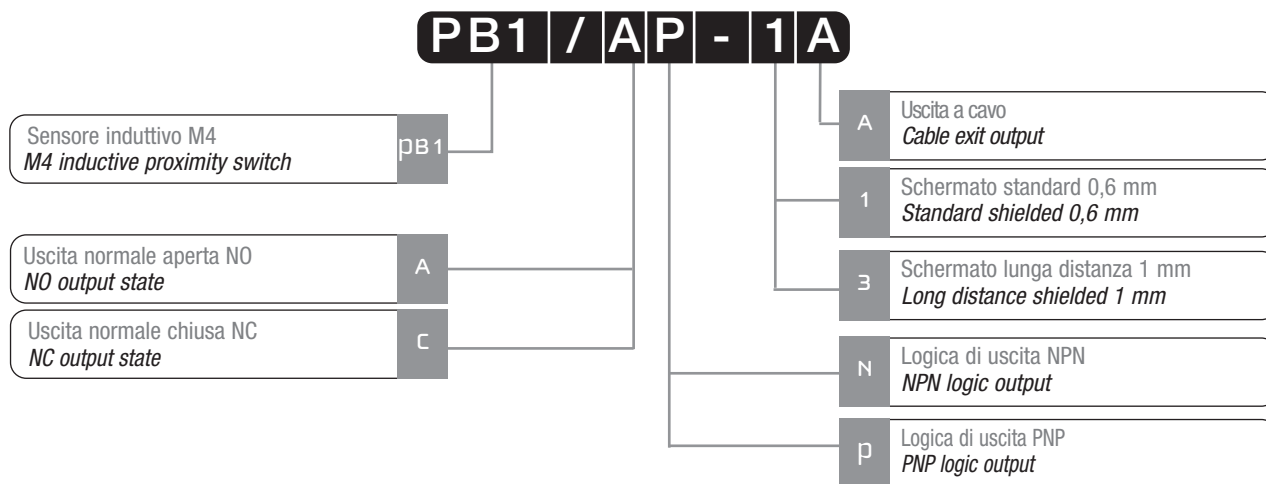
Miniature M4 inductive proximity
switches PB1 series



Caratteristiche principali Main features

- > Dimensioni estremamente ridotte: M4 x 22 mm di lunghezza
> *Extremely reduced dimensions: M4 x 22 mm length*
- > Tensione di alimentazione: 10 ÷ 30 Vcc,
corrente di uscita: 100 mA
> *Supply voltage 10 ÷ 30 Vdc, output current 100 mA*
- > LED indicatore di uscita
> *LED status indicator*
- > Contenitore con protezione IP 67
> *IP 67 housing protection*
- > Protezione completa contro i guasti elettrici
> *Complete protection against electrical damages*
- > Marchio **CE**
> **CE Mark**

Descrizione del codice - Code structure



Modelli disponibili - Available models

Diametro Diameter	Montaggio Installation	Portata Distance	Conn. Plug	Distanza Distance	NPN/NO	NPN/NC	PNP/NO	PNP/NC
M4	Schermato / Flush	Standard	Cavo / Cable	0,6 mm	PB1/AN-1A	PB1/CN-1A	PB1/AP-1A	PB1/CP-1A
		Lunga dist. / Long dist.		1 mm	PB1/AN-3A	-	PB1/AP-3A	-

a

pb series

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

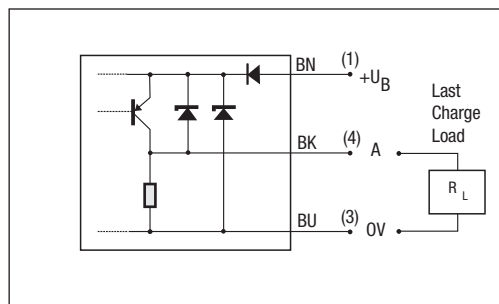
Modelli / Models	PB1/**-1A	PB1/**-3A
Distanza nominale S_n / Nominal sensing distance S_n	0,6 mm	1 mm
Corsa differenziale / Hysteresis	$\leq 10\% S_r$	
Dimensione oggetto normalizzato / Standard target	4x4x1 mm	
Ripetitività / Repeat accuracy - U_B 20-30 V $T_a = 23^\circ\text{C} \pm 5^\circ\text{C}$	2%	
Campo di tensione di alimentazione / Supply voltage range	10 ÷ 30 V_{cc} / V_{dc}	
Massima ondulazione residua / Max ripple content	$\leq 20\%$	
Corrente di uscita / Output current	≤ 100 mA	
Tensione di saturazione di uscita / Output voltage drop	$\leq 2,0$ V @ 100 mA	
Corrente di alimentazione senza carico / No load supply current	≤ 10 mA	
Corrente di perdita / Leakage current	$\leq 0,1$ mA	
Frequenza di commutazione / Switching frequency	≤ 5000 Hz	≤ 3000 Hz
Ritardo all'accensione / Time delay before availability	10 ms	
Campo di temperature ambiente / Ambient temperature range	$-25 \div +70$ °C	
Deriva termica di S_r / Temperature drift of S_r	$\leq 10\%$	
Protezione al corto circuito / Short-circuit protection	Si / Yes	
Protezione all'inversione di polarità di alimentazione / Voltage reversal protection	Si / Yes	
Protezione ai carichi induttivi / Induction protection	Si / Yes	
Colpi e vibrazioni / Shocks and vibrations	IEC 60947-5-2 / 7.4	
Peso / Weight	20 g	
Grado di protezione / Degree of protection	IP 67	
Protezione EMC / EMC protection:	1 kV	
IEC 60255-5		
IEC 61000-4-2	Livello 2 / Level 2	Livello 3 / Level 3
IEC 61000-4-3	Livello 3 / Level 3	Livello 3 / Level 3
IEC 61000-4-4	Livello 2 / Level 2	Livello 3 / Level 3
Materiale del corpo / Housing material	Acciaio INOX / Stainless steel	
Superficie sensibile / Sensing face	Poliestere / Polyester	
Connessione / Connection	2 m PUR cavo / cable 3x0,055 mm ²	

Coefficienti di riduzione - Correction factors

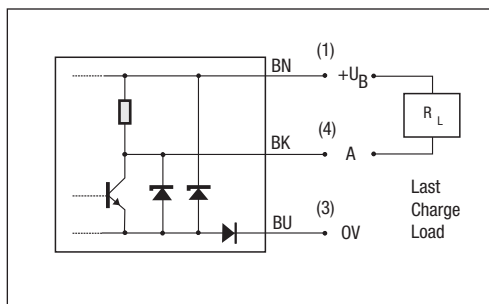
Acciaio / Steel FE 360		Rame Copper		Alluminio Aluminium		Ottone Brass		Acciaio INOX Stainless steel	
PB1/**-1A	PB1/**-3A	PB1/**-1A	PB1/**-3A	PB1/**-1A	PB1/**-3A	PB1/**-1A	PB1/**-3A	PB1/**-1A	PB1/**-3A
1,0	1,0	0,50	0,45	0,55	0,50	0,65	0,60	0,80	0,80

Schemi elettrici delle connessioni - Electrical diagrams of the connections

Schema di collegamento PNP
Wiring diagram PNP



Schema di collegamento NPN
Wiring diagram NPN

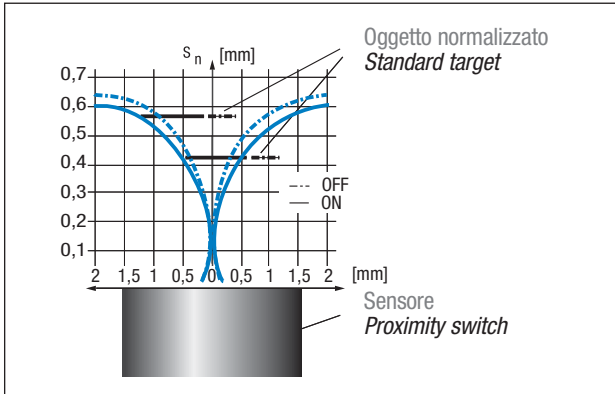


Legenda Key

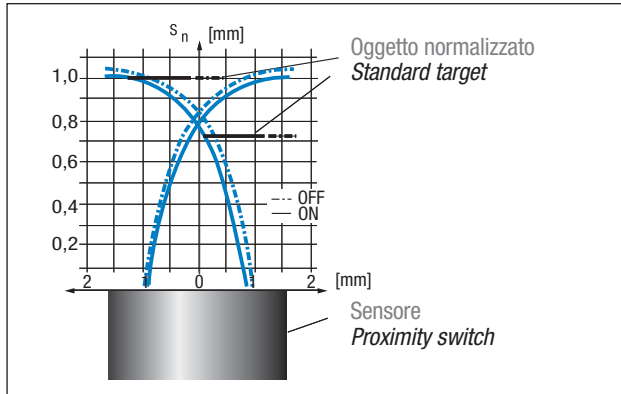
BN → marrone/brown
BK → nero/black
PK → rosa/pink
BU → blu/blue
WH → bianco/white
GY → grigio/gray

Curva di risposta - Response diagram

PB1/**-1A

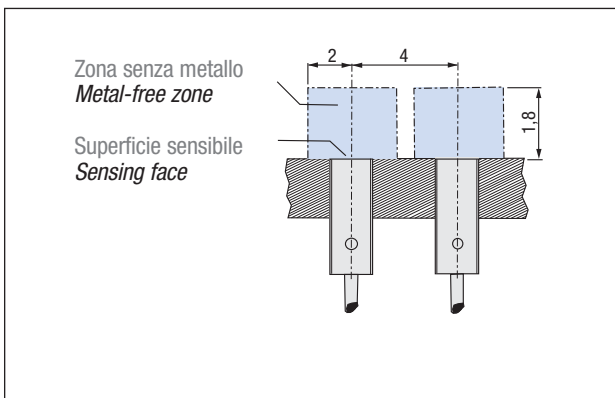


PB1/**-3A

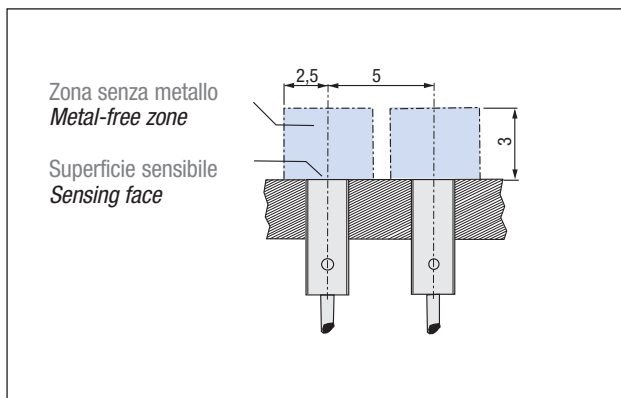


Montaggio - Installation

PB1/**-1A

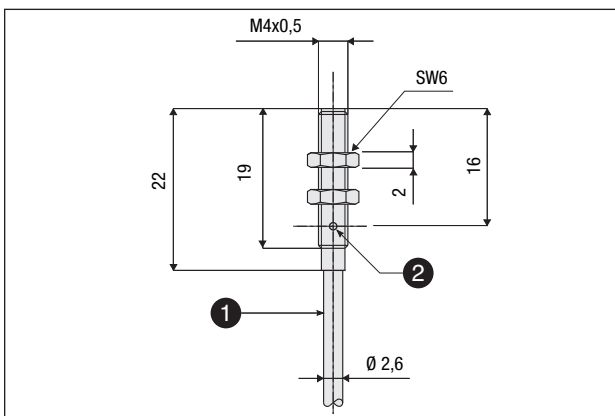


PB1/**-3A



Dimensioni - Dimensions

PB1/**-*A



Legenda / Key

- ① Cavo 3x0,055 mm², $\varnothing 2,6$ mm, PUR, 2 m
Cable 3x0,055 mm², $\varnothing 2,6$ mm, PUR, 2 m
- ② LED indicatore di stato (uscita eccitata)
LED status indicator (output energized)

Sensori di prossimità induttivi miniatura Ø 4 mm serie PC1

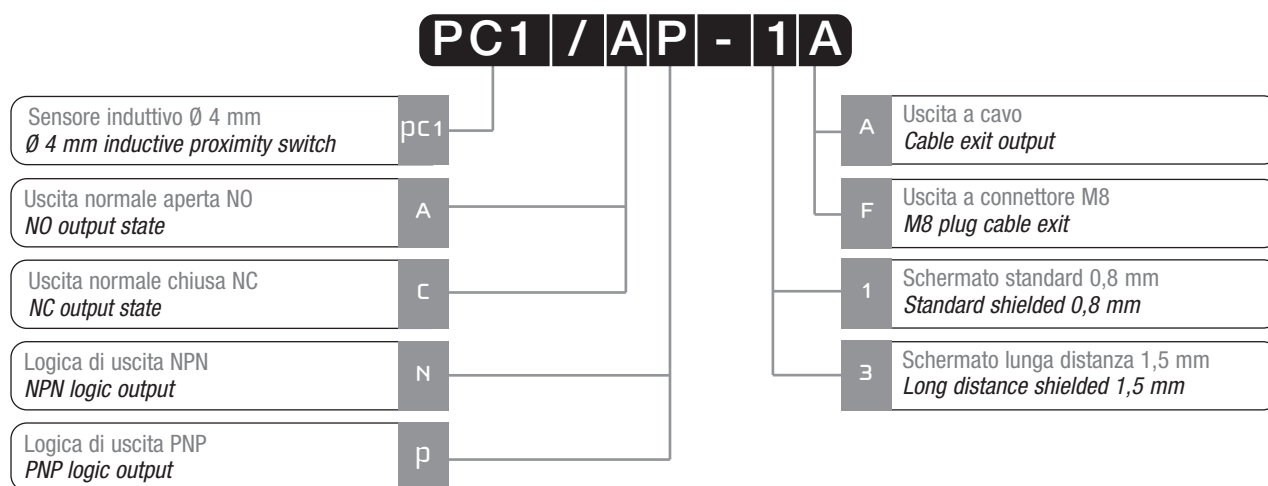
Miniature Ø 4 mm inductive proximity switches PC1 series



Caratteristiche principali Main features

- > Versioni a cavo e a connettore M8
> *Cable and M8 plug versions*
- > Dimensioni estremamente ridotte:
Ø 4 mm x 25 mm (a cavo) / 38 mm (a connettore) di lunghezza
> *Extremely reduced dimensions:
Ø 4 mm x 25 mm (cable) / 38 mm (plug) length*
- > Tensione di alimentazione: 10 ÷ 30 Vcc,
corrente di uscita: 200 mA
> *Supply voltage 10 ÷ 30 Vdc, output current 200 mA*
- > LED indicatore di uscita
> *Led status indicator*
- > Contenitore con protezione IP 67
> *IP 67 housing protection*
- > Protezione completa contro i guasti elettrici
> *Complete protection against electrical damages*
- > Marchio **CE**
> **CE** Mark

Descrizione del codice - Code structure



Modelli disponibili - Available models

Diametro Diameter	Montaggio Installation	Portata Distance	Conn. Plug	Distanza Distance	NPN/NO	NPN/NC	PNP/NO	PNP/NC
Ø 4	Schermato / Flush	Standard	Cavo / Cable	0,8 mm	PC1/AN-1A	PC1/CN-1A	PC1/AP-1A	PC1/CP-1A
			M8	0,8 mm	PC1/AN-1F	PC1/CN-1F	PC1/AP-1F	PC1/CP-1F
		Lunga dist. / Long dist.	Cavo / Cable	1,5 mm	PC1/AN-3A	-	PC1/AP-3A	-
			M8	1,5 mm	PC1/AN-3F	-	PC1/AP-3F	-

a

pc series

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

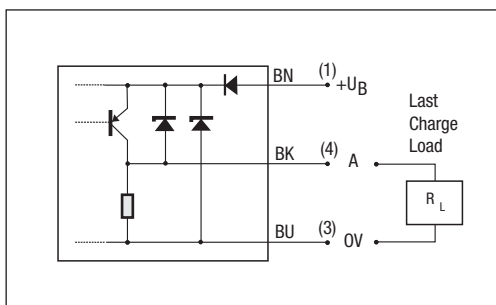
Modelli / Models	PC1/**-1*	PC1/**-3*
Distanza nominale S_n / Nominal sensing distance S_n	0,8 mm	1,5 mm
Corsa differenziale / Hysteresis	$\leq 10\% S_r$	
Dimensione oggetto normalizzato / Standard target	4x4x1 mm	4,5x4,5x1 mm
Ripetibilità / Repeat accuracy U_b 20-30 V $T_a = 23^\circ\text{C} \pm 5^\circ\text{C}$	2%	
Campo di tensione di alimentazione / Supply voltage range	10 ÷ 30 V_{cc} / V_{dc}	
Massima ondulazione residua / Max ripple content	$\leq 20\%$	
Corrente di uscita / Output current	≤ 200 mA	
Tensione di saturazione di uscita / Output voltage drop	$\leq 2,0$ V @ 200 mA	
Corrente di alimentazione senza carico / No load supply current	≤ 10 mA	
Corrente di perdita / Leakage current	$\leq 0,1$ mA	
Frequenza di commutazione / Switching frequency	≤ 5000 Hz	≤ 3000 Hz
Ritardo all'accensione / Time delay before availability	≤ 10 ms	
Campo di temperature ambiente / Ambient temperature range	$-25 \div +70^\circ\text{C}$	
Deriva termica di S_r / Temperature drift of S_r	$\leq 10\%$	
Protezione al corto circuito / Short-circuit protection	Si / Yes	
Protezione all'inversione di polarità di alimentazione / Voltage reversal protection	Si / Yes	
Protezione ai carichi induttivi / Induction protection	Si / Yes	
Colpi e vibrazioni / Shocks and vibrations	IEC 60947-5-2 / 7.4	
Peso / Weight	4,3 g versione a connettore M8 / plug M8 version 33,6 g versione a cavo / cable version	
Grado di protezione / Degree of protection	IP 67	
Protezione EMC / EMC protection:	1 kV	
IEC 60255-5		
IEC 61000-4-2	Livello 2 / Level 2	Livello 3 / Level 3
IEC 61000-4-3	Livello 3 / Level 3	Livello 3 / Level 3
IEC 61000-4-4	Livello 2 / Level 2	Livello 3 / Level 3
Materiale del corpo / Housing material	Acciaio INOX / Stainless steel V2A	
Superficie sensibile / Sensing face	Poliestere / Polyester	
Connessione / Connection	2 m PVC cavo / cable 3x0,14 mm ²	

Coefficienti di riduzione - Correction factors

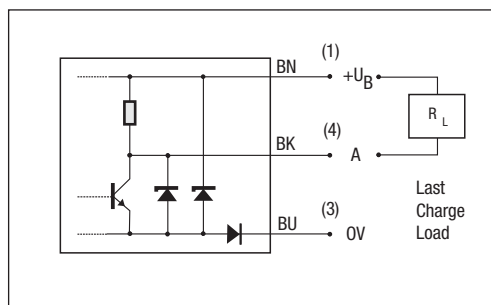
Acciaio / Steel FE 360		Rame Copper		Alluminio Aluminium		Ottone Brass		Acciaio INOX Stainless steel	
PC1/**-1*	PC1/**-3*	PC1/**-1*	PC1/**-3*	PC1/**-1*	PC1/**-3*	PC1/**-1*	PC1/**-3*	PC1/**-1*	PC1/**-3*
1,0	1,0	0,45	0,40	0,50	0,40	0,55	0,50	0,80	0,75

Schemi elettrici delle connessioni - Electrical diagrams of the connections

Schema di collegamento PNP
Wiring diagram PNP



Schema di collegamento NPN
Wiring diagram NPN

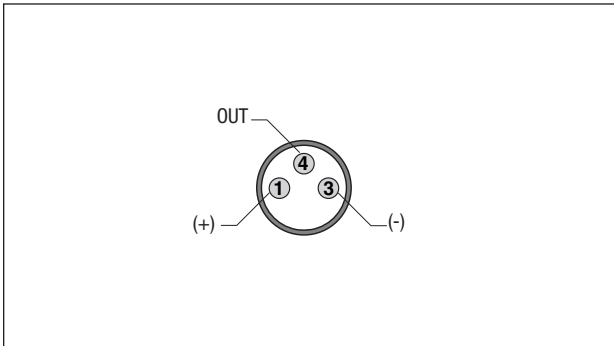


Legenda Key

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

Connettore - Plug

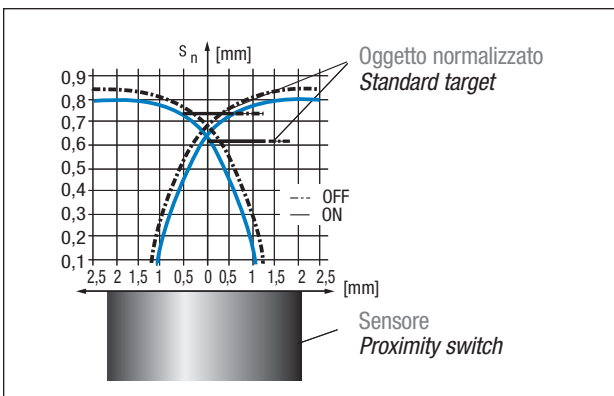
M8



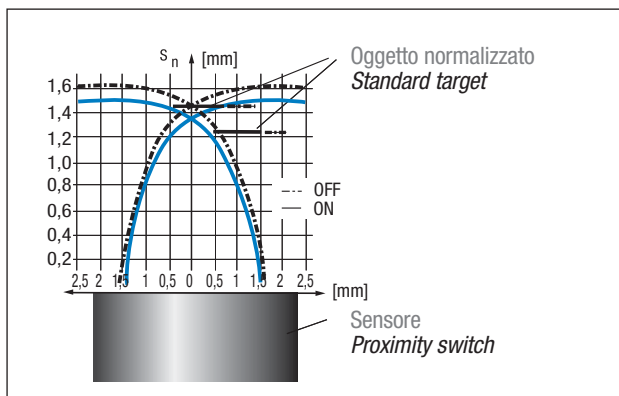
Connettori serie CD / Connectors CD series

Curva di risposta - Response diagram

PC1/**-1*

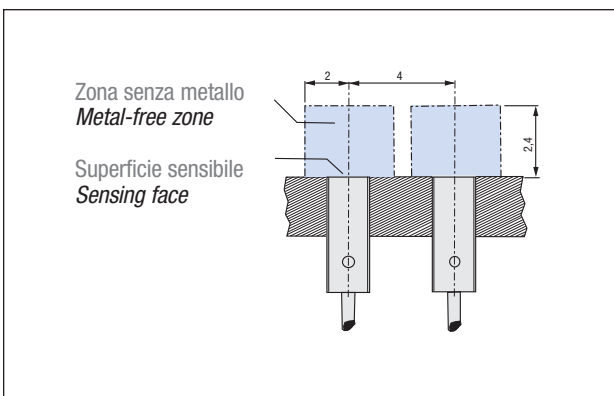


PC1/**-3*

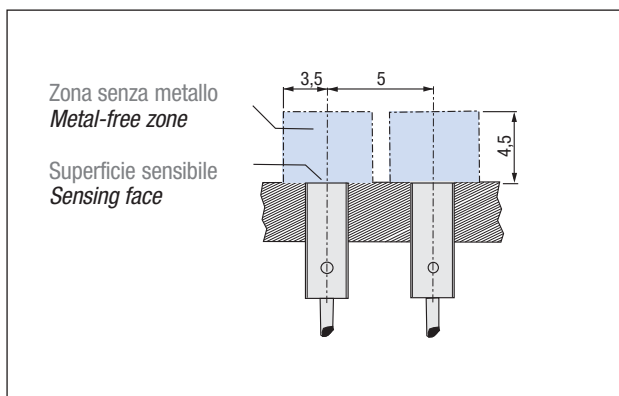


Montaggio - Installation

PC1/**-1*

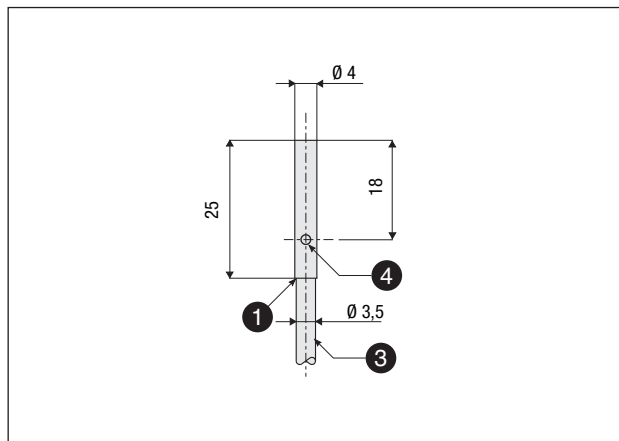


PC1/**-3*

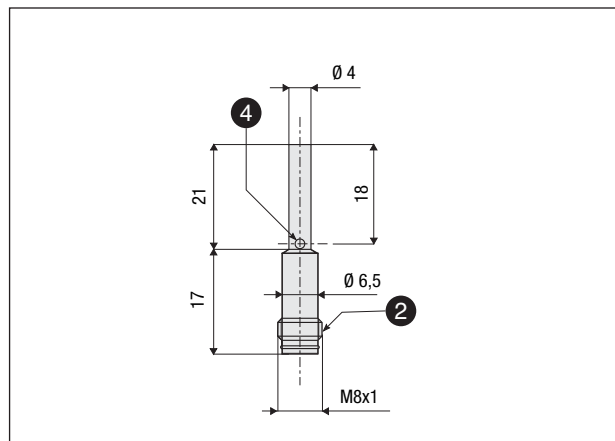


Dimensioni - Dimensions

PC1/**-*A



PC1/**-*F



Legenda / Key

- ① Uscita cavo assiale
Axial cable exit
- ② Uscita connettore miniaturizzato M8
M8 miniature plug cable exit
- ③ Cavo 3x0,14 mm², Ø 3,5 mm, PVC, 2 m
Cable 3x0,14 mm², Ø 3,5 mm, PVC, 2 m
- ④ LED indicatore di stato (uscita eccitata)
LED status indicator (output energized)

Sensori di prossimità induttivi miniatura M5 serie PD1

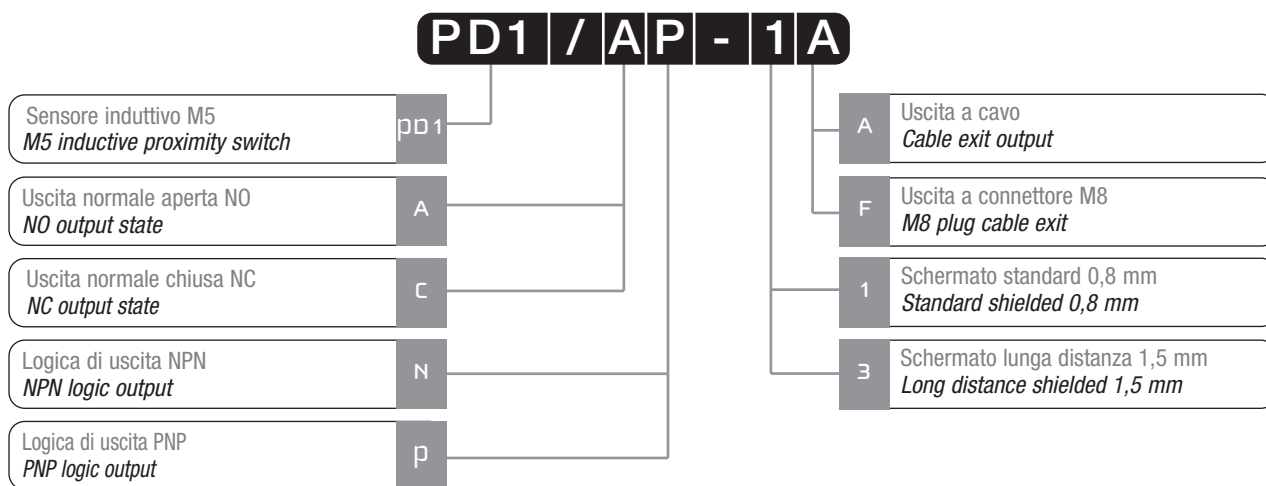
Miniature M5 inductive proximity switches PD1 series



Caratteristiche principali Main features

- > Versioni a cavo e a connettore M8
> *Cable and M8 plug versions*
- > Dimensioni estremamente ridotte:
M5 x 25 mm (a cavo) / 38 mm (a connettore) di lunghezza
> *Extremely reduced dimensions:
M5 x 25 mm (cable) / 38 mm (plug) length*
- > Tensione di alimentazione: 10 ÷ 30 Vcc,
corrente di uscita: 100 mA
> *Supply voltage 10 ÷ 30 Vdc, output current 100 mA*
- > LED indicatore di uscita
> *Led status indicator*
- > Contenitore con protezione IP 67
> *IP 67 housing protection*
- > Protezione completa contro i guasti elettrici
> *Complete protection against electrical damages*
- > Marchio CE
> *CE Mark*

Descrizione del codice - Code structure



Modelli disponibili - Available models

Diametro <i>Diameter</i>	Montaggio <i>Installation</i>	Portata <i>Distance</i>	Conn. <i>Plug</i>	Distanza <i>Distance</i>	NPN/NO	NPN/NC	PNP/NO	PNP/NC
M5	Schermato / <i>Flush</i>	Standard	Cavo / <i>Cable</i>	0,8 mm	PD1/AN-1A	PD1/CN-1A	PD1/AP-1A	PD1/CP-1A
			M8	0,8 mm	PD1/AN-1F	PD1/CN-1F	PD1/AP-1F	PD1/CP-1F
		Lunga dist. / <i>Long dist.</i>	Cavo / <i>Cable</i>	1,5 mm	PD1/AN-3A	-	PD1/AP-3A	-
			M8	1,5 mm	PD1/AN-3F	-	PD1/AP-3F	-

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

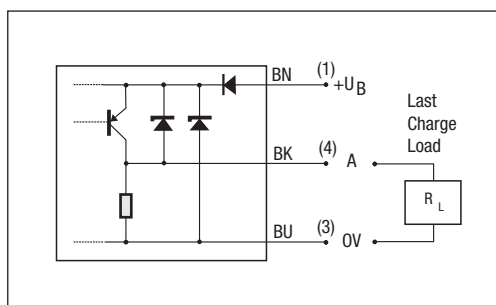
Modelli / Models	PD1/**-1*	PD1/**-3*
Distanza nominale S_n / Nominal sensing distance S_n	0,8 mm	1,5 mm
Corsa differenziale / Hysteresis	$\leq 10\% S_r$	
Dimensione oggetto normalizzato / Standard target	5x5x1 mm	
Ripetibilità / Repeat accuracy $U_s 20-30 V T_a = 23^\circ C \pm 5^\circ C$	2%	
Campo di tensione di alimentazione / Supply voltage range	10 ÷ 30 Vcc / Vdc	
Massima ondulazione residua / Max ripple content	$\leq 20\%$	
Corrente di uscita / Output current	$\leq 200 mA$	
Tensione di saturazione di uscita / Output voltage drop	$\leq 2,0 V @ 200 mA$	
Corrente di alimentazione senza carico / No load supply current	$\leq 10 mA$	
Corrente di perdita / Leakage current	$\leq 0,1 mA$	
Frequenza di commutazione / Switching frequency	$\leq 5000 Hz$	$\leq 3000 Hz$
Ritardo all'accensione / Time delay before availability	10 ms	
Campo di temperature ambiente / Ambient temperature range	$-25 \div +70^\circ C$	
Deriva termica di S_r / Temperature drift of S_r	$\leq 10\%$	
Protezione al corto circuito / Short-circuit protection	Si / Yes	
Protezione all'inversione di polarità di alimentazione / Voltage reversal protection	Si / Yes	
Protezione ai carichi induttivi / Induction protection	Si / Yes	
Colpi e vibrazioni / Shocks and vibrations	IEC 60947-5-2 / 7.4	
Peso / Weight	4,3 g versione a connettore M8 / plug M8 version 33,6 g versione a cavo / cable version	
Grado di protezione / Degree of protection	IP 67	
Protezione EMC / EMC protection:	1 kV	
IEC 60255-5		
IEC 61000-4-2	Livello 2 / Level 2	Livello 3 / Level 3
IEC 61000-4-3	Livello 3 / Level 3	Livello 3 / Level 3
IEC 61000-4-4	Livello 2 / Level 2	Livello 3 / Level 3
Materiale del corpo / Housing material	Acciaio INOX / Stainless steel V2A	
Superficie sensibile / Sensing face	Poliestere / Polyester	
Connessione / Connection	2 m PVC cavo / cable 3x0,14 mm ²	

Coefficienti di riduzione - Correction factors

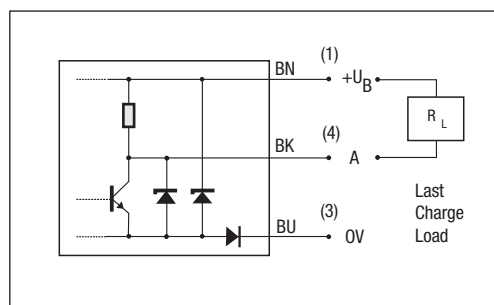
Acciaio / Steel FE 360		Rame Copper		Alluminio Aluminium		Ottone Brass		Acciaio INOX Stainless steel	
PD1/**-1*	PD1/**-3*	PD1/**-1*	PD1/**-3*	PD1/**-1*	PD1/**-3*	PD1/**-1*	PD1/**-3*	PD1/**-1*	PD1/**-3*
1,0	1,0	0,45	0,40	0,50	0,40	0,55	0,50	0,80	0,75

Schemi elettrici delle connessioni - Electrical diagrams of the connections

Schema di collegamento PNP
Wiring diagram PNP



Schema di collegamento NPN
Wiring diagram NPN

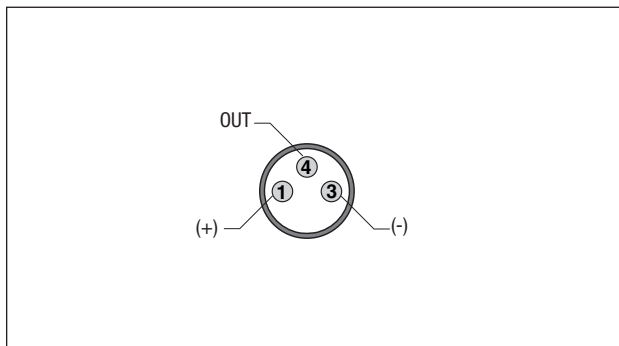


Legenda
Key

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

Connettore - Plug

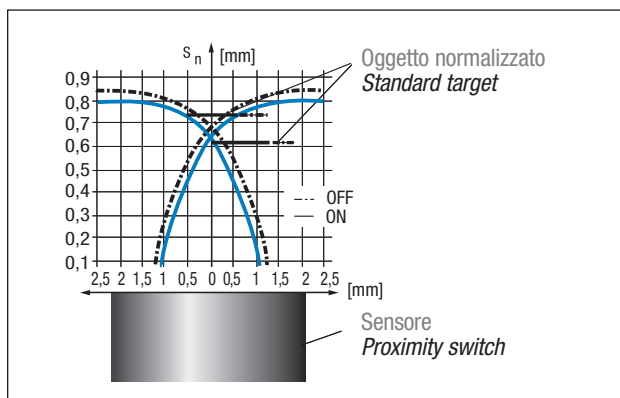
M8



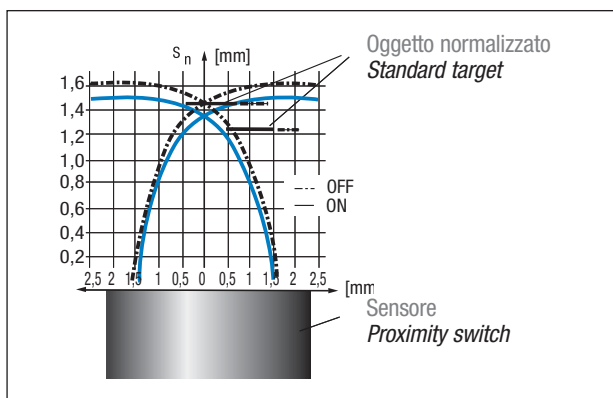
Connettori serie CD / Connectors CD series

Curva di risposta - Response diagram

PD1/**-1*

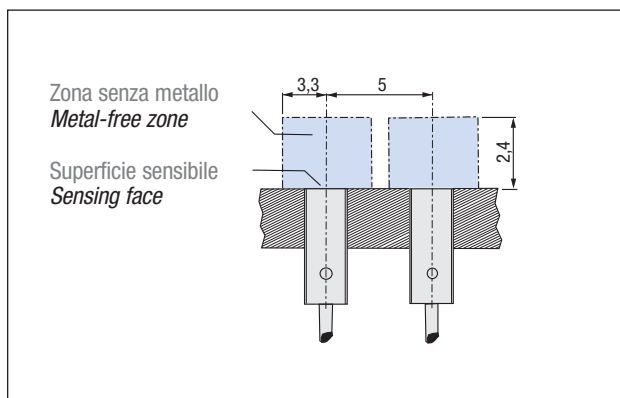


PD1/**-3*

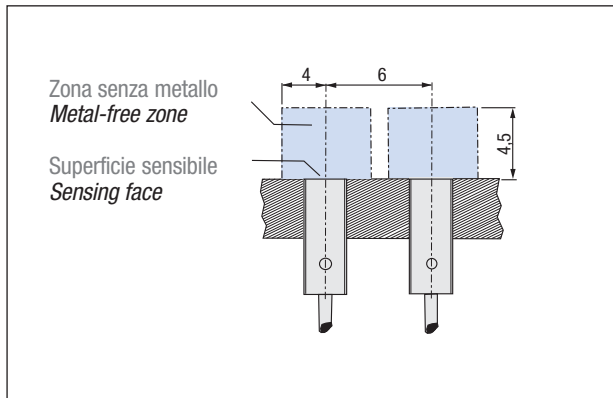


Montaggio - Installation

PD1/**-1*

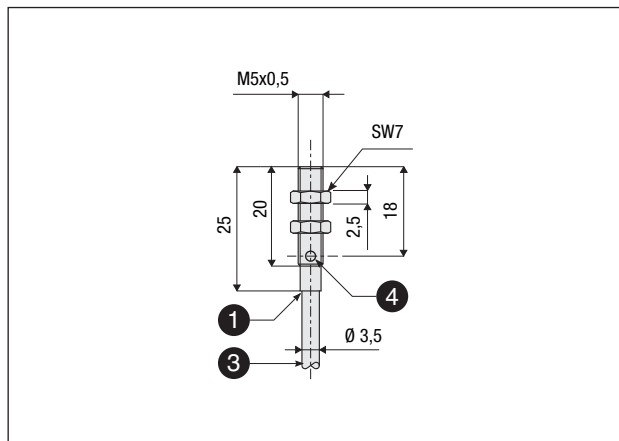


PD1/**-3*

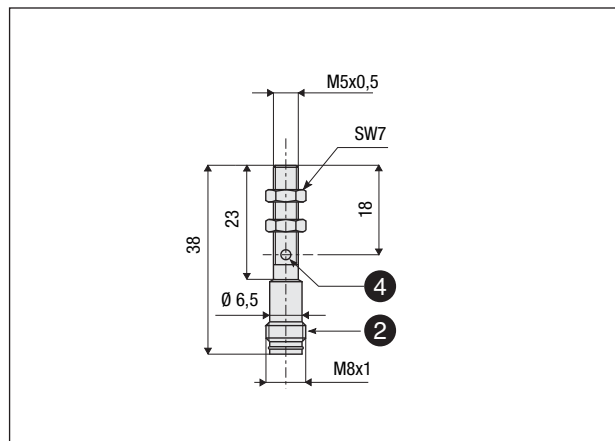


Dimensioni - Dimensions

PD1/**-*A



PD1/**-*F



Legenda / Key

- ① Uscita cavo assiale
Axial cable exit
- ② Uscita connettore miniaturizzato M8
M8 miniature plug cable exit
- ③ Cavo 3x0,14 mm², Ø 3,5 mm, PVC, 2 m
Cable 3x0,14 mm², Ø 3,5 mm, PVC, 2 m
- ④ LED indicatore di stato (uscita eccitata)
LED status indicator (output energized)

Sensori di prossimità induttivi miniatura 5 x 5 mm serie PP1

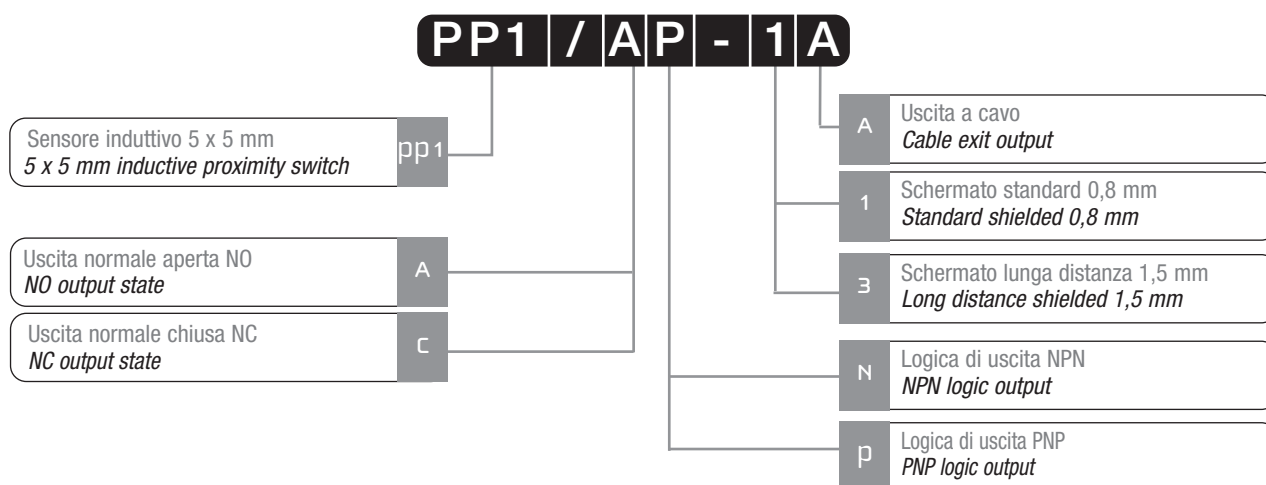
Miniature 5 x 5 mm inductive proximity switches PP1 series



Caratteristiche principali Main features

- > Dimensioni estremamente ridotte:
5 x 5 x 25 mm di lunghezza
- > *Extremely reduced dimensions: 5 x 5 x 25 mm length*
- > Tensione di alimentazione: 10 ÷ 30 Vcc,
corrente di uscita: 200 mA
- > *Supply voltage 10 ÷ 30 Vdc, output current 200 mA*
- > LED indicatore di uscita
- > *Led status indicator*
- > Contenitore con protezione IP 67
- > *IP 67 housing protection*
- > Protezione completa contro i guasti elettrici
- > *Complete protection against electrical damages*
- > Marchio
- > *CE Mark*

Descrizione del codice - Code structure



Modelli disponibili - Available models

Diametro <i>Diameter</i>	Montaggio <i>Installation</i>	Portata <i>Distance</i>	Conn. <i>Plug</i>	Distanza <i>Distance</i>	NPN/NO	NPN/NC	PNP/NO	PNP/NC
5x5x25 mm	Schermato / <i>Flush</i>	Standard	Cavo / <i>Cable</i>	0,8 mm	PP1/AN-1A	PP1/CN-1A	PP1/AP-1A	PP1/CP-1A
		Lunga dist. / <i>Long dist.</i>		1,5 mm	PP1/AN-3A	-	PP1/AP-3A	-

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

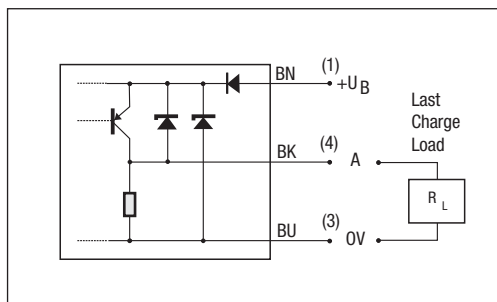
Modelli / Models	PP1/**-1*	PP1/**-3*
Distanza nominale S_n / Nominal sensing distance S_n	0,8 mm	1,5 mm
Corsa differenziale / Hysteresis	$\leq 10\% S_r$	
Dimensione oggetto normalizzato / Standard target	5x5x1 mm	
Ripetitività / Repeat accuracy U_s 20-30 V $T_a = 23^\circ\text{C} \pm 5^\circ\text{C}$	2%	
Campo di tensione di alimentazione / Supply voltage range	10 ÷ 30 V _{cc} / V _{dc}	
Massima ondulazione residua / Max ripple content	$\leq 20\%$	
Corrente di uscita / Output current	≤ 200 mA	
Tensione di saturazione di uscita / Output voltage drop	$\leq 2,0$ V @ 200 mA	
Corrente di alimentazione senza carico / No load supply current	≤ 10 mA	
Corrente di perdita / Leakage current	$\leq 0,1$ mA	
Frequenza di commutazione / Switching frequency	≤ 5000 Hz	≤ 3000 Hz
Ritardo all'accensione / Time delay before availability	10 ms	
Campo di temperature ambiente / Ambient temperature range	-25 ÷ +70 °C	
Deriva termica di S_r / Temperature drift of S_r	$\leq 10\%$	
Protezione al corto circuito / Short-circuit protection	Si / Yes	
Protezione all'inversione di polarità di alimentazione / Voltage reversal protection	Si / Yes	
Protezione ai carichi induttivi / Induction protection	Si / Yes	
Colpi e vibrazioni / Shocks and vibrations	IEC 60947-5-2 / 7.4	
Peso / Weight	27 g	
Grado di protezione / Degree of protection	IP 67	
Protezione EMC / EMC protection:	1 kV	
	IEC 60255-5	
	IEC 61000-4-2	Livello 2 / Level 2
	IEC 61000-4-3	Livello 3 / Level 3
	IEC 61000-4-4	Livello 2 / Level 2
Materiale del corpo / Housing material	Acciaio INOX / Stainless steel V2A	
Superficie sensibile / Sensing face	Poliestere / Polyester	
Connessione / Connection	2 m PUR cavo / cable 3x0,055 mm ²	

Coefficienti di riduzione - Correction factors

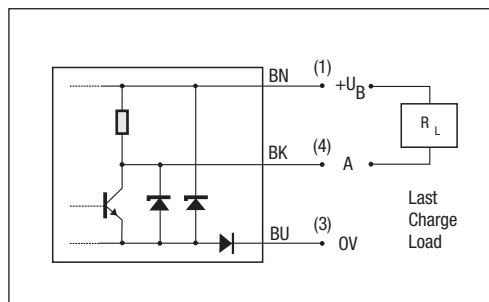
Acciaio / Steel FE 360		Rame Copper		Alluminio Aluminium		Ottone Brass		Acciaio INOX Stainless steel	
PP1/**-1A	PP1/**-3A	PP1/**-1A	PP1/**-3A	PP1/**-1A	PP1/**-3A	PP1/**-1A	PP1/**-3A	PP1/**-1A	PP1/**-3A
1,0	1,0	0,60	0,60	0,60	0,60	0,70	0,70	0,85	0,85

Schemi elettrici delle connessioni - Electrical diagrams of the connections

Schema di collegamento PNP
Wiring diagram PNP



Schema di collegamento NPN
Wiring diagram NPN

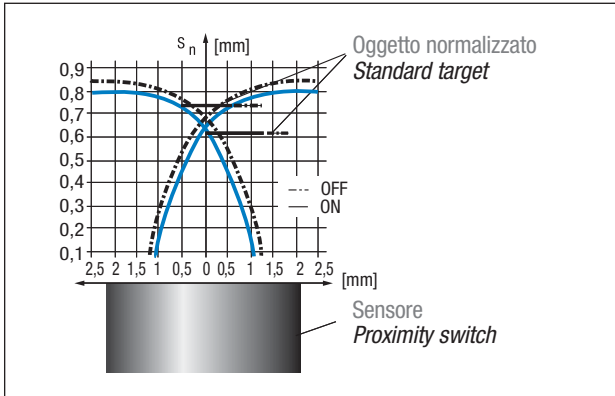


Legenda Key

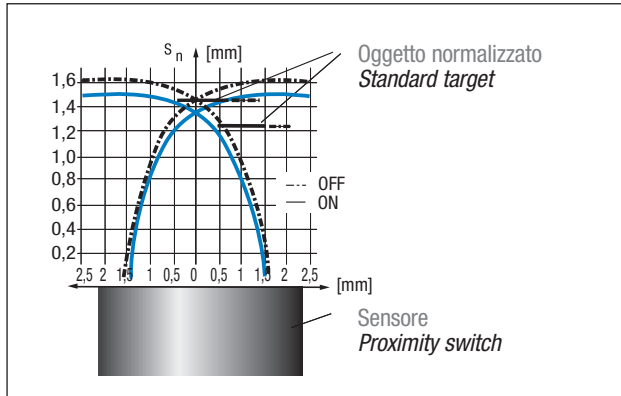
- BN → marrone/brown
- BK → nero/black
- PK → rosa/pink
- BU → blu/blue
- WH → bianco/white
- GY → grigio/gray

Curva di risposta - Response diagram

PP1/**-1A

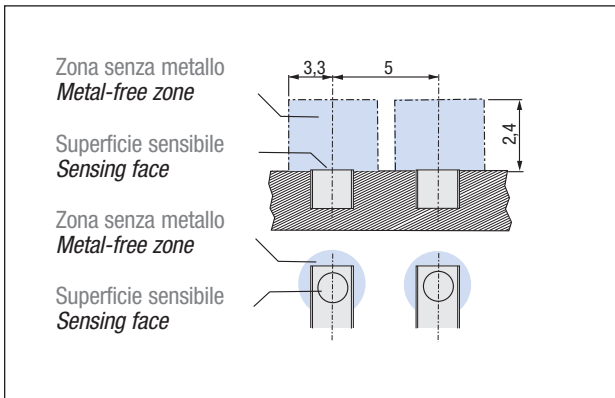


PP1/**-3A

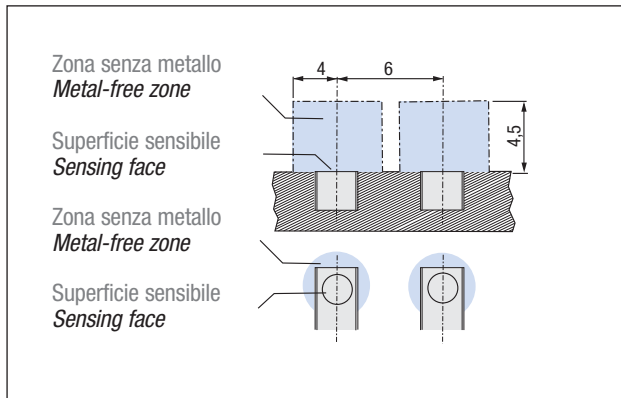


Montaggio - Installation

PP1/**-1A

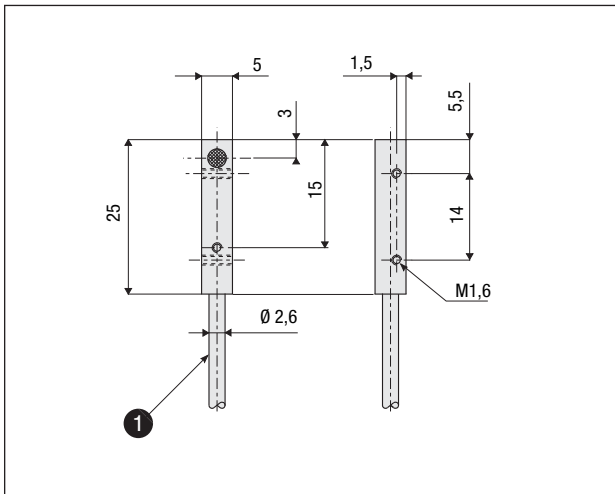


PP1/**-3A



Dimensioni - Dimensions

PP1/**-*A



Legenda / Key

- ① Cavo 3x0,055 mm², \varnothing 2,6 mm, PUR, 2 m
Cable 3x0,055 mm², \varnothing 2,6 mm, PUR, 2 m

Sensori di prossimità induttivi miniatura Ø 6,5 mm serie PH6

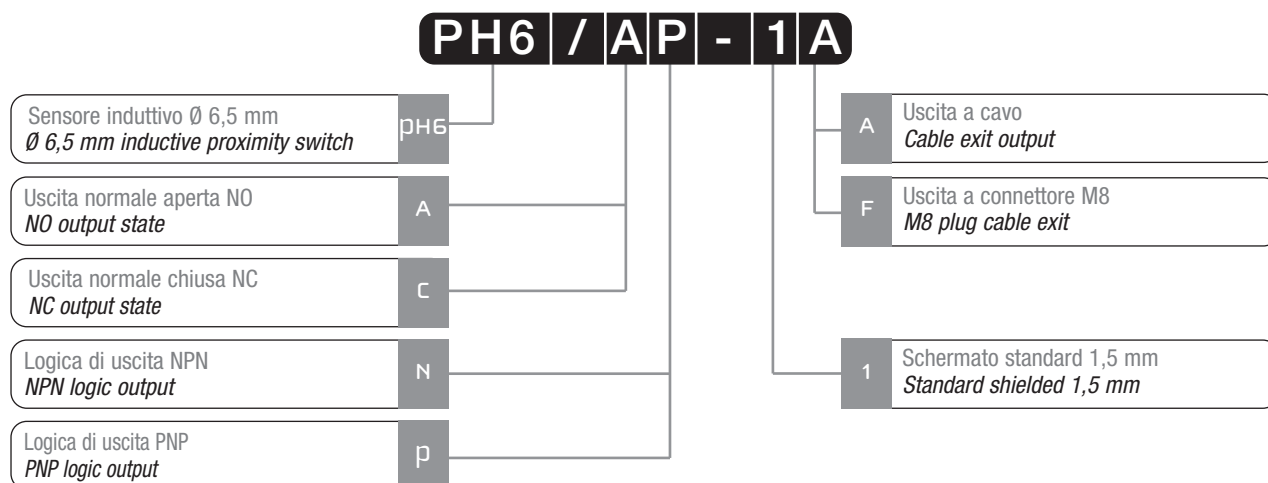
Miniature Ø 6,5 mm inductive proximity switches PH6 series



Caratteristiche principali Main features

- > Versioni a cavo e a connettore M8
> *Cable and M8 plug versions*
- > Dimensioni estremamente ridotte:
Ø 6,5 mm x 16 mm (a cavo) / 29 mm (a connettore) di lunghezza
- > *Extremely reduced dimensions:
Ø 6,5 mm x 16 mm (cable) / 29 mm (plug) length*
- > Tensione di alimentazione: 10 ÷ 30 Vcc,
corrente di uscita: 200 mA
- > *Supply voltage 10 ÷ 30 Vdc, output current 200 mA*
- > LED indicatore di uscita
> *Led status indicator*
- > Contenitore con protezione IP 67
> *IP 67 housing protection*
- > Protezione completa contro i guasti elettrici
> *Complete protection against electrical damages*
- > Marchio CE
- > *CE Mark*

Descrizione del codice - Code structure



Modelli disponibili - Available models

Diametro Diameter	Montaggio Installation	Portata Distance	Conn. Plug	Distanza Distance	NPN/NO	NPN/NC	PNP/NO	PNP/NC
Ø 6,5	Sch. / Flush	Standard	Cavo / Cable	1,5 mm	PH6/AN-1A	PH6/CN-1A	PH6/AP-1A	PH6/CP-1A
			M8	1,5 mm	PH6/AN-1F	PH6/CN-1F	PH6/AP-1F	PH6/CP-1F

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

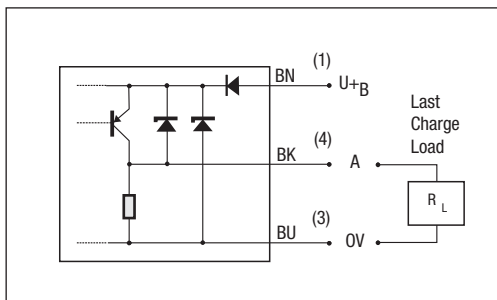
Modelli / Models	PH6/**-1*
Distanza nominale S_n / Nominal sensing distance S_n	1,5 mm
Corsa differenziale / Hysteresis	$\leq 10\%$ S_r
Dimensione oggetto normalizzato / Standard target	6,5x6,5x1 mm
Ripetibilità / Repeat accuracy U_s 20-30 V $T_a = 23^\circ\text{C} \pm 5^\circ\text{C}$	2%
Campo di tensione di alimentazione / Supply voltage range	10 ÷ 30 Vcc / Vdc
Massima ondulazione residua / Max ripple content	$\leq 20\%$
Corrente di uscita / Output current	≤ 200 mA
Tensione di saturazione di uscita / Output voltage drop	$\leq 2,0$ V @ 200 mA
Corrente di alimentazione senza carico / No load supply current	≤ 10 mA
Corrente di perdita / Leakage current	$\leq 0,1$ mA
Frequenza di commutazione / Switching frequency	≤ 5000 Hz
Ritardo all'accensione / Time delay before availability	10 ms
Campo di temperature ambiente / Ambient temperature range	-25 ÷ +70 °C
Deriva termica di S_r / Temperature drift of S_r	$\leq 10\%$
Protezione al corto circuito / Short-circuit protection	Si / Yes
Protezione all'inversione di polarità di alimentazione / Voltage reversal protection	Si / Yes
Protezione ai carichi induttivi / Induction protection	Si / Yes
Colpi e vibrazioni / Shocks and vibrations	IEC 60947-5-2 / 7.4
Peso / Weight	3 g versione a connettore M8 / plug M8 version 32,5 g versione a cavo / cable version
Grado di protezione / Degree of protection	IP 67
Protezione EMC / EMC protection:	
IEC 60255-5	1 kV
IEC 61000-4-2	Livello 2 / Level 2
IEC 61000-4-3	Livello 3 / Level 3
IEC 61000-4-4	Livello 2 / Level 2
Materiale del corpo / Housing material	Acciaio INOX / Stainless steel V2A
Superficie sensibile / Sensing face	Poliestere / Polyester
Connessione / Connection	2 m PVC cavo / cable 3x0,14 mm ²

Coefficienti di riduzione - Correction factors

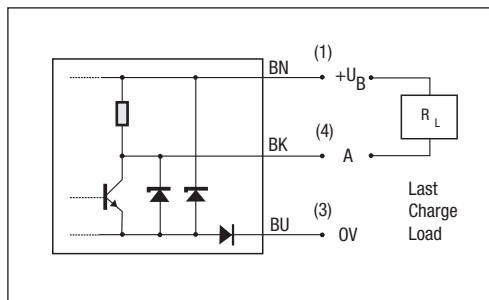
Acciaio / Steel FE 360	Rame Copper	Alluminio Aluminium	Ottone Brass	Acciaio INOX Stainless steel
1,0	0,40	0,45	0,50	0,80

Schemi elettrici delle connessioni - Electrical diagrams of the connections

Schema di collegamento PNP
Wiring diagram PNP



Schema di collegamento NPN
Wiring diagram NPN

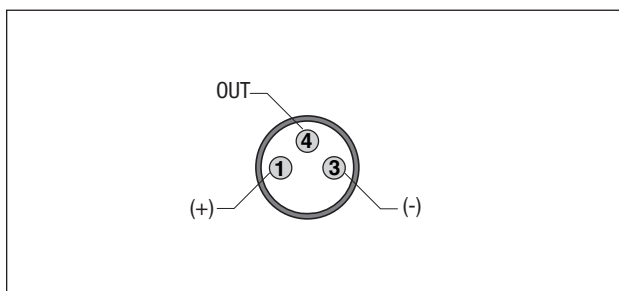


Legenda Key

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

Connettore - Plug

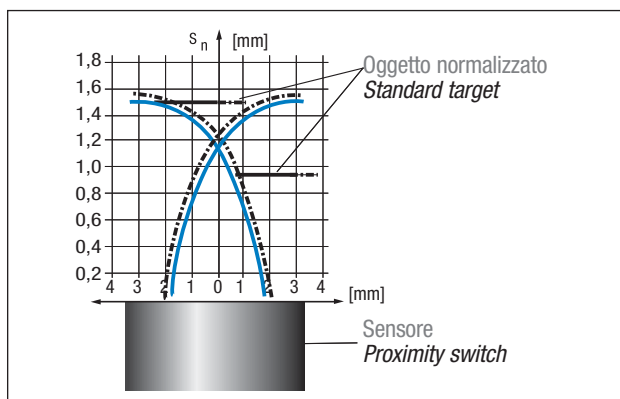
M8



Connettori serie CD / Connectors CD series

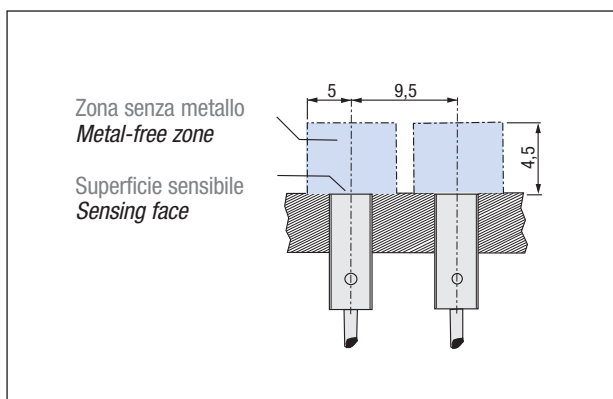
Curva di risposta - Response diagram

PH6/**-1*



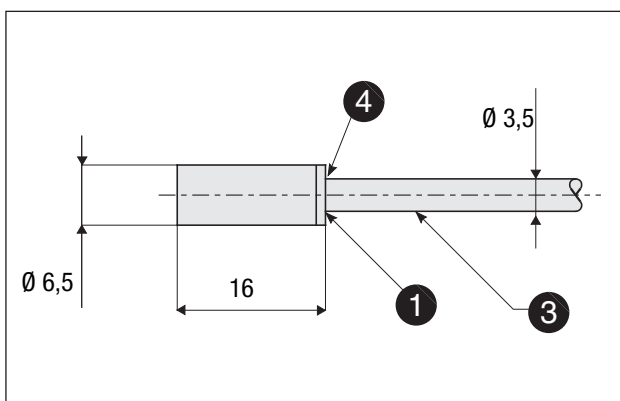
Montaggio - Installation

PH6/**-1*

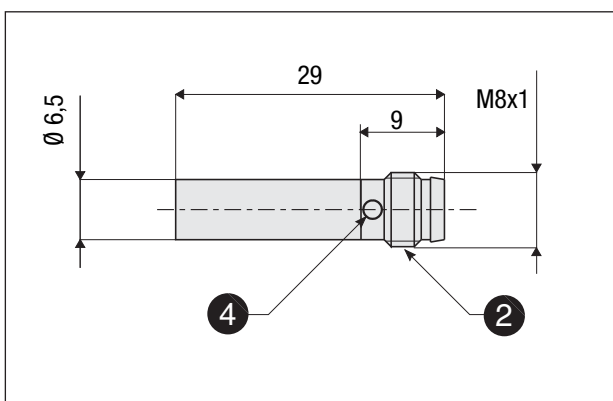


Dimensioni - Dimensions

PH6/**-1A



PH6/**-1F



Legenda / Key

- ① Uscita cavo assiale
Axial cable exit
- ② Uscita connettore miniaturizzato M8
M8 miniature plug cable exit
- ③ Cavo 3x0,14 mm², \varnothing 3,5 mm, PVC, 2 m
Cable 3x0,14 mm², \varnothing 3,5 mm, PVC, 2 m
- ④ LED (uscita eccitata) - LED ad anello nel tipo F
LED (output energized) - Ring LED for type F

Sensori di prossimità induttivi miniatura M8 serie PE6

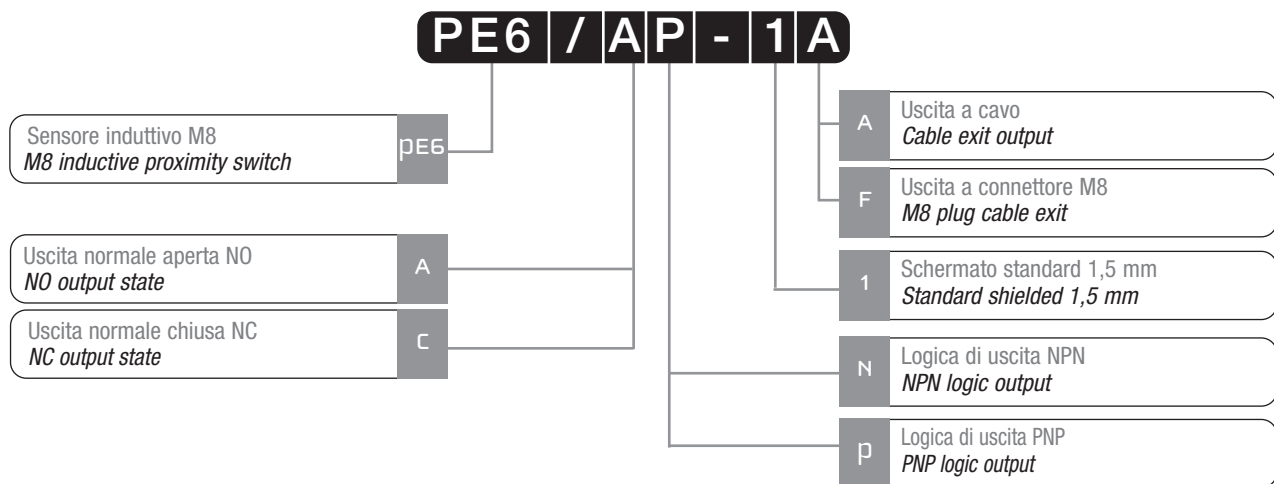
Miniature M8 inductive proximity switches PE6 series



Caratteristiche principali Main features

- > Versioni a cavo e a connettore M8
> *Cable and M8 plug versions*
- > Dimensioni estremamente ridotte:
M8 x 16 mm (cavo) / 29 mm (a connettore) di lunghezza
> *Extremely reduced dimensions:
M8 x 16 mm (cable) / 29 mm (plug) length*
- > Tensione di alimentazione: 10 ÷ 30 Vcc,
corrente di uscita: 200 mA
> *Supply voltage 10 ÷ 30 Vdc, output current 200 mA*
- > LED indicatore di uscita
> *Led status indicator*
- > Contenitore con protezione IP 67
> *IP 67 housing protection*
- > Protezione completa contro i guasti elettrici
> *Complete protection against electrical damages*
- > Marchio CE
> *CE Mark*

Descrizione del codice - Code structure



Modelli disponibili - Available models

Diametro Diameter	Montaggio Installation	Portata Distance	Conn. Plug	Distanza Distance	NPN/NO	NPN/NC	PNP/NO	PNP/NC
M8	Schermato / Flush	Standard	Cavo / Cable	1,5 mm	PE6/AN-1A	PE6/CN-1A	PE6/AP-1A	PE6/CP-1A
			M8	1,5 mm	PE6/AN-1F	PE6/CN-1F	PE6/AP-1F	PE6/CP-1F

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

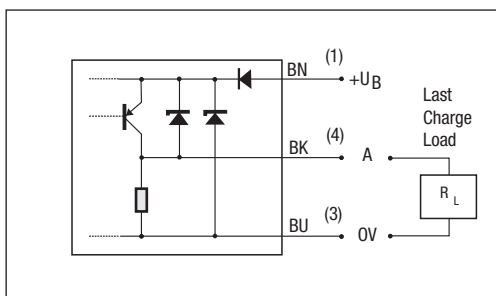
Modelli / Models	PE6/**-1*
Distanza nominale S_n / Nominal sensing distance S_n	$\leq 1,5$ mm
Corsa differenziale / Hysteresis	$\leq 10\%$ S_r
Dimensione oggetto normalizzato / Standard target	8x8x1 mm
Ripetibilità / Repeat accuracy U_s 20-30 V $T_a = 23^\circ\text{C} \pm 5^\circ\text{C}$	2%
Campo di tensione di alimentazione / Supply voltage range	10 ÷ 30 V _{cc} / V _{dc}
Massima ondulazione residua / Max ripple content	$\leq 20\%$
Corrente di uscita / Output current	≤ 200 mA
Tensione di saturazione di uscita / Output voltage drop	$\leq 2,0$ V @ 200 mA
Corrente di alimentazione senza carico / No load supply current	≤ 10 mA
Corrente di perdita / Leakage current	$\leq 0,1$ mA
Frequenza di commutazione / Switching frequency	≤ 5000 Hz
Ritardo all'accensione / Time delay before availability	10 ms
Campo di temperature ambiente / Ambient temperature range	-25 ÷ +70 °C
Deriva termica di S_r / Temperature drift of S_r	$\leq 10\%$
Protezione al corto circuito / Short-circuit protection	Si / Yes
Protezione all'inversione di polarità di alimentazione / Voltage reversal protection	Si / Yes
Protezione ai carichi induttivi / Induction protection	Si / Yes
Colpi e vibrazioni / Shocks and vibrations	IEC 60947-5-2 / 7.4
Peso / Weight	10,5 g versione a connettore M8 / plug M8 version 40 g versione a cavo / cable version
Grado di protezione / Degree of protection	IP 67
Protezione EMC / EMC protection:	
IEC 60255-5	1 kV
IEC 61000-4-2	Livello 2 / Level 2
IEC 61000-4-3	Livello 3 / Level 3
IEC 61000-4-4	Livello 2 / Level 2
Materiale del corpo / Housing material	Acciaio INOX / Stainless steel V2A
Superficie sensibile / Sensing face	Poliestere / Polyester
Connessione / Connection	2 m PVC cavo / cable 3x0,14 mm ²

Coefficienti di riduzione - Correction factors

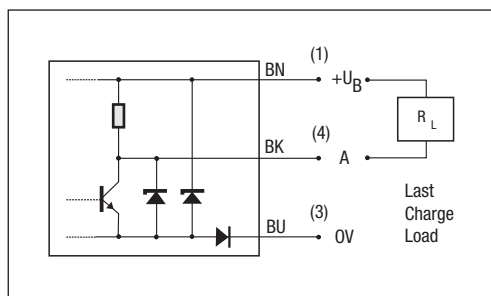
Acciaio / Steel FE 360	Rame Copper	Alluminio Aluminium	Ottone Brass	Acciaio INOX Stainless steel
PE6/**-1*	PE6/**-1*	PE6/**-1*	PE6/**-1*	PE6/**-1*
1,0	0,40	0,45	0,50	0,80

Schemi elettrici delle connessioni - Electrical diagrams of the connections

Schema di collegamento PNP
Wiring diagram PNP



Schema di collegamento NPN
Wiring diagram NPN

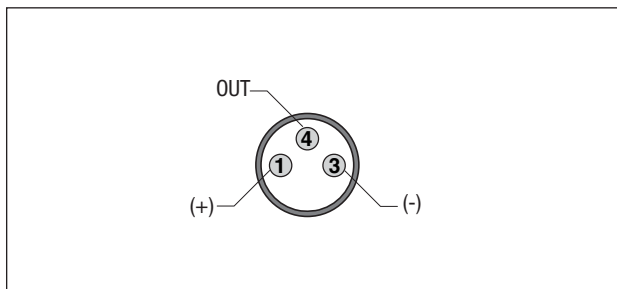


Legenda Key

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

Connettore - Plug

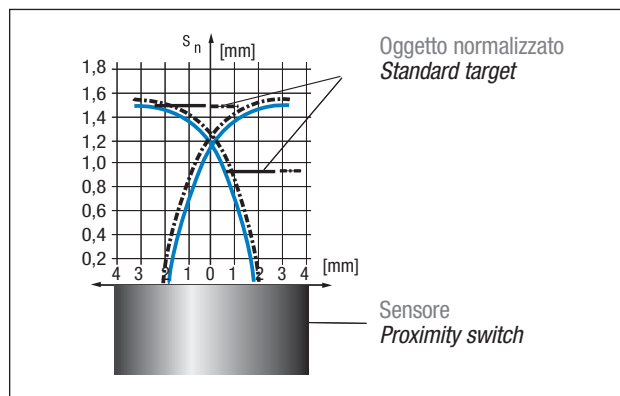
M8



Connettori serie CD / Connectors CD series

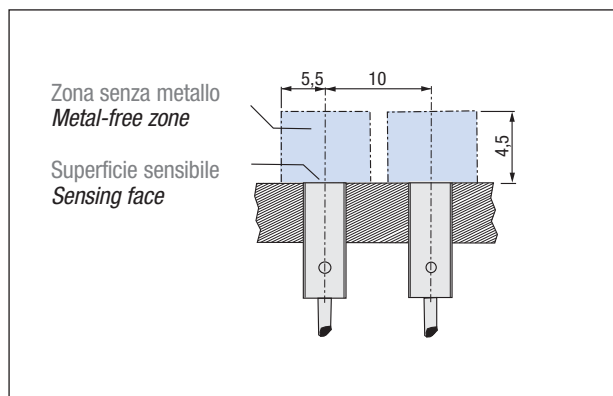
Curva di risposta - Response diagram

PE6/**-1*



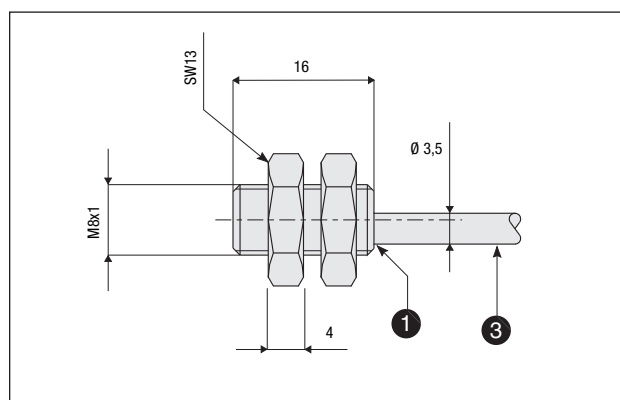
Montaggio - Installation

PE6/**-1*

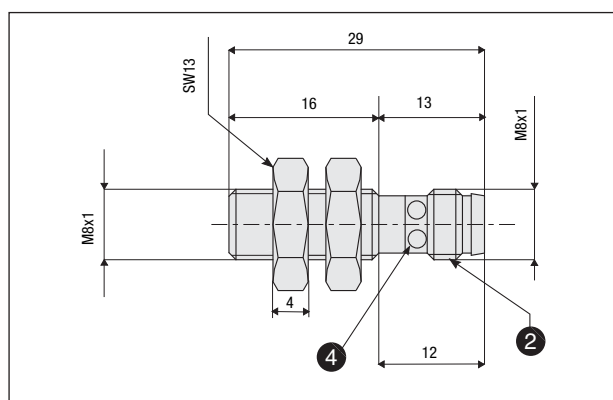


Dimensioni - Dimensions

PE6/**-1A



PE6/**-1F



Legenda / Key

- ① Uscita cavo assiale
Axial cable exit
- ② Uscita connettore miniaturizzato M8
M8 miniature plug cable exit
- ③ Cavo 3x0,14 mm², Ø 3,5 mm, PVC, 2 m
Cable 3x0,14 mm², Ø 3,5 mm, PVC, 2 m
- ④ LED (uscita eccitata) - LED ad anello nel tipo F
LED (output energized) - Ring LED for type F

Sensori di prossimità induttivi 28x16x10 mm serie IL1

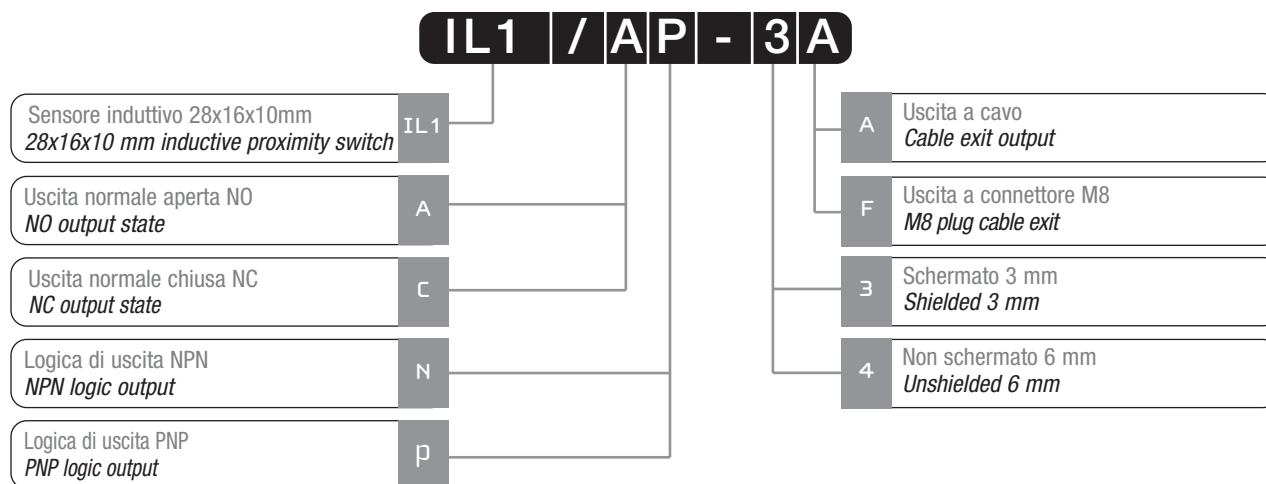
28x16x10 mm inductive proximity switches IL1 series



Caratteristiche principali Main features

- > Dimensioni compatte: 28x16x10 mm
> *Compact dimensions: 28x16x10 mm*
- > Tensione di alimentazione: 10 ÷ 30 Vcc,
corrente di uscita: 300 mA
> *Supply voltage 10 ÷ 30 Vdc, output current 300 mA*
- > LED indicatore di uscita
> *LED status indicator*
- > Contenitore con protezione IP 67
> *IP 67 housing protection*
- > Protezione completa contro i guasti elettrici
> *Complete protection against electrical damages*
- > Marchio **CE**
> **CE Mark**

Descrizione del codice - Code structure



Modelli disponibili - Available models

Diametro <i>Diameter</i>	Montaggio <i>Installation</i>	Portata <i>Distance</i>	Conn. <i>Plug</i>	Distanza <i>Distance</i>	NPN/NO	NPN/NC	PNP/NO	PNP/NC
28x16x10 mm	Schermato / <i>Shielded</i>	Lunga dist. / <i>Long dist.</i>	Cavo / <i>Wire</i>	3 mm	IL1/AN-3A	IL1/CN-3A	IL1/AP-3A	IL1/CP-3A
			M8	3 mm	IL1/AN-3F	IL1/CN-3F	IL1/AP-3F	IL1/CP-3F
	Non Schermato <i>Unshielded</i>	Lunga dist. / <i>Long dist.</i>	Cavo / <i>Wire</i>	6 mm	IL1/AN-4A	IL1/CN-4A	IL1/AP-4A	IL1/CP-4A
			M8	6 mm	IL1/AN-4F	IL1/CN-4F	IL1/AP-4F	IL1/CP-4F

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

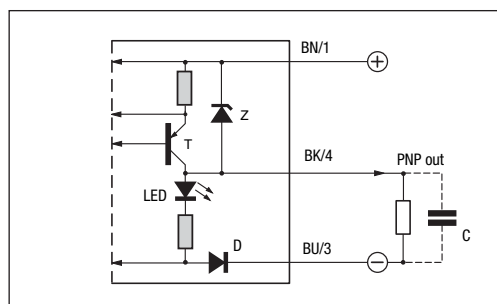
Modelli / Models	IL1/**-3*	IL1/**-4*
Distanza nominale S_n / Nominal sensing distance S_n	3 mm	6 mm
Distanza di lavoro / Operating distance	0 ... 2,4 mm	0 ... 4,8 mm
Corsa differenziale / Hysteresis	1 ... 20% S_r	
Dimensione oggetto normalizzato / Standard target	12x12 mm	18x18 mm
Ripetibilità / Repeat accuracy U_s 20-30 V $T_a = 23^\circ\text{C} \pm 5^\circ\text{C}$	$\leq 5\%$	
Campo di tensione di alimentazione / Supply voltage range	10 ÷ 30 Vcc / Vdc	
Massima ondulazione residua / Max ripple content	$\leq 10\%$	
Corrente di uscita / Output current	≤ 300 mA	
Tensione di saturazione di uscita / Output voltage drop	$\leq 1,5$ V @ I_{max}	
Max. capacità di uscita / Max. output capacity	1 μ F	
Corrente di alimentazione senza carico / No load supply current	≤ 10 mA	
Corrente di perdita / Leakage current	$\leq 0,12$ mA	
Frequenza di commutazione / Switching frequency	≤ 3000 Hz	
Ritardo all'accensione / Time delay before availability	≤ 100 ms	
Campo di temperature ambiente / Ambient temperature range	$-25 \div +70$ °C	
Deriva termica di S_r / Temperature drift of S_r	$\leq 10\%$	
Protezione al corto circuito / Short-circuit protection	Si / Yes	
Protezione all'inversione di polarità di alimentazione / Voltage reversal protection	Si / Yes	
Protezione ai carichi induttivi / Induction protection	Si / Yes	
Colpi e vibrazioni / Shocks and vibrations	IEC 60947-5-2 / 7.4	
Peso / Weight	30 g (tipo / type F) - 70 g (tipo / type A)	
Grado di protezione / Degree of protection	IP 67	
Protezione EMC / EMC protection:	Secondo / According to IEC/EN60947-5-2	
	IEC 60255-5	1 kV
	IEC 61000-4-2	Livello 3 / Level 3
	IEC 61000-4-3	Livello 3 / Level 3
	IEC 61000-4-4	Livello 3 / Level 3
Superficie sensibile / Sensing face	PA	
Connessione / Connection	2 m cavo / cable 3x0,25 mm ²	

Coefficienti di riduzione - Correction factors

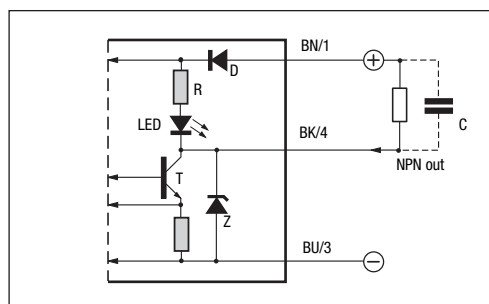
Acciaio / Steel FE 360		Rame Copper		Alluminio Aluminium		Ottone Brass		Acciaio INOX Stainless steel V2A	
IL1/**-3*	IL1/**-4*	IL1/**-3*	IL1/**-4*	IL1/**-3*	IL1/**-4*	IL1/**-3*	IL1/**-4*	IL1/**-3*	IL1/**-4*
1,0	1,0	0,25	0,41	0,28	0,50	0,37	0,55	0,63	0,75

Schemi elettrici delle connessioni - Electrical diagrams of the connections

Schema di collegamento PNP
Wiring diagram PNP



Schema di collegamento NPN
Wiring diagram NPN

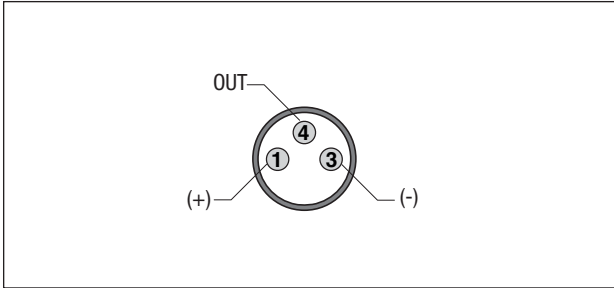


Legenda Key

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

Connettore - Plug

M8

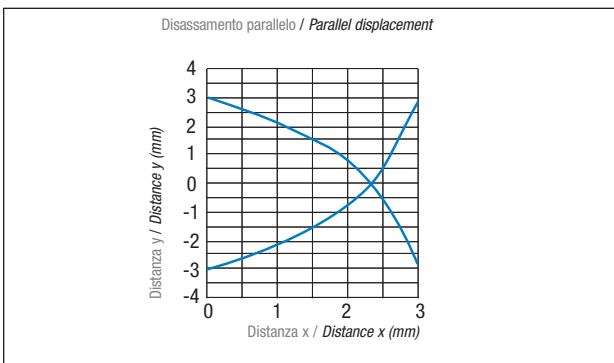


Connettori serie CD / Connectors CD series

Curva di risposta - Response diagram

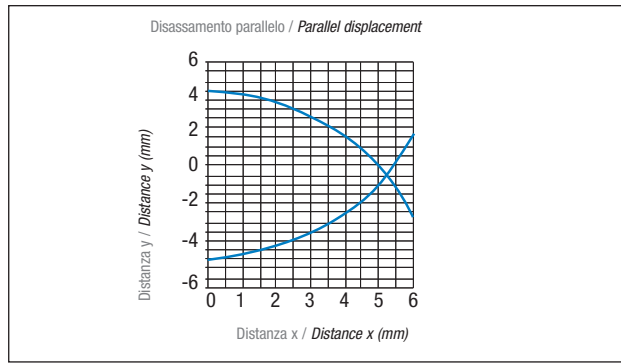
IL1/**-3*

Area di rilevamento / Detection area



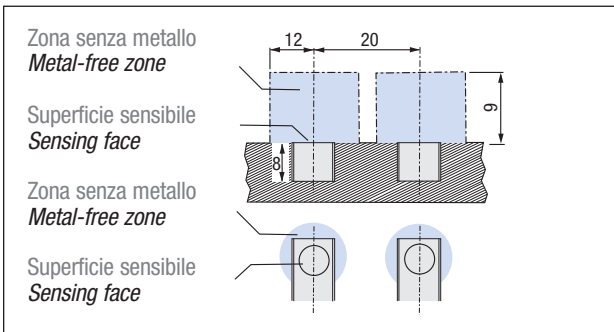
IL1/**-4*

Area di rilevamento / Detection area

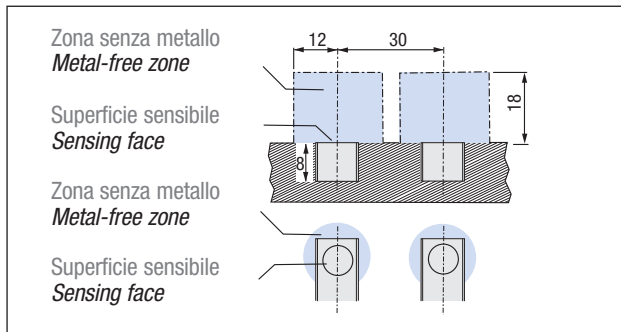


Montaggio - Installation

IL1/**-3*

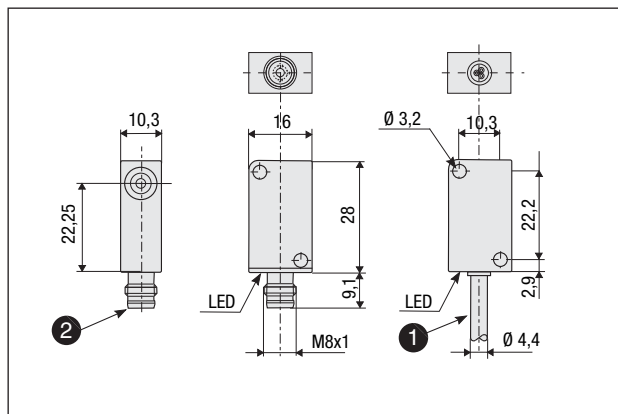


IL1/**-4*



Dimensioni - Dimensions

IL1/**-**



Legenda / Key

- ① Uscita cavo 3x0,25 mm², Ø 4,4 mm, PVC, 2 m
Axial cable exit 3x0,25 mm², Ø 4,4 mm, PVC, 2m
- ② Uscita connettore M8 metallico
M8 metal plug cable exit

Sensori di prossimità induttivi Ø 6,5 mm serie AH

Ø 6,5 mm proximity inductive sensors AH series



Caratteristiche principali Main features

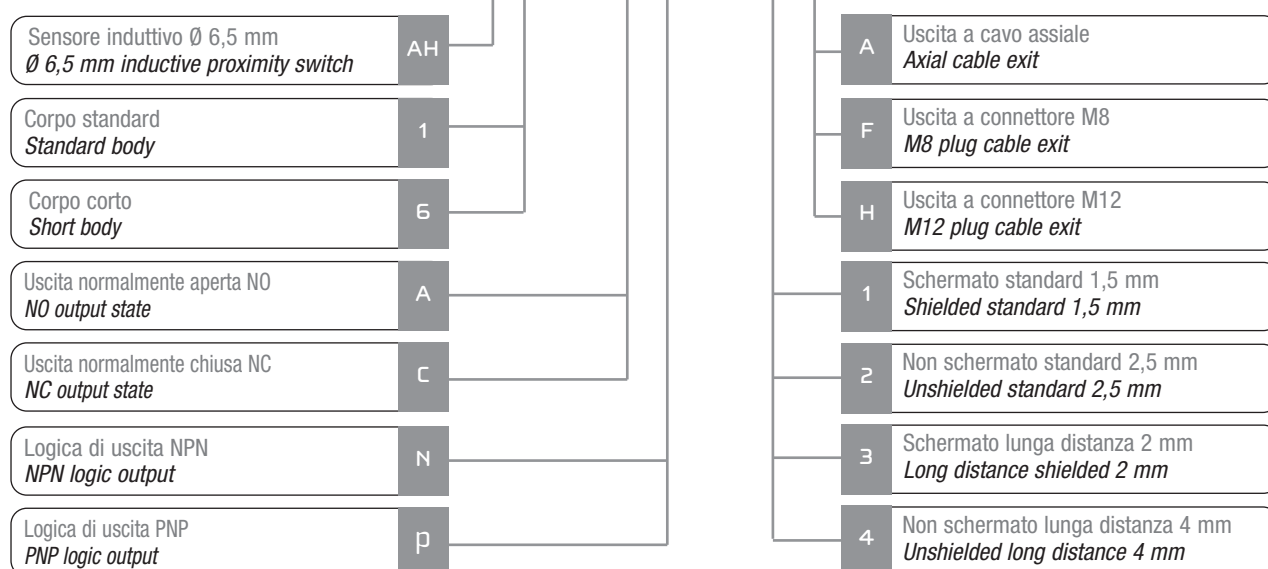
- > Dimensioni estremamente ridotte
> *Extremely reduced dimensions*
- > Corpo metallico
> *Metal housing*
- > Indicatore LED visibile 360°
> *LED status indicator 360° visible*
- > Grado di protezione IP 67
> *IP 67 protection degree*

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

- > Totalmente protetti contro danneggiamenti di tipo elettrico
> *Complete protection against electrical damages*
- > Modelli distanza standard e lunga distanza
> *Standard and long distance models*
- > Modelli con corpo standard e corpo corto
> *Standard and short body housing*
- > Marchio  *CE Mark*

Descrizione del codice - Code structure

AH1 / AP - 1A



Modelli disponibili - Available models

Corpo Standard / Standard housing

Diametro Diameter	Montaggio Installation	Portata Distance	Conn. Plug	Distanza Distance	NPN/NO	PNP/NO	NPN/NC	PNP/NC
M8	Schermato Shielded	Standard	Cavo / Cable	1,5 mm	AH1/AN-1A	AH1/AP-1A	AH1/CN-1A	AH1/CP-1A
			M8	1,5 mm	AH1/AN-1F	AH1/AP-1F	AH1/CN-1F	AH1/CP-1F
			M12	1,5 mm	AH1/AN-1H	AH1/AP-1H	AH1/CN-1H	AH1/CP-1H
	Non schermato Unshielded	Standard	Cavo / Cable	2,5 mm	AH1/AN-2A	AH1/AP-2A	AH1/CN-2A	AH1/CP-2A
			M8	2,5 mm	AH1/AN-2F	AH1/AP-2F	AH1/CN-2F	AH1/CP-2F
			M12	2,5 mm	AH1/AN-2H	AH1/AP-2H	AH1/CN-2H	AH1/CP-2H
	Schermato Shielded	Lunga distanza Long distance	Cavo / Cable	2 mm	AH1/AN-3A	AH1/AP-3A	AH1/CN-3A	AH1/CP-3A
			M8	2 mm	AH1/AN-3F	AH1/AP-3F	AH1/CN-3F	AH1/CP-3F
			M12	2 mm	AH1/AN-3H	AH1/AP-3H	AH1/CN-3H	AH1/CP-3H
	Non schermato Unshielded	Lunga distanza Long distance	Cavo / Cable	4 mm	AH1/AN-4A	AH1/AP-4A	AH1/CN-4A	AH1/CP-4A
			M8	4 mm	AH1/AN-4F	AH1/AP-4F	AH1/CN-4F	AH1/CP-4F
			M12	4 mm	AH1/AN-4H	AH1/AP-4H	AH1/CN-4H	AH1/CP-4H

Corpo corto / Short housing

Diametro Diameter	Montaggio Installation	Portata Distance	Conn. Plug	Distanza Distance	NPN/NO	PNP/NO	NPN/NC	PNP/NC
M8	Schermato Shielded	Standard	Cavo / Cable	1,5 mm	AH6/AN-1A	AH6/AP-1A	AH6/CN-1A	AH6/CP-1A
			M8	1,5 mm	AH6/AN-1F	AH6/AP-1F	AH6/CN-1F	AH6/CP-1F
	Non schermato Unshielded	Standard	Cavo / Cable	2,5 mm	AH6/AN-2A	AH6/AP-2A	AH6/CN-2A	AH6/CP-2A
			M8	2,5 mm	AH6/AN-2F	AH6/AP-2F	AH6/CN-2F	AH6/CP-2F
	Schermato Shielded	Lunga distanza Long distance	Cavo / Cable	2 mm	AH6/AN-3A	AH6/AP-3A	AH6/CN-3A	AH6/CP-3A
			M8	2 mm	AH6/AN-3F	AH6/AP-3F	AH6/CN-3F	AH6/CP-3F
	Non schermato Unshielded	Non schermato Long distance	Cavo / Cable	4 mm	AH6/AN-4A	AH6/AP-4A	AH6/CN-4A	AH6/CP-4A
			M8	4 mm	AH6/AN-4F	AH6/AP-4F	AH6/CN-4F	AH6/CP-4F

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

Modelli / Models	AH**/-1*	AH**/-2*	AH**/-3*	AH**/-4*
Distanza nominale S_n / Nominal sensing S_n	1,5 mm	2,5 mm	2 mm	4 mm
Corsa differenziale / Hysteresis	1 ÷ 20%			
Dimensione azionatore normalizzato / Standard target	8x8 mm FE360			12x12 mm FE360
Ripetibilità / Repeat accuracy U_0 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 di uscita / Output current	≤ 200 mA			
Tensione di saturazione di uscita / Output voltage drop	≤ 1,8 V @ 200 mA			
Corrente di alimentazione senza carico / No load supply current	10 mA			
Corrente di perdita / Leakage current	≤ 10 µA			
Frequenza di commutazione / Switching frequency	5 kHz			
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 di alimentazione / 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	7 g versione a connettore M8 / plug M8 version 10 g versione a connettore M12 / plug M12 version 35 g versione a cavo / cable version			
Indicatori LED / LED indicators	LED giallo stato dell'uscita / Yellow LED output state			
Grado di protezione / Degree of protection	IP 67 (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 8KV		
	IEC 61000-4-3	Livello 3 / Level 3 10V / m		
	IEC 61000-4-4	Livello 3 / Level 3 2KV		
Materiale del corpo / Housing material	Acciaio INOX / Stainless steel			
Superficie sensibile / Sensing face	PBT			
Connessione / Connection	Cavo / Cable 2 m PVC - Connettore / Plug M8 o/or M12			

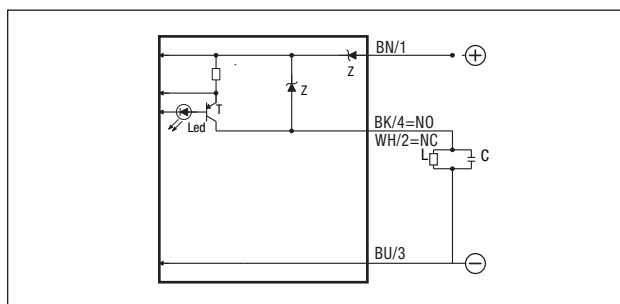
AH SERIES - INDUCTIVE SENSORS

Coefficienti di riduzione - Correction factors

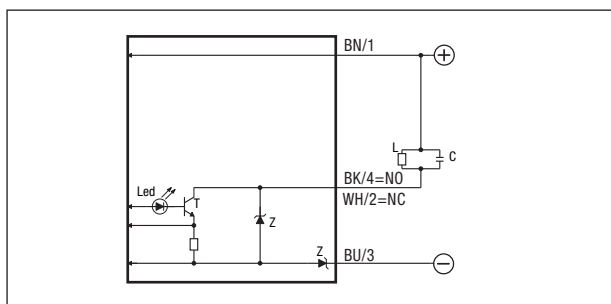
Codice / Code	Acciaio / Steel FE 360	Rame Copper	Alluminio Aluminium	Ottone Brass	Acciaio INOX Stainless steel
AH*/**-1*	1	0,06	0,13	0,24	0,56
AH*/**-2*	1	0,39	0,45	0,54	0,81
AH*/**-3*	1	0,1	0,17	0,25	0,6
AH*/**-4*	1	0,42	0,47	0,52	0,77

Schemi elettrici delle connessioni - Electrical diagrams of the connections

Schema di collegamento PNP
Wiring diagram PNP

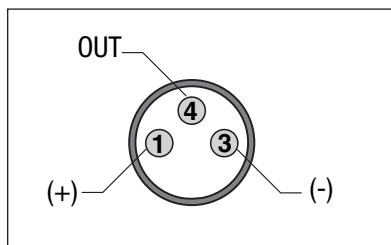


Schema di collegamento NPN
Wiring diagram NPN

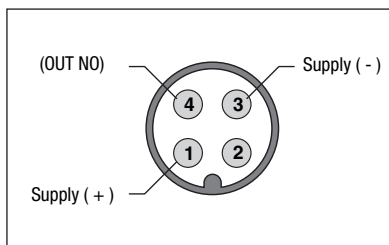


Connettore - Plug

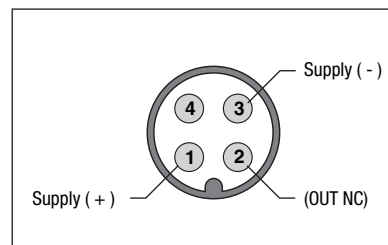
M8



M12



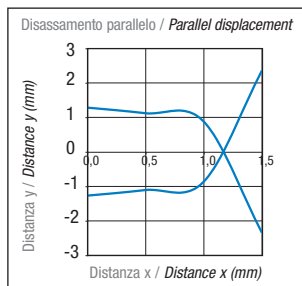
M12



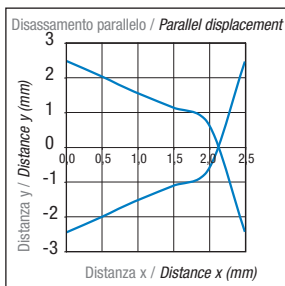
Connettori serie CD / Connectors CD series

Curva di risposta - Response diagram

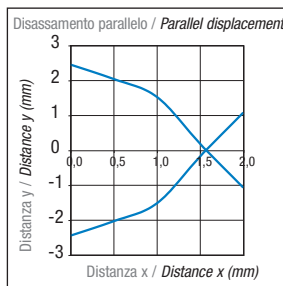
AH*/**-1*



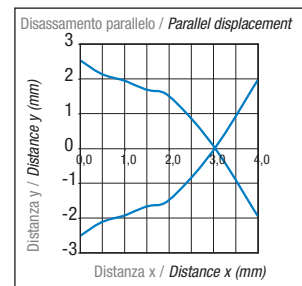
AH*/**-2*



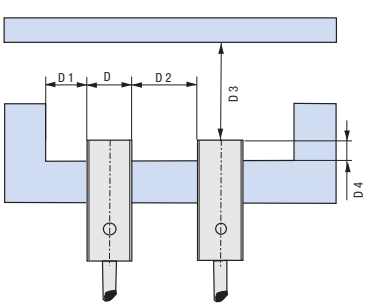
AH*/**-3*



AH*/**-4*



Montaggio - Installation

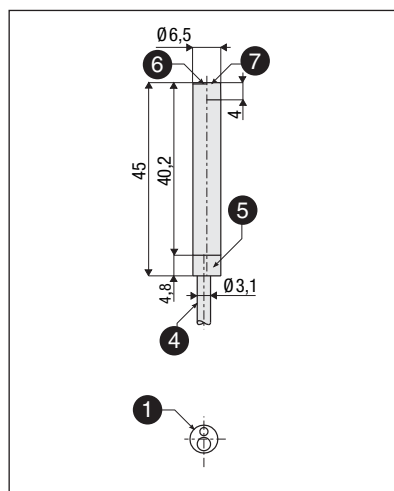


	D4	D1	D2	D3
AH/**-1*	≥ 3,9 mm	≥ 3,25 mm	≥ 6,5 mm	≥ 4,5 mm
AH/**-2*	≥ 4 mm ⁽¹⁾	≥ 6,5 mm	≥ 13 mm	≥ 7,5 mm
AH/**-3*	≥ 3,9 mm	≥ 3,25 mm	≥ 6,5 mm	≥ 6 mm
AH/**-4*	≥ 6 mm	≥ 6,5 mm	≥ 13 mm	≥ 12 mm

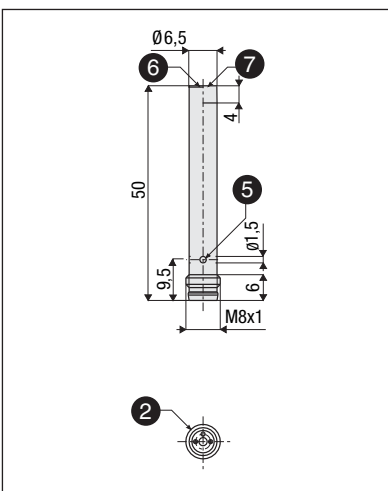
(1) ≥ 2,6 mm per materiali non magnetici / for non magnetic materials.

Dimensioni - Dimensions

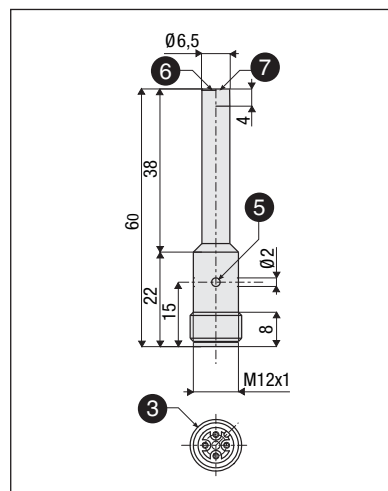
AH1/**-A



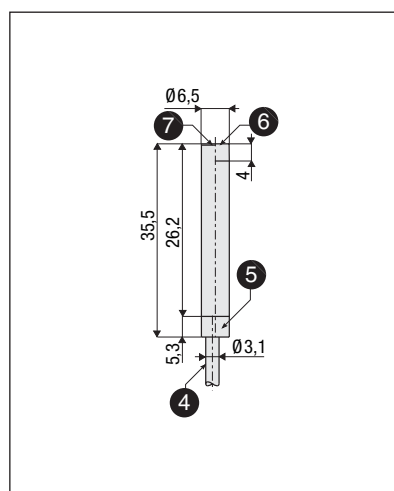
AH1/**-F



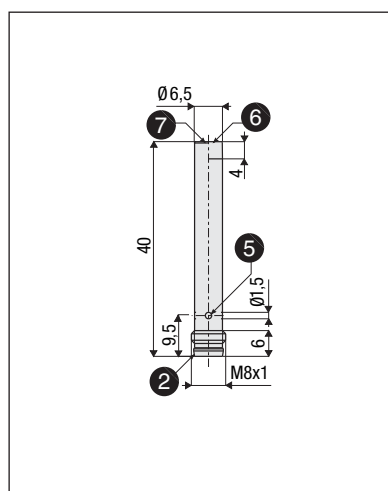
AH1/**-H



AH6/**-A



AH6/**-F



Legenda / Key

- ① Uscita cavo assiale
Axial cable exit
- ② Uscita connettore miniaturizzato M8 3 poli
M8 3 pins plug exit
- ③ Uscita connettore M12 4 poli
M12 4 pins plug exit
- ④ Cavo 3x0,14 mm², Ø 3,1 mm
Cable 3x0,14 mm², Ø 3,1 mm
- ⑤ Indicatore LED di stato
Led status indicator
- ⑥ Versione schermata
Shielded version
- ⑦ Versione non schermata
Unshielded version

Sensori di prossimità induttivi M8 serie AE

M8 proximity inductive sensors AE series

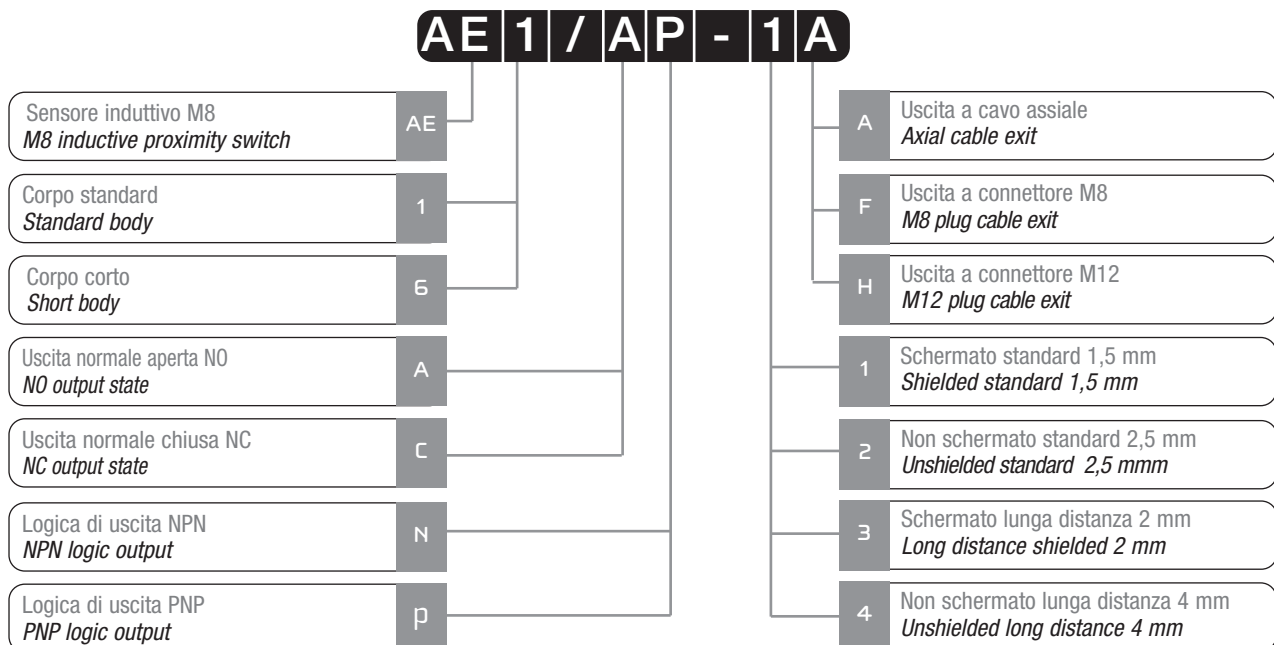


Caratteristiche principali Main features

- > Dimensioni estremamente ridotte
> *Extremely reduced measure*
- > Corpo metallico
> *Metal housing*
- > Indicatore LED visibile 360°
> *LED status indicator 360° visible*
- > Contenitore con protezione IP 67
> *IP 67 housing protection*
- > Totalmente protetti contro danneggiamenti di tipo elettrico
> *Complete protection against electrical damages*
- > Modelli distanza standard e lunga distanza
> *Standard and long distance models*
- > Modelli con corpo standard e corpo corto
> *Standard and short body housing*
- > Marchio **CE**
- > **CE** Mark

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

Descrizione del codice - Code structure



Modelli disponibili - Available models

Corpo Standard / Standard housing

Diametro Diameter	Montaggio Installation	Portata Distance	Conn. Plug	Distanza Distance	NPN/NO	PNP/NO	NPN/NC	PNP/NC
M8	Schermato Shielded	Standard	Cavo / Cable	1,5 mm	AE1/AN-1A	AE1/AP-1A	AE1/CN-1A	AE1/CP-1A
			M8	1,5 mm	AE1/AN-1F	AE1/AP-1F	AE1/CN-1F	AE1/CP-1F
			M12	1,5 mm	AE1/AN-1H	AE1/AP-1H	AE1/CN-1H	AE1/CP-1H
	Non schermato Unshielded	Standard	Cavo / Cable	2,5 mm	AE1/AN-2A	AE1/AP-2A	AE1/CN-2A	AE1/CP-2A
			M8	2,5 mm	AE1/AN-2F	AE1/AP-2F	AE1/CN-2F	AE1/CP-2F
			M12	2,5 mm	AE1/AN-2H	AE1/AP-2H	AE1/CN-2H	AE1/CP-2H
	Schermato Shielded	Lunga distanza Long distance	Cavo / Cable	2 mm	AE1/AN-3A	AE1/AP-3A	AE1/CN-3A	AE1/CP-3A
			M8	2 mm	AE1/AN-3F	AE1/AP-3F	AE1/CN-3F	AE1/CP-3F
			M12	2 mm	AE1/AN-3H	AE1/AP-3H	AE1/CN-3H	AE1/CP-3H
	Non schermato Unshielded	Lunga distanza Long distance	Cavo / Cable	4 mm	AE1/AN-4A	AE1/AP-4A	AE1/CN-4A	AE1/CP-4A
			M8	4 mm	AE1/AN-4F	AE1/AP-4F	AE1/CN-4F	AE1/CP-4F
			M12	4 mm	AE1/AN-4H	AE1/AP-4H	AE1/CN-4H	AE1/CP-4H

Corpo corto / Short housing

Diametro Diameter	Montaggio Installation	Portata Distance	Conn. Plug	Distanza Distance	NPN/NO	PNP/NO	NPN/NC	PNP/NC
M8	Schermato Shielded	Standard	Cavo / Cable	1,5 mm	AE6/AN-1A	AE6/AP-1A	AE6/CN-1A	AE6/CP-1A
			M8	1,5 mm	AE6/AN-1F	AE6/AP-1F	AE6/CN-1F	AE6/CP-1F
			M12	1,5 mm	AE6/AN-1H	AE6/AP-1H	AE6/CN-1H	AE6/CP-1H
	Non schermato Unshielded	Standard	Cavo / Cable	2,5 mm	AE6/AN-2A	AE6/AP-2A	AE6/CN-2A	AE6/CP-2A
			M8	2,5 mm	AE6/AN-2F	AE6/AP-2F	AE6/CN-2F	AE6/CP-2F
			M12	2,5 mm	AE6/AN-2H	AE6/AP-2H	AE6/CN-2H	AE6/CP-2H
	Schermato Shielded	Lunga distanza Long distance	Cavo / Cable	2 mm	AE6/AN-3A	AE6/AP-3A	AE6/CN-3A	AE6/CP-3A
			M8	2 mm	AE6/AN-3F	AE6/AP-3F	AE6/CN-3F	AE6/CP-3F
			M12	2 mm	AE6/AN-3H	AE6/AP-3H	AE6/CN-3H	AE6/CP-3H
	Non scherm. Unshielded	Lunga distanza Long distance	Cavo / Cable	4 mm	AE6/AN-4A	AE6/AP-4A	AE6/CN-4A	AE6/CP-4A
			M8	4 mm	AE6/AN-4F	AE6/AP-4F	AE6/CN-4F	AE6/CP-4F
			M12	4 mm	AE6/AN-4H	AE6/AP-4H	AE6/CN-4H	AE6/CP-4H

AE SERIES - INDUCTIVE SENSORS

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

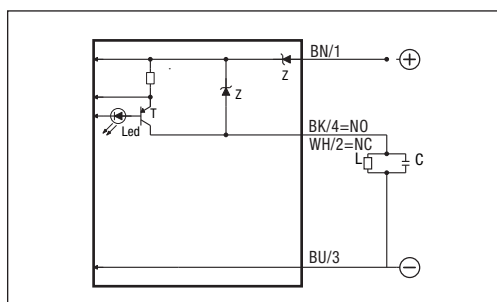
Modelli / Models	AE*/**-1*	AE*/**-2*	AE*/**-3*	AE*/**-4*
Distanza nominale Sn / Nominal sensing distance Sn	5%			
Distanza di lavoro / Operating distance	1,5 mm	2,5 mm	2 mm	4 mm
Corsa differenziale / Hysteresis	1 ÷ 20%			
Dimensione azionatore normalizzato / Standard target	8x8 mm FE360			12x12 mm FE360
Ripetitività / Repeat accuracy U ₀ 20-30 V Ta = 23°C ± 5°C	5%			
Campo di tensione di alimentazione / Supply voltage range	10 ÷ 30 Vcc / Vdc			
Massima ondulazione residua / Max ripple content	≤ 10 %			
Corrente di uscita / Output current	≤ 200 mA			
Tensione di saturazione di uscita / Output voltage drop	≤ 1,8 V @ 200 mA			
Corrente di alimentazione senza carico / No load supply current	10 mA			
Corrente di perdita / Leakage current	≤ 10 µA			
Frequenza di commutazione / Switching frequency	5 kHz			
Ritardo all'accensione / Time delay before availability	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 auto ripristinante / Yes auto reset			
Protezione all'inversione di polarità di alimentazione / 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	16 g versione a connettore M8 / plug M8 version 20 g versione a connettore M12 / plug M12 version 43 g versione a cavo / cable version			
Indicatori LED / LED indicators	LED giallo stato dell'uscita / Yellow LED output state			
Grado di protezione / Degree of protection	IP 67 (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			

Coefficienti di riduzione - Correction factors

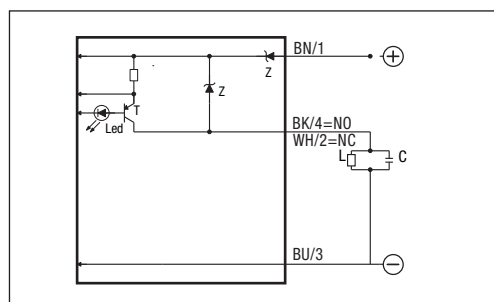
Codice / Code	Acciaio / Steel FE 360	Rame Copper	Alluminio Aluminium	Ottone Brass	Acciaio INOX Stainless steel
AE*/**-1*	1	0,29	0,38	0,49	0,78
AE*/**-2*	1	0,43	0,51	0,59	0,83
AE*/**-3*	1	0,35	0,43	0,52	0,78
AE*/**-4*	1	0,47	0,52	0,58	0,79

Schemi elettrici delle connessioni - Electrical diagrams of the connections

Schema di collegamento PNP
Wiring diagram PNP



Schema di collegamento NPN
Wiring diagram NPN

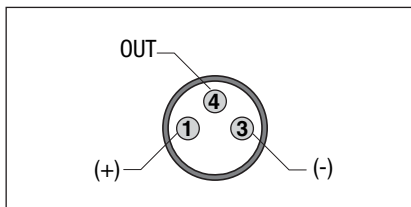


Legenda Key

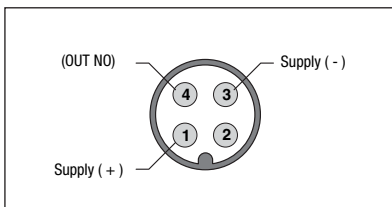
- BN → marrone/brown
- BK → nero/black
- PK → rosa/pink
- BU → blu/blue
- WH → bianco/white
- GY → grigio/gray

Connettore - Plug

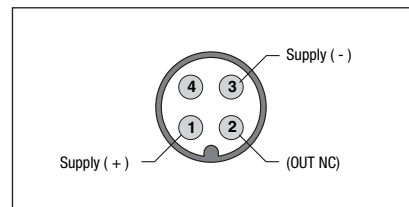
M8



M12 - NO



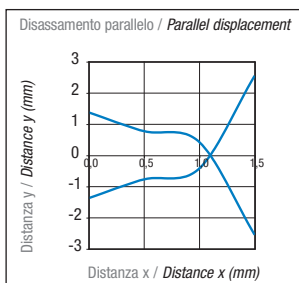
M12 - NC



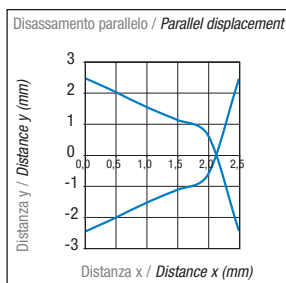
Connettori serie CD / Connectors CD series

Curva di risposta - Response diagram

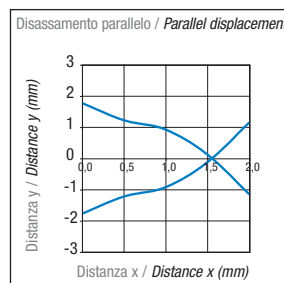
AE*/**-1*



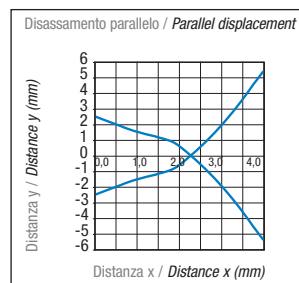
AE*/**-2*



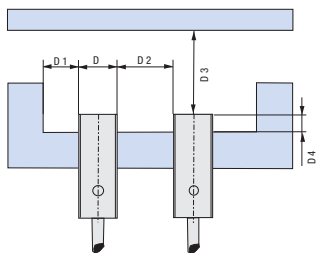
AE*/**-3*



AE*/**-4*



Montaggio - Installation

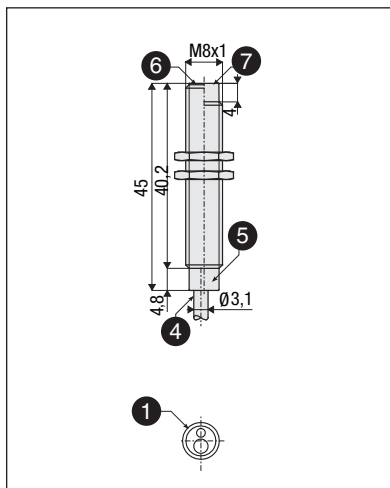


	D4	D1	D2	D3
AE*/**-1*	≥ 0 mm	≥ 3,25 mm	≥ 6,5 mm	≥ 4,5 mm
AE*/**-2*	≥ 4 mm ⁽¹⁾	≥ 6,5 mm	≥ 13 mm	≥ 7,5 mm
AE*/**-3*	≥ 0 mm	≥ 3,25 mm	≥ 6,5 mm	≥ 6 mm
AE*/**-4*	≥ 4 mm	≥ 6,5 mm	≥ 13 mm	≥ 12 mm

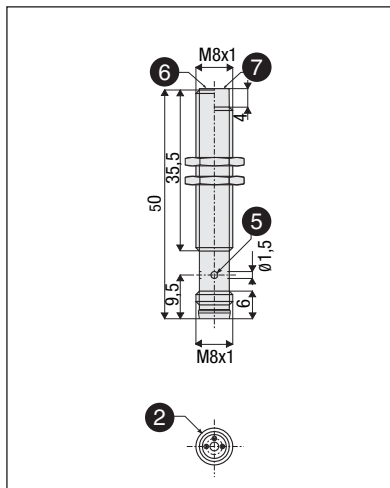
(1) ≥ 0 mm per materiali non magnetici / for non magnetic materials.

Dimensioni - Dimensions

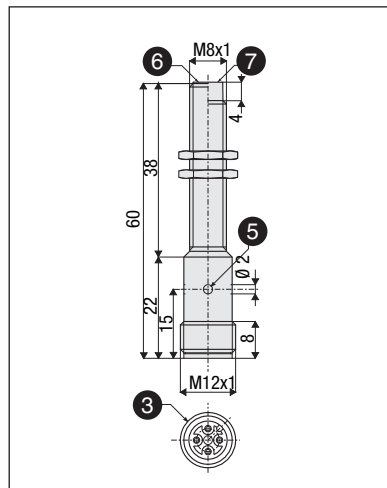
AE1/**-A



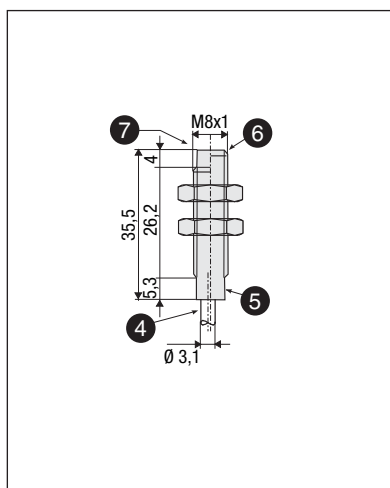
AE1/**-F



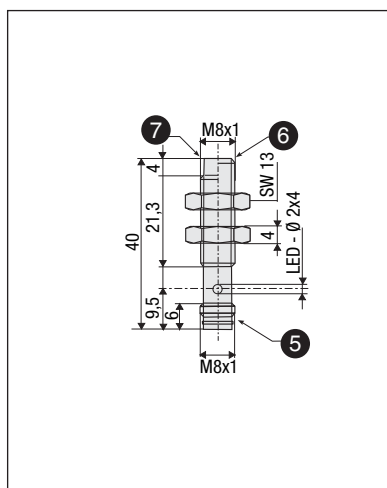
AE1/**-H



AE6/**-A



AE6/**-F



Legenda / Key

- ① Uscita cavo assiale
Axial cable exit
- ② Uscita connettore miniaturizzato M8 3 poli
M8 3 pins plug exit
- ③ Uscita connettore M12 4 poli
M12 4 pins plug exit
- ④ Cavo 3x0,14 mm², Ø 3,1 mm, PVC 2 m
Cable 3x0,14 mm², Ø 3,1 mm, PVC 2 m
- ⑤ Indicatore LED di stato
Led status indicator
- ⑥ Versione schermata
Shielded version
- ⑦ Versione non schermata
Unshielded version

a

Sensori di prossimità induttivi M12 serie AM e PM

M12 inductive proximity sensors AM & PM series



Caratteristiche principali Main features

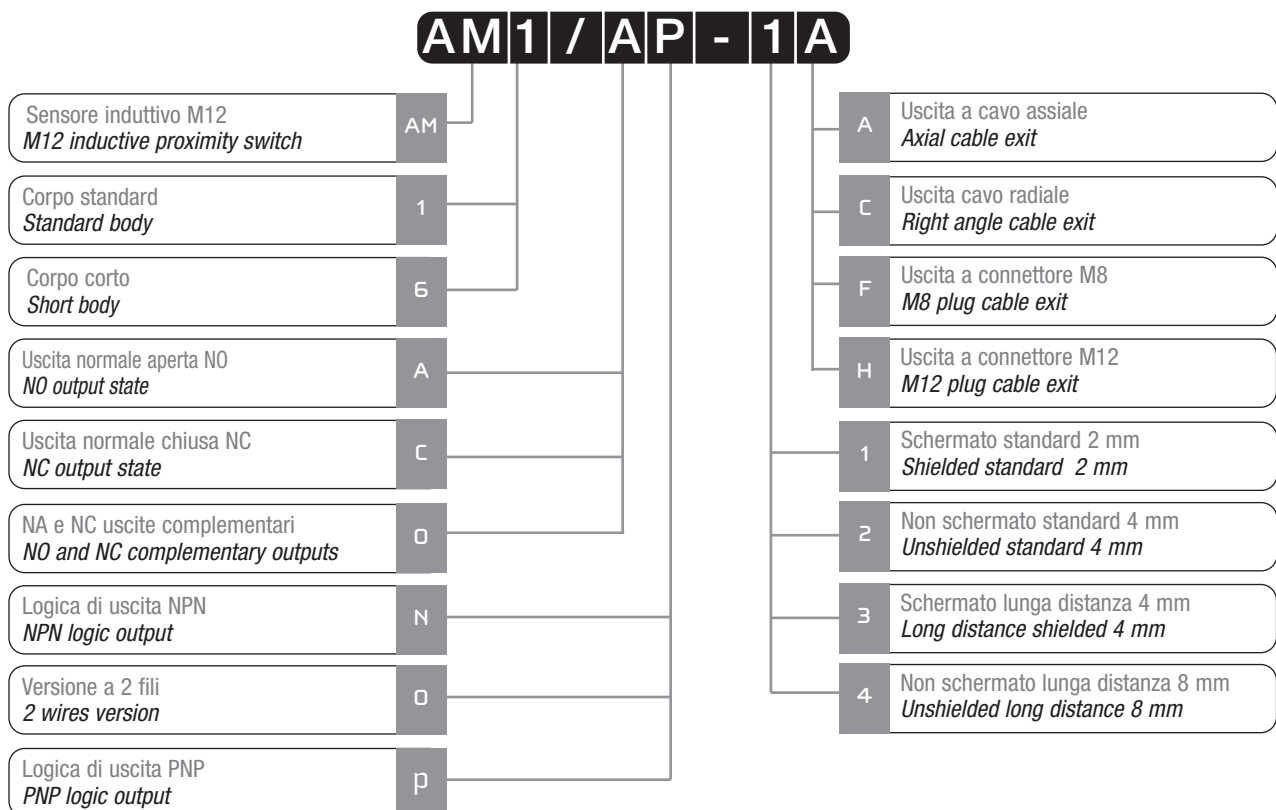
- > Vasta gamma di modelli: standard, corpo corto, lunga distanza, con uscita DECOUT
- > *Wide range of models: standard, short body, long distance, DECOUT output*
- > Uscite: cavo, connettore M12 e M8
- > *Output: cable, M12 and M8 plug cable exit*
- > Modelli a 2, 3 e 4 fili
- > *Models with 2, 3,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

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

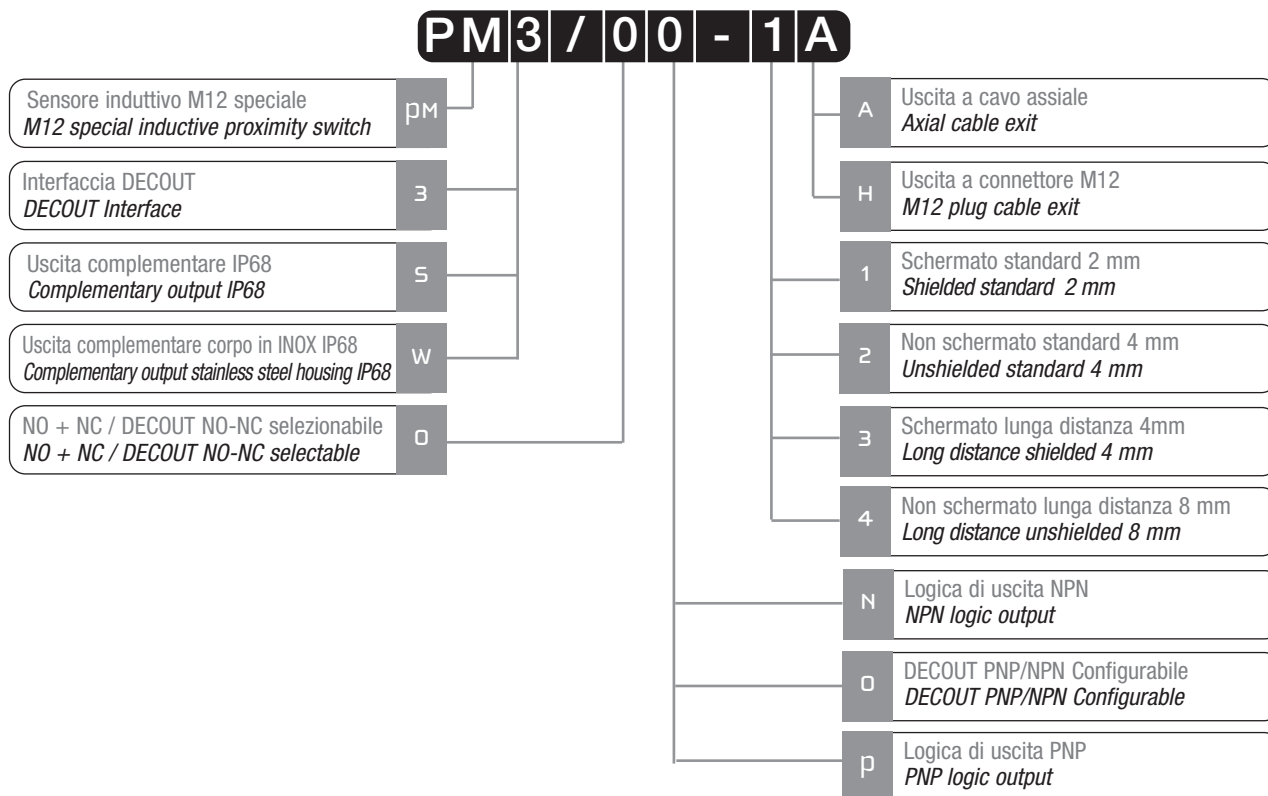
- > Modelli speciali a doppio involucro protetti all'immersione (IP 68)
- > *Special models with double enclosure immersion proof (IP 68)*
- > Modelli con uscita antivalente (NO+NC)
- > *Models with complementary output (NO + NC)*
- > Marchio CEE
- > **CEE Mark**

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 DECOU / DECOU 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

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 μA (≤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 ⁽²⁾			
Indicatori LED / LED indicators	LED giallo stato dell'uscita / Yellow LED output state			
Grado di protezione / Degree of protection	IP 67 ⁽¹⁾ (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 _s 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 ⁽¹⁾ (EN60529)		IP 67/68 ⁽¹⁾ (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

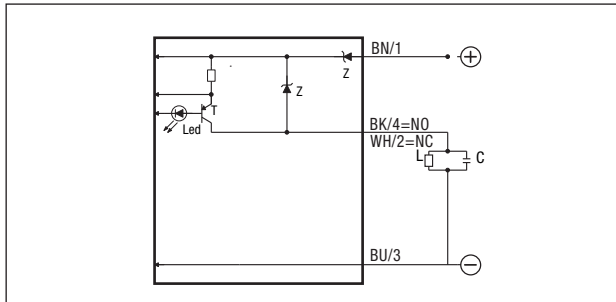
Coefficienti di riduzione - Correction factors

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

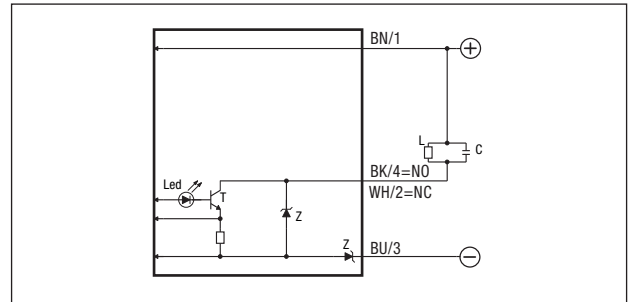
Schemi elettrici delle connessioni - Electrical diagrams of the connections

> Versioni a 3 fili - 3 wires versions

Schema di collegamento PNP
Wiring diagram PNP

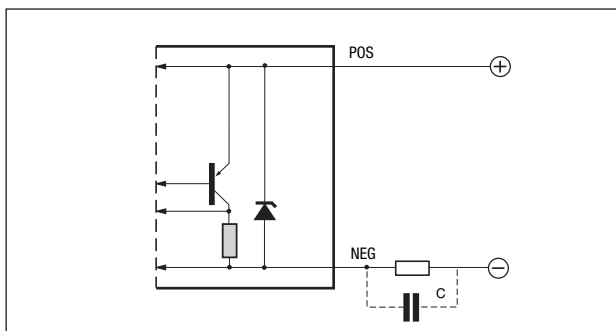


Schema di collegamento NPN
Wiring diagram NPN

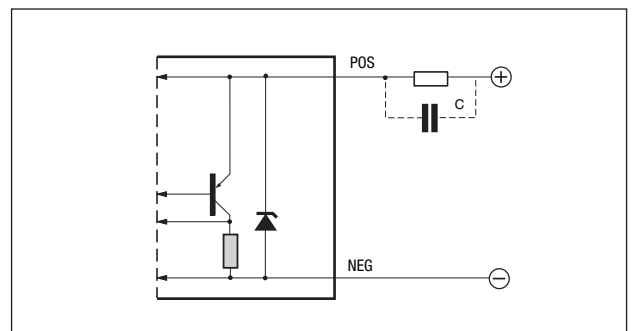


> Versioni a 2 fili - 2 wires versions

Schema di collegamento PNP
Wiring diagram PNP

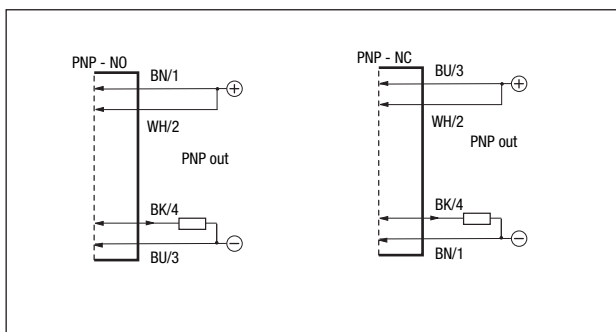


Schema di collegamento NPN
Wiring diagram NPN

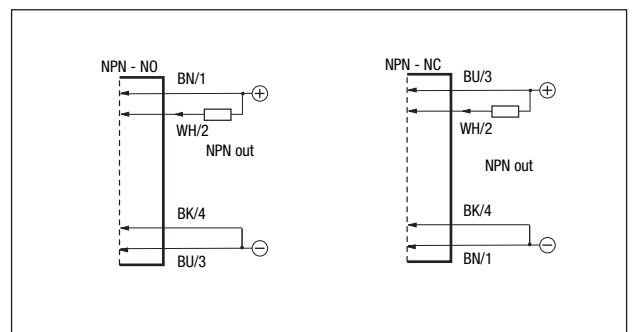


> Versioni PM3 DECOUT - PM3 DECOUT versions

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

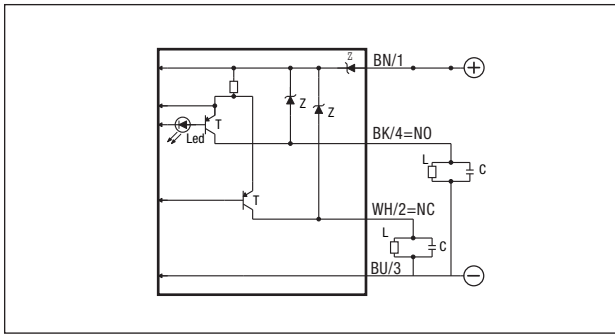


Schema di collegamento NPN-NO/NC
Wiring diagram NPN-NO/NC

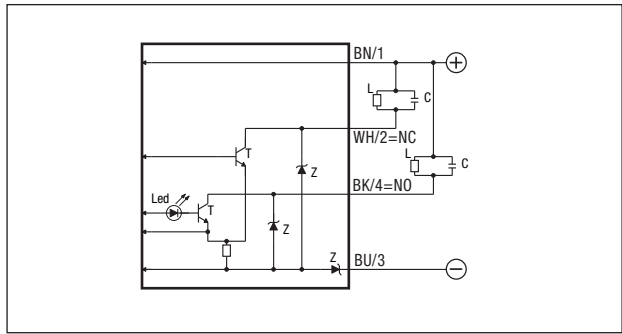


> Versioni PMS-PMW uscite complementari - Complementary outputs versions

Schema di collegamento PNP
Wiring diagram PNP



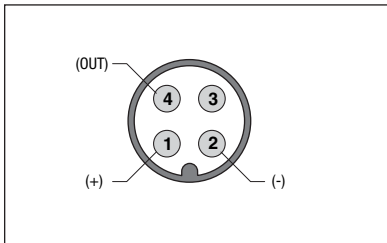
Schema di collegamento NPN
Wiring diagram NPN



Connettore - Plug

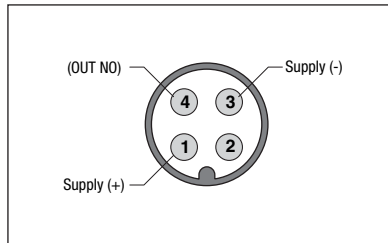
> Versioni a 3 fili - 3 wires versions

M8

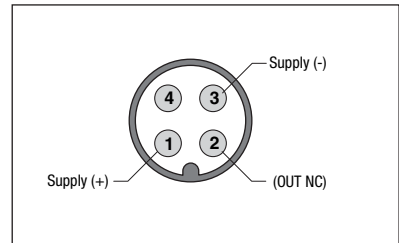


Connettori serie CD / Connectors CD series

M12 - NO

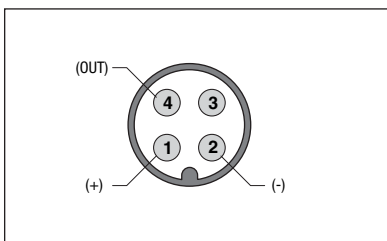


M12 - NC



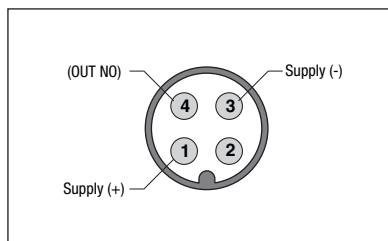
> Versioni a 2 fili - 2 wires versions

M12 - NO



Connettori serie CD / Connectors CD series

M12 - NC

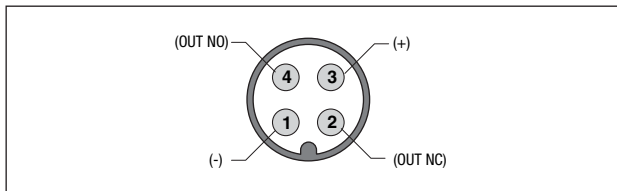


Legenda Key

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

> Versioni PM3 DECOU - PM3 DECOU versions

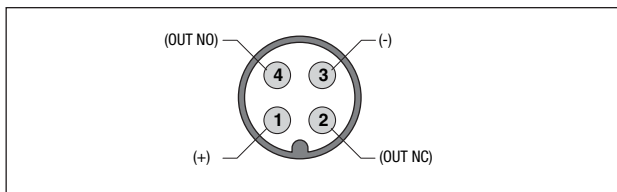
M12 - NO/NC



Connettori serie CD / Connectors CD series

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

M12 - NO+NC



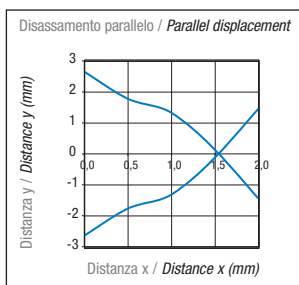
Connettori serie CD / Connectors CD series

Legenda Key

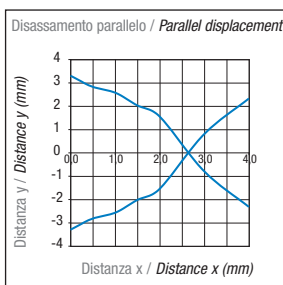
- BN → marrone/brown
- BK → nero/black
- PK → rosa/pink
- BU → blu/blue
- WH → bianco/white
- GY → grigio/gray

Curva di risposta - Response diagram

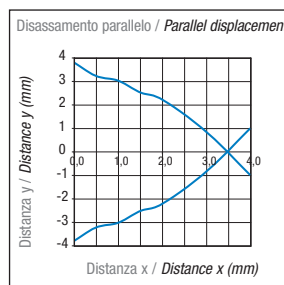
AM*/**-1*



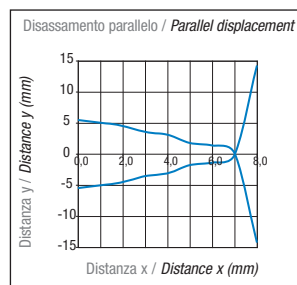
AM*/**-2*



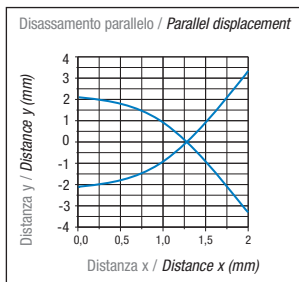
AM*/**-3*



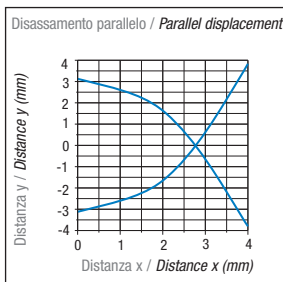
AM*/**-4*



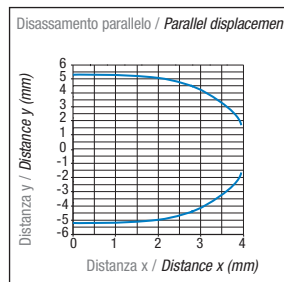
AM1/*0-1*



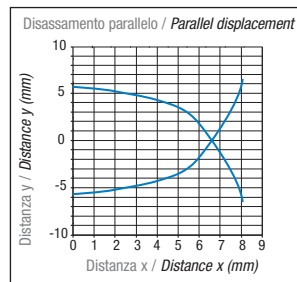
AM1/*0-2*



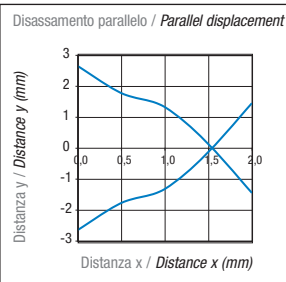
AM1/*0-3*



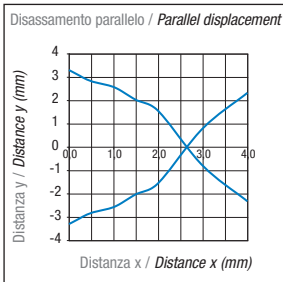
AM1/*0-4*



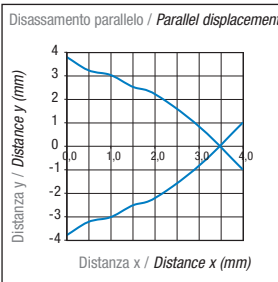
PMS/**-1*



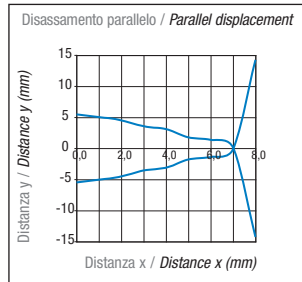
PMS/**-2*



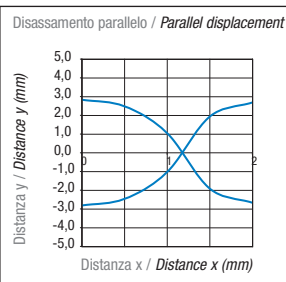
PMS/**-3*



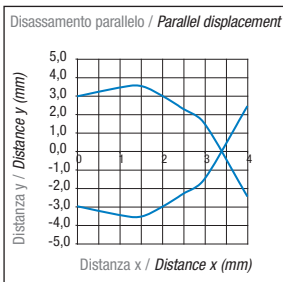
PMS/**-4*



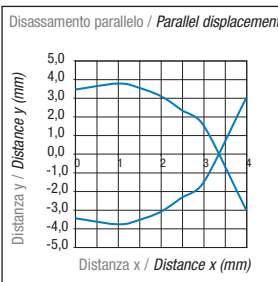
PMW/**-1*



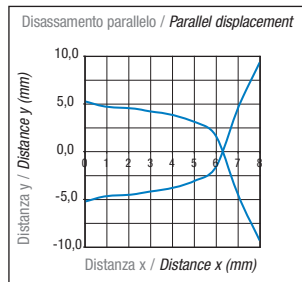
PMW/**-2*



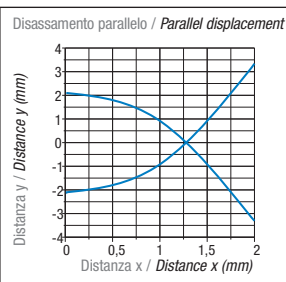
PMW/**-3*



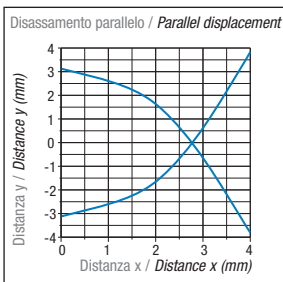
PMW/**-4*



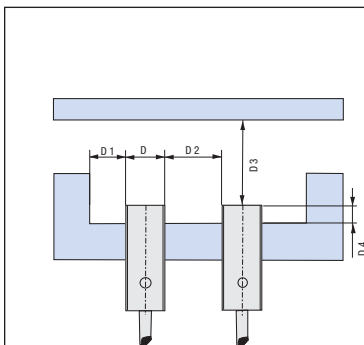
PM3/**-1*



PM3/**-2*



Montaggio - Installation

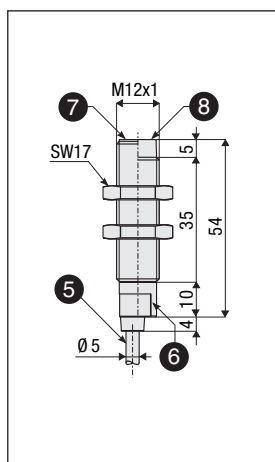


	D4	D1	D2	D3
AM*/**-1* - PMS/**-1*	≥ 0 mm	≥ 6 mm	≥ 12 mm	≥ 6 mm
AM*/**-2* - PMS/**-2*	≥ 1.2 mm	≥ 12 mm	≥ 24 mm	≥ 12 mm
AM*/**-3* - PMS/**-3*	≥ 12 mm ⁽¹⁾	≥ 6 mm	≥ 12 mm	≥ 12 mm
AM*/**-4* - PMS/**-4*	≥ 8 mm	≥ 12 mm	≥ 24 mm	≥ 24 mm
AM*/*0-1* - PMS/00-1*	≥ 2.4 mm	≥ 6 mm	≥ 12 mm	≥ 6 mm
AM*/*0-2* - PMS/00-2*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

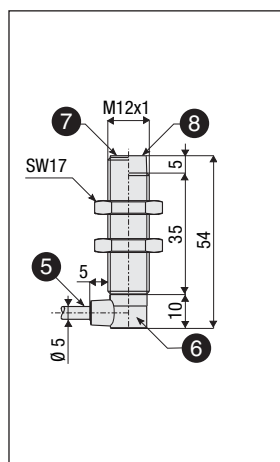
- (1) ≥ 2 mm per materiali non magnetici / for non magnetic material
- (2) ≥ 2.4 mm per materiali non magnetici / for non magnetic material
- (3) ≥ 0 mm per materiali non magnetici / for non magnetic material
- (4) ≥ 3.6 mm per materiali non magnetici / for non magnetic material

Dimensioni - Dimensions

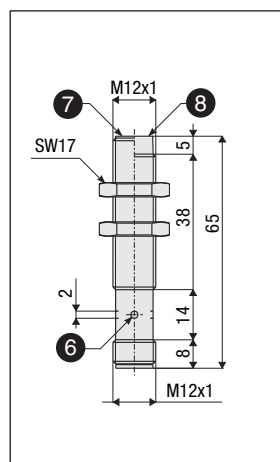
AM1/**-A



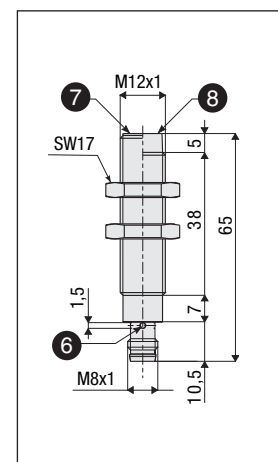
AM1/**-C



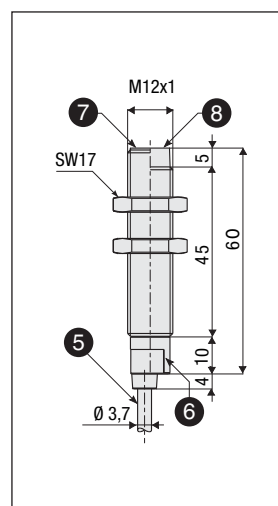
AM1/**-H



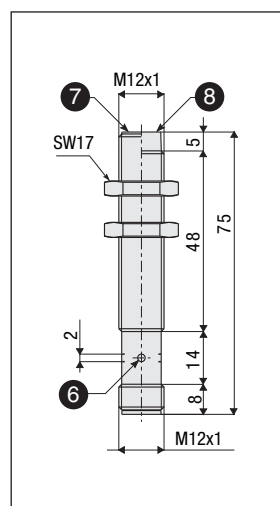
AM1/**-F



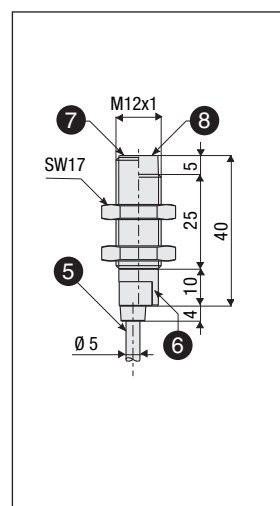
PM3/00-A
AM1/0-A



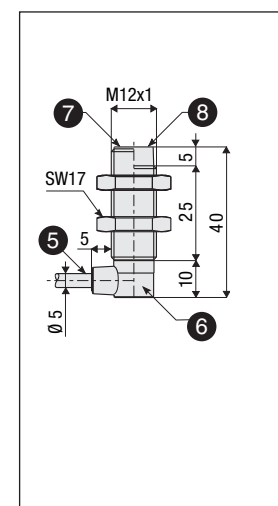
PM3/00-H
AM1/0-H



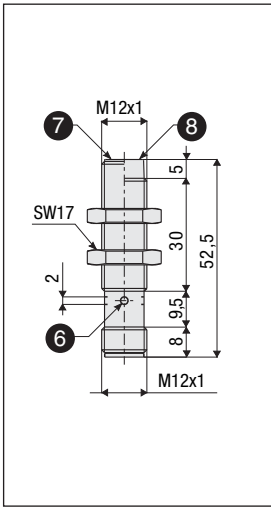
AM6/**-A



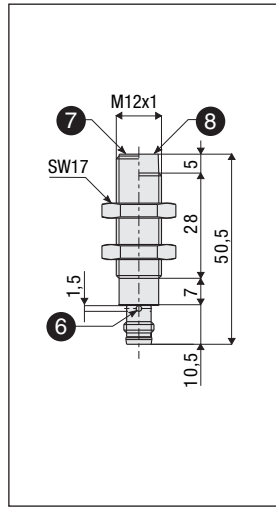
AM6/**-C



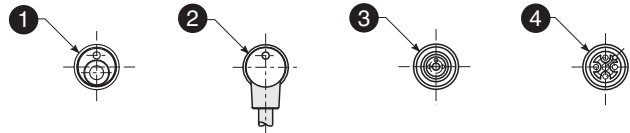
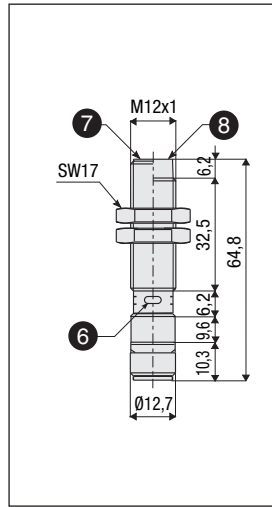
AM6/**-*H



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 mm², Ø 3,75 mm, PVC, 2 m
Cable 3(4)x0,022 mm², 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

Sensori di prossimità induttivi M18 serie AK e PK

M18 inductive proximity sensors AK & PK series



Caratteristiche principali Main features

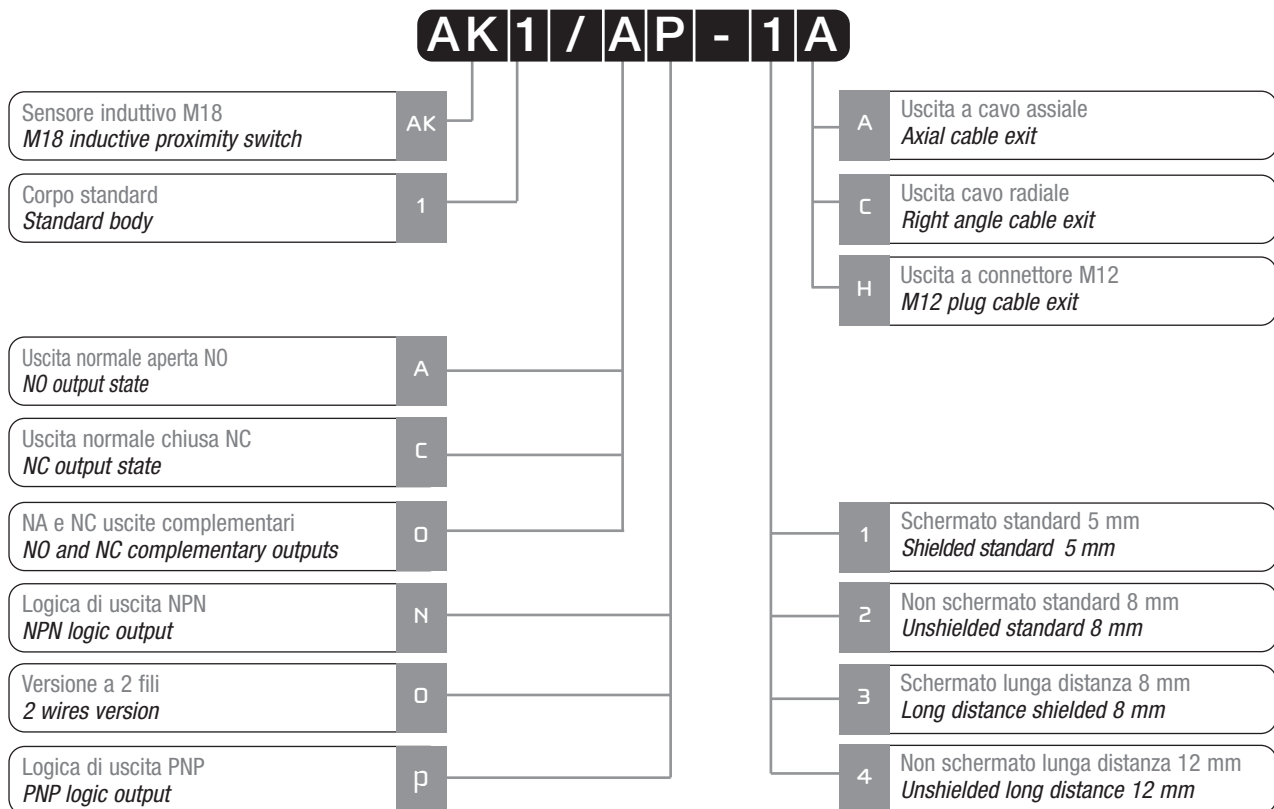
- > Vasta gamma di modelli: standard, lunga distanza, con uscita DECOUT
- > *Wide range of models: standard, long distance, DECOUT output*
- > Uscite: cavo, connettore M12
- > *Output: cable, M12 and plug cable exit*
- > Modelli a 2, 3 e 4 fili
- > *Models with 2, 3, and 4 wires*

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

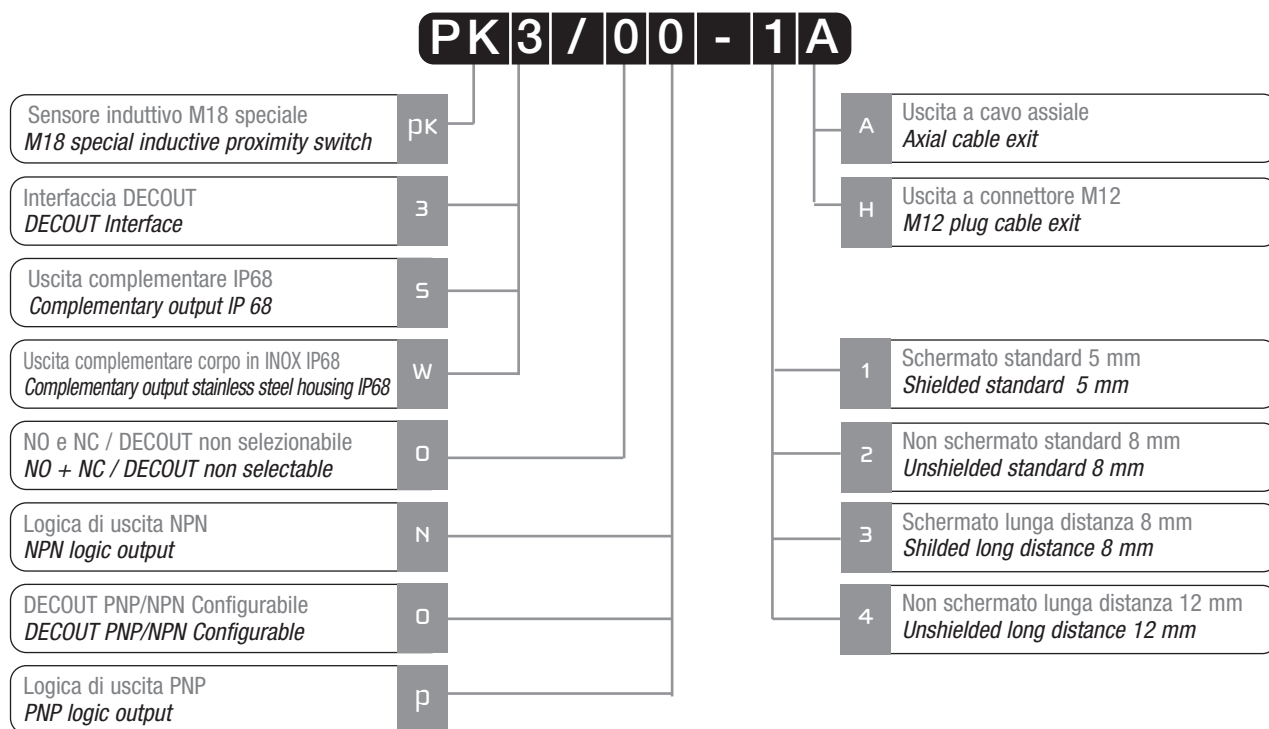
- > Modelli speciali a doppio involucro protetti all'immersione (IP 68)
- > *Special models with double enclosure immersion proof (IP 68)*
- > Modelli con uscita complementare (NO+NC)
- > *Models with complementary output (NO+NC)*
- > Marchio CE
- > **CE** Mark

Descrizione del codice - Code structure

> M18 serie AK - M18 AK series



> M18 serie PK - M18 PK 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
M18	Schermato <i>Shielded</i>	Standard	Cavo / Wire	5 mm	AK1/AN-1A	AK1/AP-1A	AK1/CN-1A	AK1/CP-1A
			Cavo / Wire 90°	5 mm	AK1/AN-1C	AK1/AP-1C	AK1/CN-1C	AK1/CP-1C
			M12	5 mm	AK1/AN-1H	AK1/AP-1H	AK1/CN-1H	AK1/CP-1H
	Non scherm. <i>Unshielded</i>	Standard	Cavo / Wire	8 mm	AK1/AN-2A	AK1/AP-2A	AK1/CN-2A	AK1/CP-2A
			Cavo / Wire 90°	8 mm	AK1/AN-2C	AK1/AP-2C	AK1/CN-2C	AK1/CP-2C
			M12	8 mm	AK1/AN-2H	AK1/AP-2H	AK1/CN-2H	AK1/CP-2H
	Schermato <i>Shielded</i>	Lunga dist. <i>Long dist.</i>	Cavo / Wire	8 mm	AK1/AN-3A	AK1/AP-3A	AK1/CN-3A	AK1/CP-3A
			M12	8 mm	AK1/AN-3H	AK1/AP-3H	AK1/CN-3H	AK1/CP-3H
			Cavo / Wire	12 mm	AK1/AN-4A	AK1/AP-4A	AK1/CN-4A	AK1/CP-4A
	Non scherm. <i>Unshielded</i>	Lunga dist. <i>Long dist.</i>	M12	12 mm	AK1/AN-4H	AK1/AP-4H	AK1/CN-4H	AK1/CP-4H

Modelli 2 fili DC / DC 2 wires models

Diametro <i>Diameter</i>	Montaggio <i>Installation</i>	Portata <i>Distance</i>	Conn. <i>Plug</i>	Distanza <i>Distance</i>	NO-PNP/NPN	NC-PNP/NPN
M18	Schermato <i>Shielded</i>	Standard	Cavo / Wire	5 mm	AK1/A0-1A	AK1/C0-1A
			M12	5 mm	AK1/A0-1H	AK1/C0-1H
	Non schermato <i>Unshielded</i>	Standard	Cavo / Wire	8 mm	AK1/A0-2A	AK1/C0-2A
			M12	8 mm	AK1/A0-2H	AK1/C0-2H
	Schermato <i>Shielded</i>	Lunga distanza <i>Long distance</i>	Cavo / Wire	8 mm	AK1/A0-3A	AK1/C0-3A
			M12	8 mm	AK1/A0-3H	AK1/C0-3H
	Non schermato <i>Unshielded</i>	Lunga distanza <i>Long distance</i>	Cavo / Wire	12 mm	AK1/A0-4A	AK1/C0-4A
			M12	12 mm	AK1/A0-4H	AK1/C0-4H

AK & PK series - inductive sensors

Modelli DECOU / DECOU models

Diametro <i>Diameter</i>	Montaggio <i>Installation</i>	Portata <i>Distance</i>	Conn. <i>Plug</i>	Distanza <i>Distance</i>	NO/NC-PNP/NPN
M18	Schermato <i>Shielded</i>	Standard	Cavo / <i>Wire</i>	5 mm	PK3/00-1A
			M12	5 mm	PK3/00-1H
	Non schermato <i>Unshielded</i>	Standard	Cavo / <i>Wire</i>	8 mm	PK3/00-2A
			M12	8 mm	PK3/00-2H

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

Diametro <i>Diameter</i>	Montaggio <i>Installation</i>	Portata <i>Distance</i>	Conn. <i>Plug</i>	Distanza <i>Distance</i>	NPN – NO+NC	PNP – NO+NC
M18	Schermato / <i>Shielded</i>	Standard	M12	5 mm	PKS/ON-1H	PKS/OP-1H
	Non scherm. / <i>Unshielded</i>	Standard	M12	8 mm	PKS/ON-2H	PKS/OP-2H
	Schermato / <i>Shielded</i>	Lunga dist. / <i>Long distance</i>	M12	8 mm	PKS/ON-3H	PKS/OP-3H
	Non scherm. / <i>Unshielded</i>	Lunga dist. / <i>Long distance</i>	M12	12 mm	PKS/ON-4H	PKS/OP-4H

Modelli IP 67-IP 68 corpo in inox AISI303 / IP 67-IP 68 models with AISI303 stainless steel housing

Diametro <i>Diameter</i>	Montaggio <i>Installation</i>	Portata <i>Distance</i>	Conn. <i>Plug</i>	Distanza <i>Distance</i>	NPN – NO+NC	PNP – NO+NC
M18	Schermato / <i>Shielded</i>	Standard	M12	5 mm	PKW/ON-1H	PKW/OP-1H
	Non scherm. / <i>Unshielded</i>	Standard	M12	8 mm	PKW/ON-2H	PKW/OP-2H
	Schermato / <i>Shielded</i>	Lunga dist. / <i>Long distance</i>	M12	8 mm	PKW/ON-3H	PKW/OP-3H
	Non scherm. / <i>Unshielded</i>	Lunga dist. / <i>Long distance</i>	M12	12 mm	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)

> Serie AK - AK series

Modelli / Models	AK*/**-1*	AK*/**-2*	AK*/**-3*	AK*/**-4*
Distanza nominale S_n / Nominal sensing distance S_n	5 mm	8 mm	8 mm	12 mm
Distanza di lavoro / Operating distance	0 ÷ 4 mm	0 ÷ 6,5 mm	0 ÷ 6,5 mm	0 ÷ 9,7 mm
Corsa differenziale / Hysteresis	1 ÷ 20%			
Dimensione azionatore normalizzato / Standard target	18x18 mm FE 360	24x24 mm FE 360		36x36 mm FE 360
Ripetitività / Repeat accuracy U_0 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 di uscita / Output current	≤ 400 mA (3 ÷ 100 mA per versioni a 2 fili / for 2 wires versions)			
Tensione di saturazione di uscita / Output voltage drop	≤ 1V @ 400 mA (2,8 V @ 100 mA per versioni a 2 fili / for 2 wires versions)			
Corrente di alimentazione senza carico / No load supply current	20 mA (per versione a 3 fili / for 3 wires versions)			
Corrente di perdita / Leakage current	≤ 10 μA (0,8 mA per versioni a 2 fili / for 2 wires versions)			
Frequenza di commutazione / Switching frequency	600 Hz (300 Hz per 2 fili / for 2 wires)		300 Hz (150 Hz 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	55 g versione a connettore / plug version 30 g versione a cavo / cable version			
Indicatori LED / LED indicators	LED giallo stato dell'uscita / Yellow LED output state			
Grado di protezione / Degree of protection	IP 67(1) (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 M12			

AK & PK series - inductive sensors

> Serie PK - PK series

Modelli / Models	PK3/00-1*	PK3/00-2*	PK*/0*-1H	PK*/0*-2H	PK*/0*-3H	PK*/0*-4H
Distanza nominale Sn / Nominal sensing distance Sn	5 mm	8 mm	5 mm	8 mm	8 mm	12 mm
Distanza di lavoro / Operating distance	0 ÷ 4 mm	0 ÷ 6,5 mm	0 ÷ 4 mm	0 ÷ 6,5 mm	0 ÷ 6,5 mm	0 ÷ 9,7 mm
Corsa differenziale / Hysteresis	1 ÷ 20%					
Dimensione azionatore normalizzato / Standard target	18x18 mm FE 360		24x24 mm FE 360		36x36 mm FE 360	
Ripetibilità / Repeat accuracy U _s 20-30 V Ta = 23°C ± 5°C	5%					
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		400 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	0,3 kHz		1,5 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		70 g			
Indicatori LED giallo / Yellow LED indicators	Stato dell'uscita / Output state		Stato dell'uscita NA / NO output state			
Grado di protezione / Degree of protection	IP 67(1) (EN60529)		IP 67/68(1) (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		PSU			
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

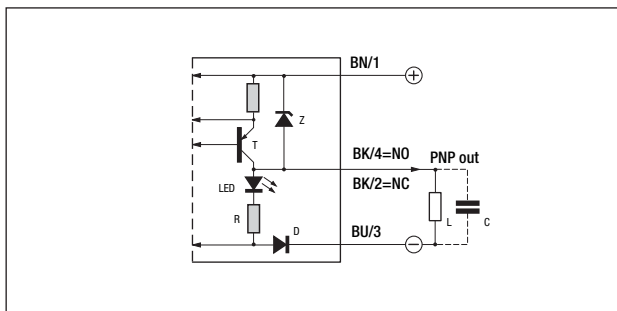
Coefficienti di riduzione - Correction factors

Codice / Code	Acciaio / Steel FE 360	Rame Copper	Alluminio Aluminium	Ottone Brass	Acciaio INOX Stainless steel V2A
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
AK1/**-1* / PK3/00-1*	1	0,4	0,48	0,72	0,86
AK1/**-2* / PK3/00-2*	1	0,45	0,53	0,56	0,77
AK1/**-3*	1	0,4	0,45	0,5	0,75
AK1/**-4*	1	0,45	0,53	0,56	0,77
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

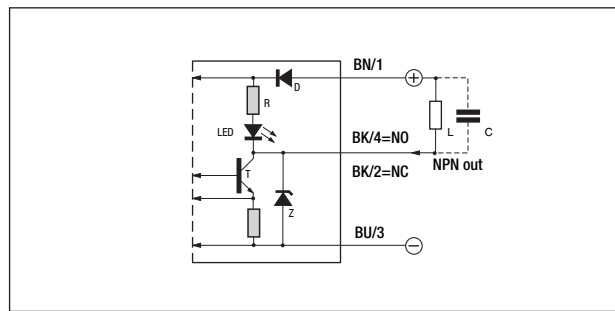
Schemi elettrici delle connessioni - Electrical diagrams of the connections

> Versioni a 3 fili - 3 wires versions

Schema di collegamento PNP
Wiring diagram PNP

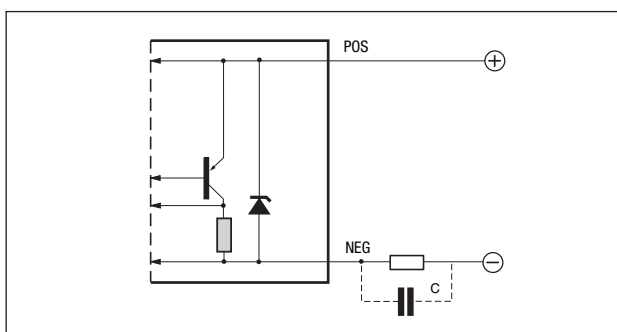


Schema di collegamento NPN
Wiring diagram NPN

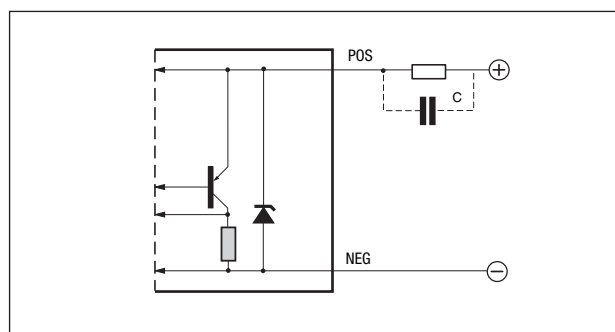


> Versioni a 2 fili - 2 wires versions

Schema di collegamento PNP
Wiring diagram PNP

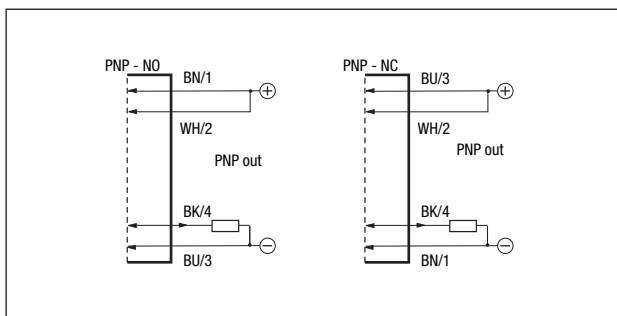


Schema di collegamento NPN
Wiring diagram NPN

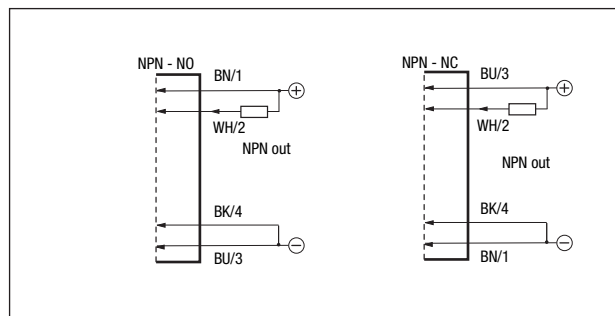


> Versioni PK3 DECOUT - PK3 DECOUT versions

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



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

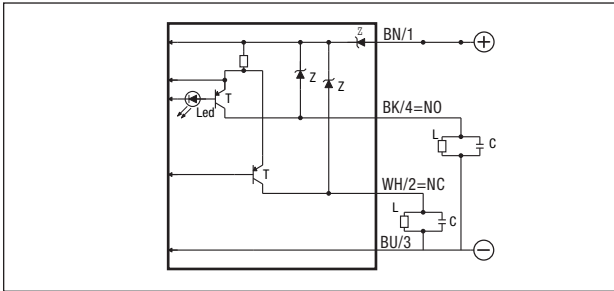


Legenda
Key

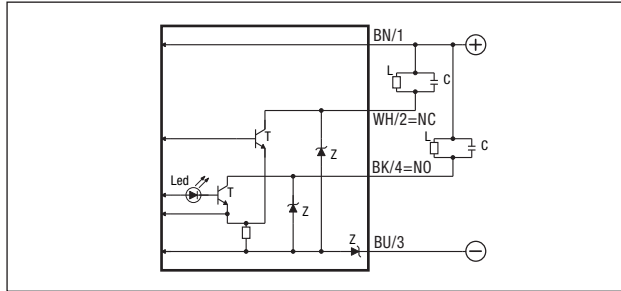
BN → marrone/brown	BU → blu/blue
BK → nero/black	WH → bianco/white
PK → rosa/pink	GY → grigio/gray

> Versioni PKS-PKW con uscite complementari - Complementary outputs versions

Schema di collegamento PNP
Wiring diagram PNP



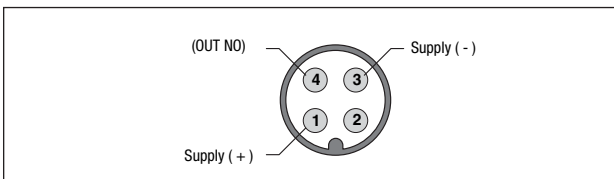
Schema di collegamento NPN
Wiring diagram NPN



Connettore - Plug

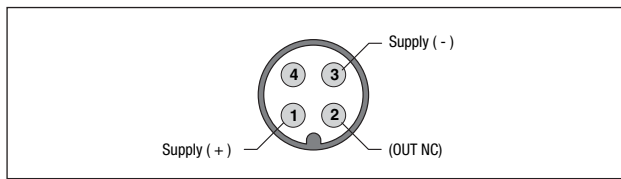
> Versioni a 3 fili - 3 wires versions

M12 - NO



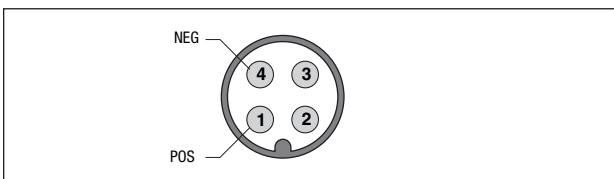
Connettori serie CD / Connectors CD series

M12 - NC



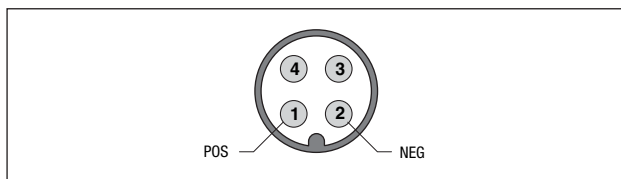
> Versioni a 2 fili - 2 wires versions

M12 - NO



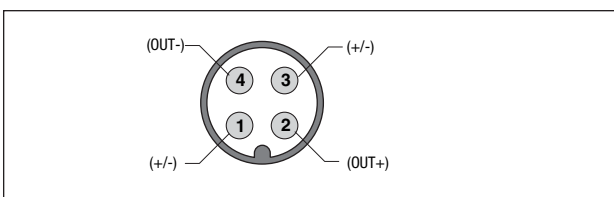
Connettori serie CD / Connectors CD series

M12 - NC



> Versioni PK3 DECOU - PK3 DECOU versions

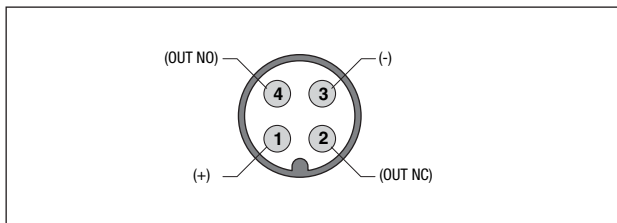
M12 - NO/NC



Connettori serie CD / Connectors CD series

> Versioni PKS-PKW con uscite complementari - Complementary outputs versions

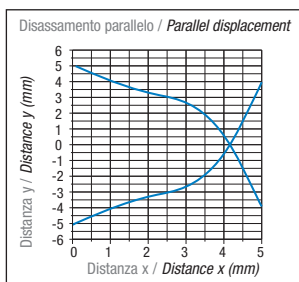
M12



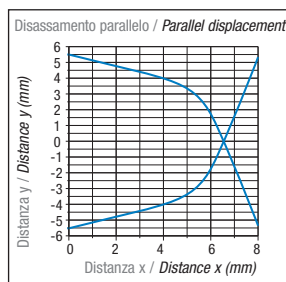
Connettori serie CD / Connectors CD series

Curva di risposta - Response diagram

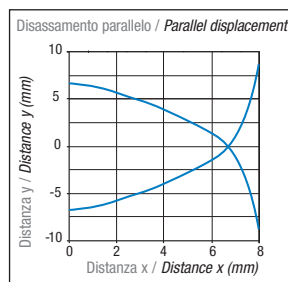
PKS/**-1*



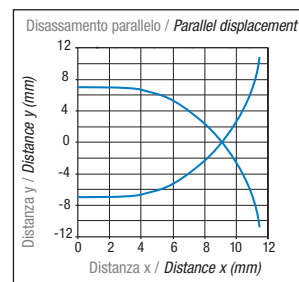
PKS/**-2*



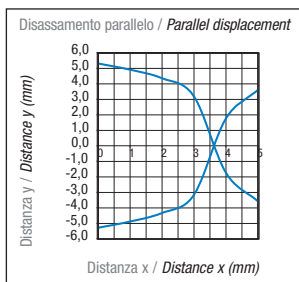
PKS/**-3*



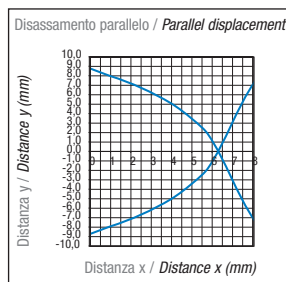
PKS/**-4*



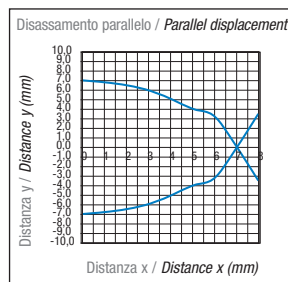
PKW/**-1*



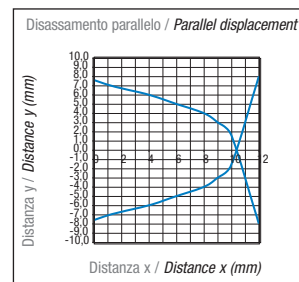
PKW/**-2*



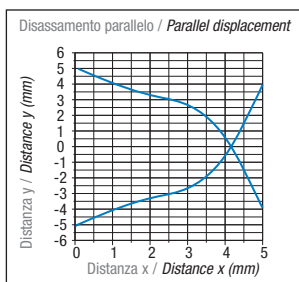
PKW/**-3*



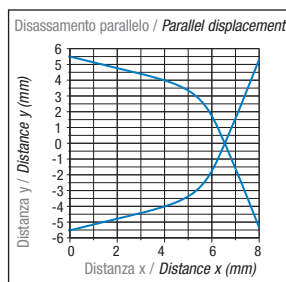
PKW/**-4*



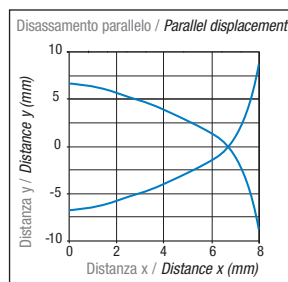
PK3/**-1*



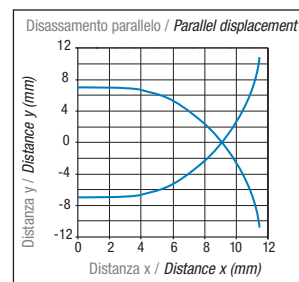
PK3/**-2*



PK3/**-3*



PK3/**-4*



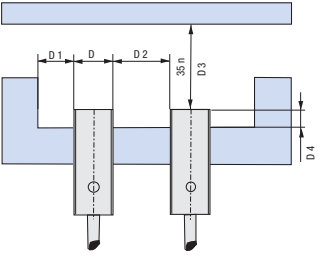
AK1/**-1*

AK1/**-2*

AK1/**-3*

AK1/**-4*

Montaggio - Installation

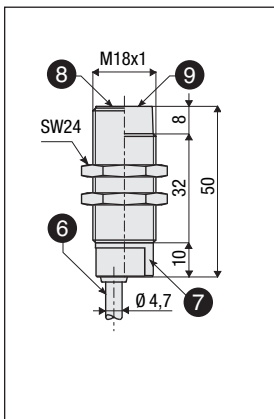


	D4	D1	D2	D3
PKS/**-1*	≥ 3 mm	≥ 9 mm	≥ 18 mm	≥ 15 mm
PKS/**-2*	≥ 12 mm	≥ 18 mm	≥ 36 mm	≥ 24 mm
PKS/**-3*	≥ 2 mm	≥ 9 mm	≥ 18 mm	≥ 24 mm
PKS/**-4*	≥ 16 mm	≥ 18 mm	≥ 36 mm	≥ 36 mm
AK*/**-1* - PK3/00-1*	≥ 3.6 mm	≥ 9 mm	≥ 18 mm	≥ 15 mm
AK*/**-2* - PK3/00-2*	≥ 16 mm	≥ 18 mm	≥ 36 mm	≥ 24 mm
AK1/**-3*	≥ 3.6 mm	≥ 9 mm	≥ 18 mm	≥ 24 mm
AK1/**-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 ⁽¹⁾	≥ 9 mm	≥ 18 mm	≥ 24 mm
PKW*/**-4*	≥ 16 mm	≥ 18 mm	≥ 36 mm	≥ 36 mm

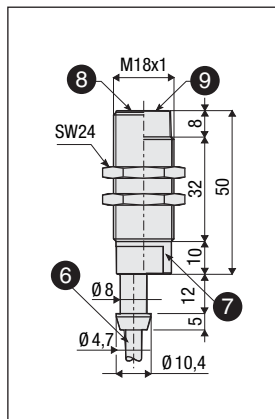
(1) ≥ 5.4 mm per materiali non magnetici / for non magnetic material

Dimensioni - Dimensions

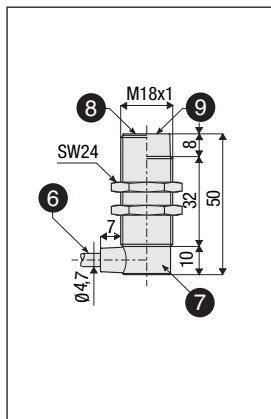
AK1/*N-*A
AK1/*P-*A



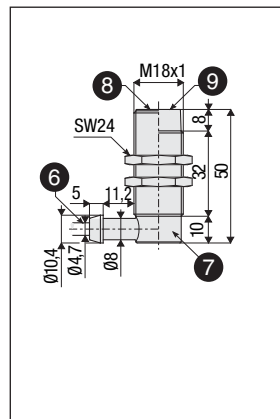
AK1/*N-*B
AK1/*P-*B



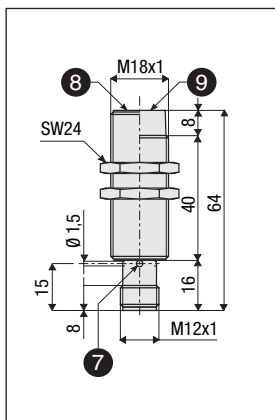
AK1/*N-*C
AK1/*P-*C



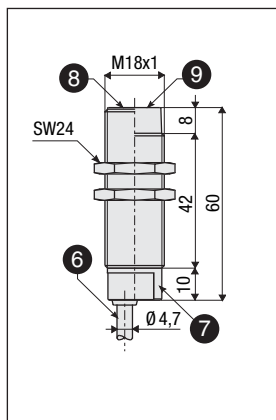
AK1/*N-*D
AK1/*P-*D



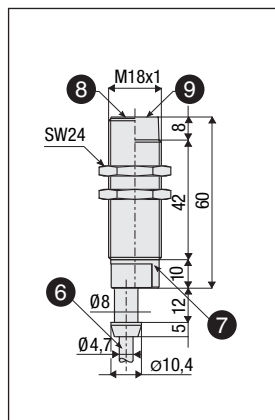
AK1/*N-*H
AK1/*P-*H



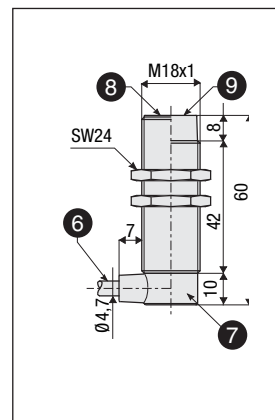
PK3/00-*A
AK1/*0-*A



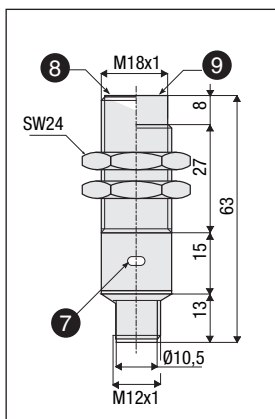
PK3/00-*B



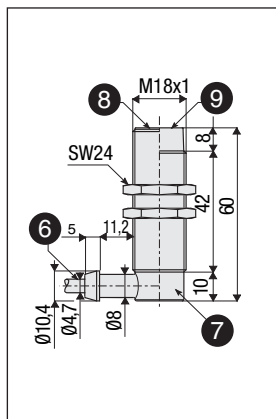
PK3/00-*C
AK1/*0-*C



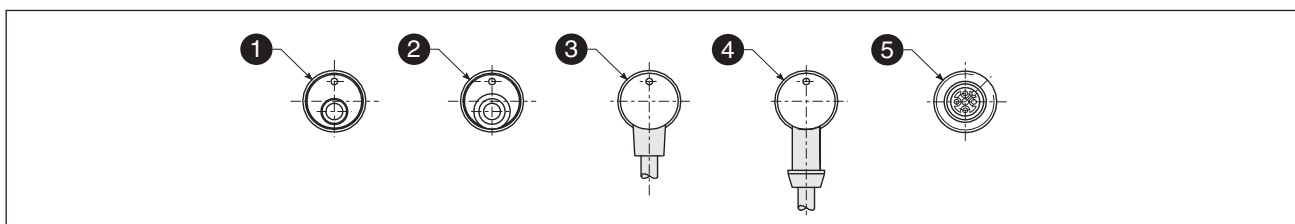
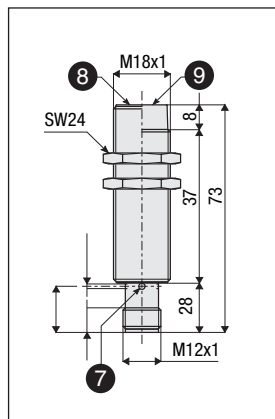
PKS/*0-*H
PKW/*0-*H



PK3/00-*D



PK3/00-*H
AK1/*0-*H



Legenda / Key

- | | |
|--|--|
| <ul style="list-style-type: none"> ① Uscita cavo assiale
<i>Axial cable exit</i> ② Uscita cavo assiale con codolo
<i>Axial cable exit with tang</i> ③ Uscita cavo a 90°
<i>Right angle cable exit</i> ④ Uscita cavo a 90° con codolo
<i>Right angle cable exit with tang</i> ⑤ Uscita connettore M12
<i>M12 plug cable exit</i> | <ul style="list-style-type: none"> ⑥ Cavo 3(4)x0,34 mm², Ø 4,7 mm, PVC, 2 m
<i>Cable 3(4)x0,34 mm², Ø 4,7 mm, PVC, 2 m</i> ⑦ LED indicatore di stato (uscita NO eccitata)
<i>LED status indicators (NO output energized)</i> ⑧ Versione schermata
<i>Shielded version</i> ⑨ Versione non schermata
<i>Unshielded version</i> |
|--|--|

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

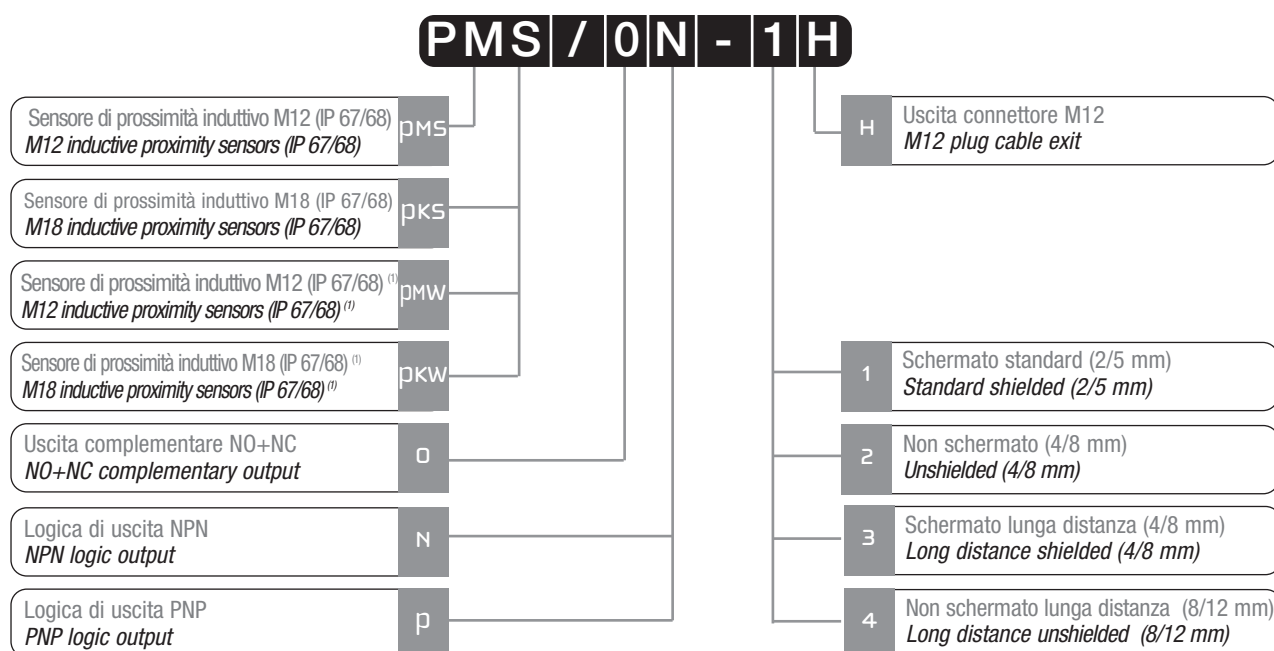


Caratteristiche principali Main features

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

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

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 Sn / Nominal sensing distance Sn	2 mm	4 mm	4 mm	8 mm
Distanza di lavoro / Operating distance	0...1,62 mm	0...3,24 mm	0...3,24 mm	0...6,48 mm
Corsa differenziale / Differential travel	1...20%			
Ripetibilità / Repeat accuracy U _b 20-30 V Ta = 23°C ± 5°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	≤ 200 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	2 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 LED (NO output energized)			
Materiali corpo / Housing materials	Ottone nichelato / Nickel-plated brass (PMS) Acciaio inox AISI303 / Stainless steel AISI303 (PMW)			
Materiali faccia attiva / Sensing face materials	PPS			
Coppia di serraggio / Tightening torque	8 Nm			
Peso (appross.) / Weight (approx.)	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.

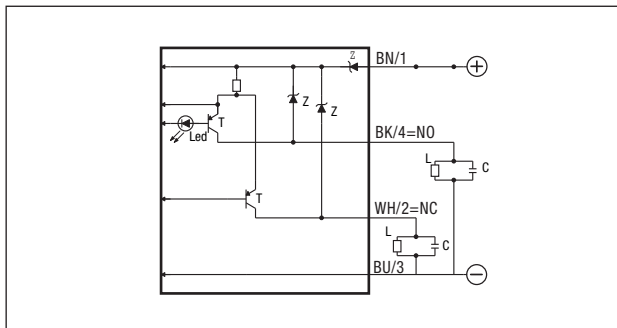
Good chemicals and oils resistance, but test should be made in advance when using in harsh environment.

Coefficienti di riduzione - Correction factors

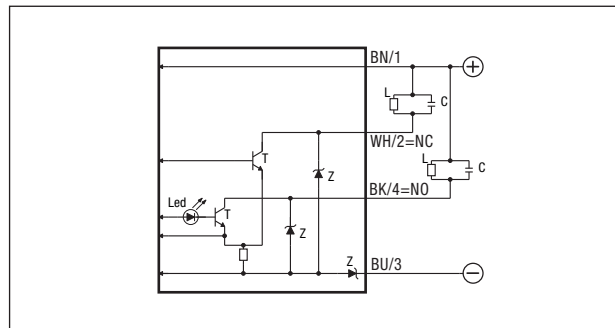
Codice / Code	Acciaio / Steel FE 360	Rame Copper	Alluminio Aluminium	Ottone Brass	Acciaio INOX Stainless steel
PMS/**-1*	1	0.22	0.31	0.41	0.77
PMS/**-2*	1	0.41	0.47	0.56	1.15
PMS/**-3*	1	0.33	0.4	0.5	1.05
PMS/**-4*	1	0.41	0.46	0.52	0.71
PMW/**-1*	1	0.02	0.08	0.2	0.68
PMW/**-2*	1	0.34	0.41	0.51	0.88
PMW/**-3*	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



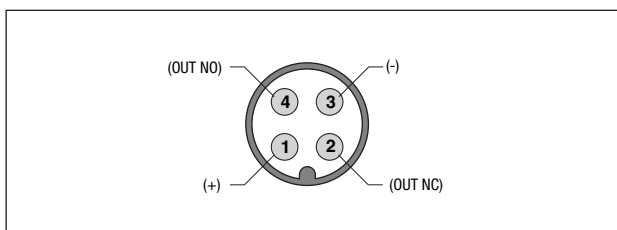
Schema di collegamento NPN
Wiring diagram NPN



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



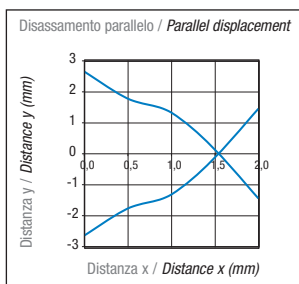
Connettori serie CD / Connectors CD series

Legenda Key

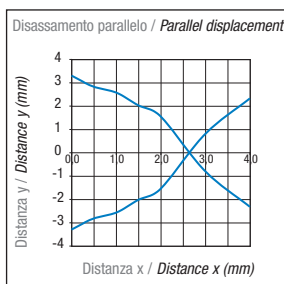
- BN → marrone/brown
- BK → nero/black
- PK → rosa/pink
- BU → blu/blue
- WH → bianco/white
- GY → grigio/gray

Curva di risposta - Response diagram

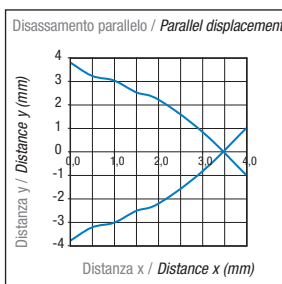
PMS/**-1*



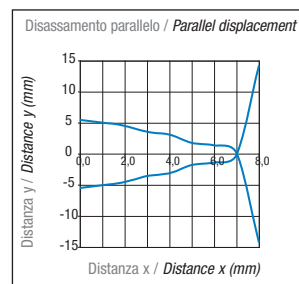
PMS/**-2*



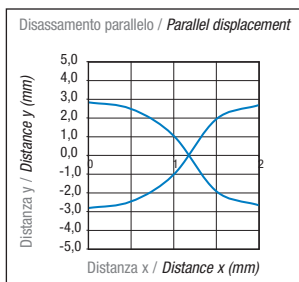
PMS/**-3*



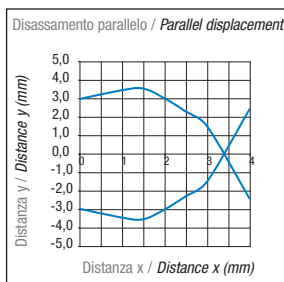
PMS/**-4*



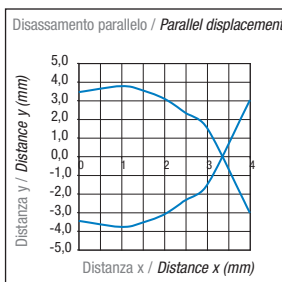
PMW/**-1*



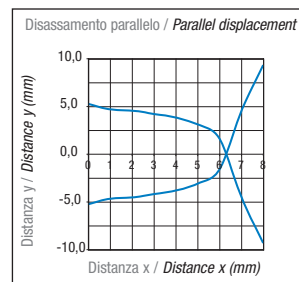
PMW/**-2*



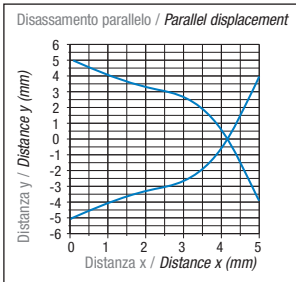
PMW/**-3*



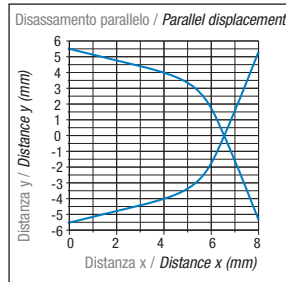
PMW/**-4*



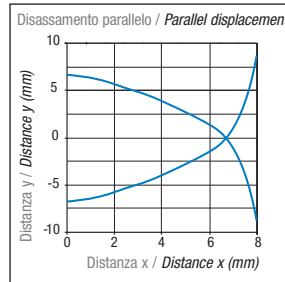
PKS/**-1*



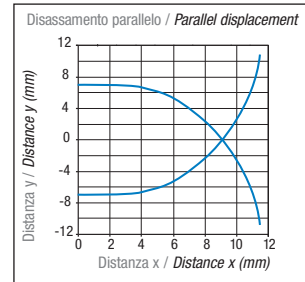
PKS/**-2*



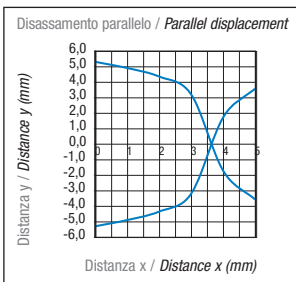
PKS/**-3*



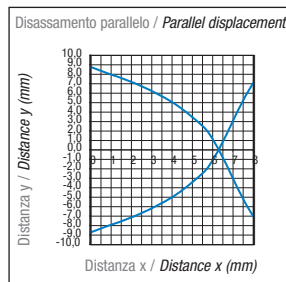
PKS/**-4*



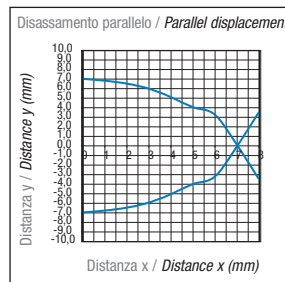
PKW/**-1*



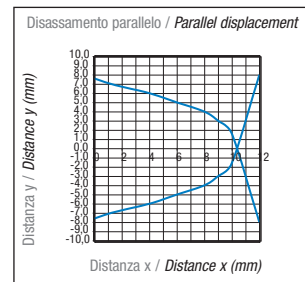
PKW/**-2*



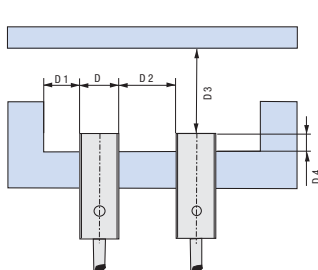
PKW/**-3*



PKW/**-4*



Montaggio - Installation

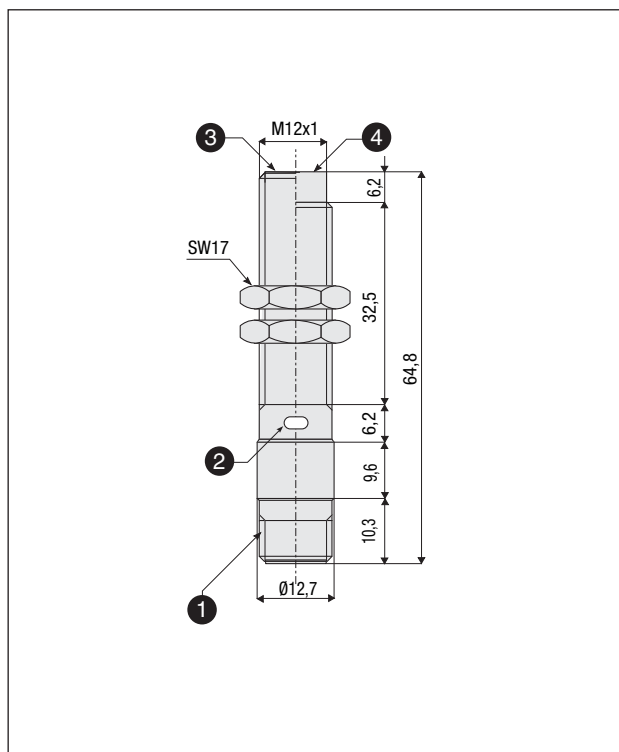


	D4	D1	D2	D3
PMS/**-1*	≥ 0 mm	≥ 6 mm	≥ 12 mm	≥ 6 mm
PMS/**-2*	≥ 1.2 mm	≥ 12 mm	≥ 24 mm	≥ 12 mm
PMS/**-3*	≥ 6 mm ⁽¹⁾	≥ 6 mm	≥ 12 mm	≥ 12 mm
PMS/**-4*	≥ 8 mm	≥ 12 mm	≥ 24 mm	≥ 24 mm
PMW/**-1*	≥ 0 mm ⁽²⁾	≥ 6 mm	≥ 12 mm	≥ 6 mm
PMW/**-2*	≥ 6 mm ⁽³⁾	≥ 12 mm	≥ 24 mm	≥ 12 mm
PMW/**-3*	≥ 1.2 mm ⁽⁴⁾	≥ 6 mm	≥ 12 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

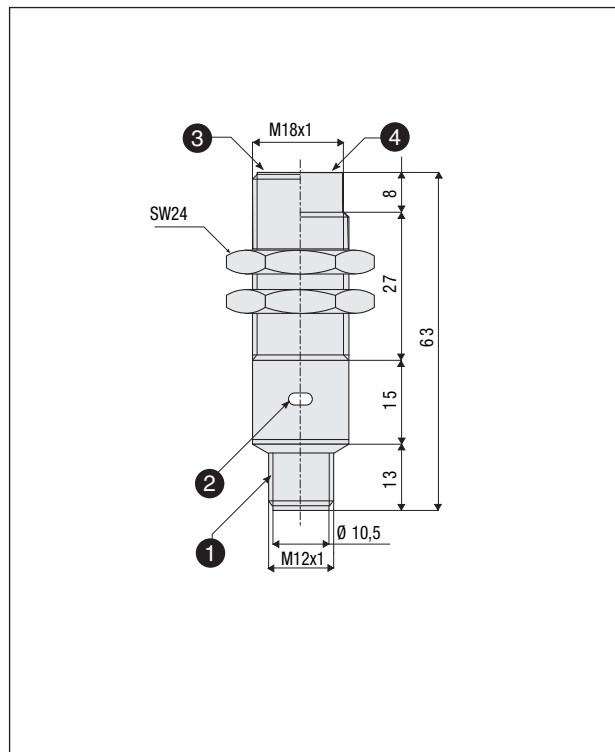
- (1) ≥ 2 mm per materiali non magnetici / for non magnetic material
- (2) ≥ 2.4 mm per materiali non magnetici / for non magnetic material
- (3) ≥ 0 mm per materiali non magnetici / for non magnetic material
- (4) ≥ 3.6 mm per materiali non magnetici / for non magnetic material
- (5) ≥ 3.6 mm per materiali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

Dimensioni - Dimensions

PM*/**-*H



PK*/**-*H



Legenda / Key

- | | |
|--|--|
| <ul style="list-style-type: none"> ① Uscita connettore M12
<i>M12 plug cable exit</i> ② LED indicatore di stato (uscita NO eccitata)
<i>LED status indicator (NO output energized)</i> | <ul style="list-style-type: none"> ③ Versione schermata
<i>Shielded version</i> ④ Versione non schermata
<i>Unshielded version</i> |
|--|--|

Sensori di prossimità induttivi M30 serie AT

M30 inductive proximity sensors AT series



Caratteristiche principali Main features

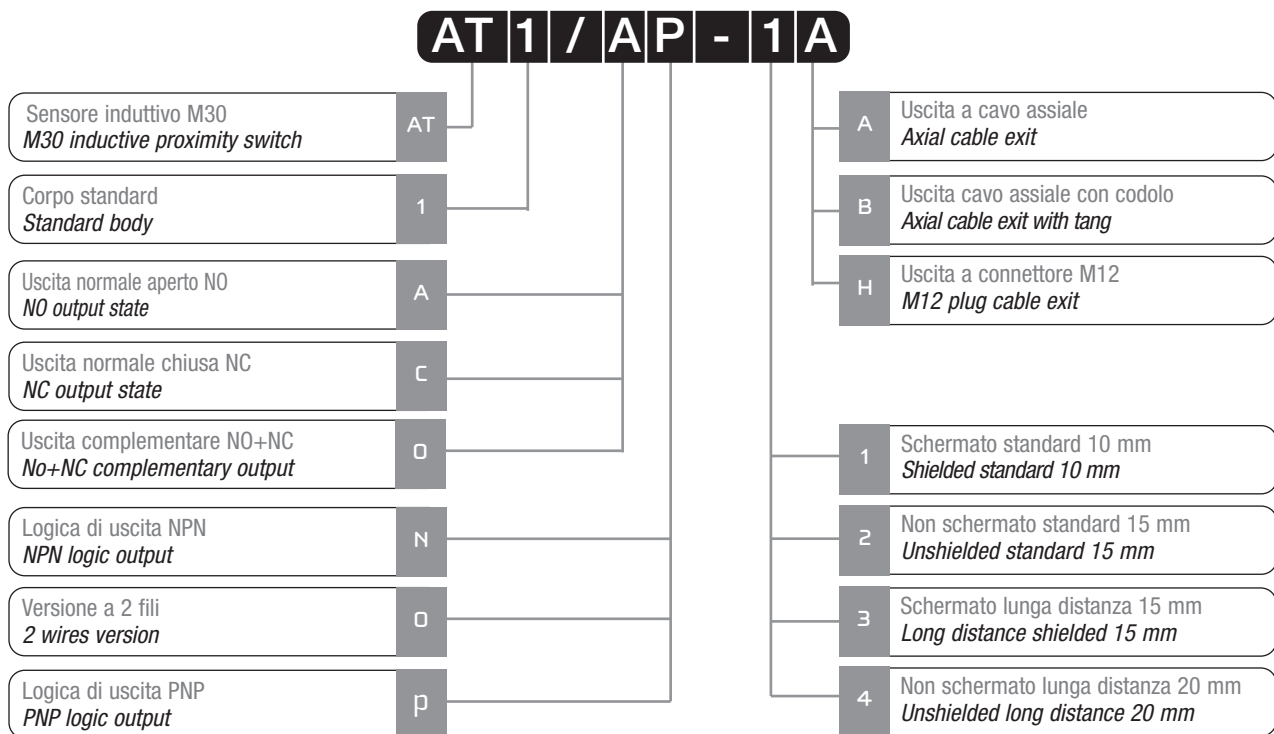
- > Vasta gamma di modelli: standard, lunga distanza
> *Wide range of models: standard, long distance*
- > Uscite: cavo, connettore M12
> *Output: cable, M12 and plug cable exit*
- > Modelli a 2, 3 e 4 fili
> *Models with 2, 3, and 4 wires*

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

- > Modelli con uscita antivalente (NO+NC)
> *Models with complementary output (NO + NC)*
- > Totalmente protetti contro danneggiamenti di tipo elettrico
> *Complete protection against electrical damages*
- > Marchio CE
> *CE Mark*

Descrizione del codice - Code structure

> M30 serie AT - M30 AT series



Modelli disponibili - Available models

Corpo standard a 4 fili / 4 wires standard housing

Diametro Diameter	Montaggio Installation	Portata Distance	Conn. Plug	Distanza Distance	NPN - NO+NC	PNP - NO+NC
M30	Schermato <i>Shielded</i>	Standard	M12	10 mm	AT1/ON-1H	AT1/OP-1H
	Non schermato <i>Unshielded</i>	Standard		15 mm	AT1/ON-2H	AT1/OP-2H
	Schermato <i>Shielded</i>	Lunga distanza <i>Long distance</i>		15 mm	AT1/ON-3H	AT1/OP-3H
	Non schermato <i>Unshielded</i>	Lunga distanza <i>Long distance</i>		20 mm	AT1/ON-4H	AT1/OP-4H

Corpo Standard 3 fili / 3 wires standard housing

Diametro Diameter	Montaggio Installation	Portata Distance	Conn. Plug	Distanza Distance	NPN - NO	NPN - NC	PNP - NO	PNP - NC
M30	Schermato <i>Shielded</i>	Standard	Cavo / Wire	10 mm	AT1/AN-1A	AT1/CN-1A	AT1/AP-1A	AT1/CP-1A
			Cavo con codolo / Cable with tang	10 mm	AT1/AN-1B	AT1/CN-1B	AT1/AP-1B	AT1/CP-1B
			M12	10 mm	AT1/AN-1H	AT1/CN-1H	AT1/AP-1H	AT1/CP-1H
	Non schermato <i>Unshielded</i>	Standard	Cavo / Wire	15 mm	AT1/AN-2A	AT1/CN-2A	AT1/AP-2A	AT1/CP-2A
			Cavo / Wire 90°	15 mm	AT1/AN-2B	AT1/CN-2B	AT1/AP-2B	AT1/CP-2B
			M12	15 mm	AT1/AN-2H	AT1/CN-2H	AT1/AP-2H	AT1/CP-2H
	Schermato <i>Shielded</i>	Lunga dist. <i>Long dist.</i>	Cavo / Wire	15 mm	AT1/AN-3A	AT1/CN-3A	AT1/AP-3A	AT1/CP-3A
			M12	15 mm	AT1/AN-3H	AT1/CN-3H	AT1/AP-3H	AT1/CP-3H
	Non schermato <i>Unshielded</i>	Lunga dist. <i>Long dist.</i>	Cavo / Wire	20 mm	AT1/AN-4A	AT1/CN-4A	AT1/AP-4A	AT1/CP-4A
			M12	20 mm	AT1/AN-4H	AT1/CN-4H	AT1/AP-4H	AT1/CP-4H

Modelli 2 fili DC / DC 2 wires models

Diametro Diameter	Montaggio Installation	Portata Distance	Conn. Plug	Distanza Distance	NO	NC
M30	Schermato <i>Shielded</i>	Standard	Cavo / Wire	10 mm	AT1/AO-1A	AT1/CO-1A
			M12	10 mm	AT1/AO-1H	AT1/CO-1H
	Non schermato <i>Unshielded</i>	Standard	Cavo / Wire	15 mm	AT1/AO-2A	AT1/CO-2A
			M12	15 mm	AT1/AO-2H	AT1/CO-2H
	Schermato <i>Shielded</i>	Lunga distanza <i>Long distance</i>	Cavo / Wire	15 mm	AT1/AO-3A	AT1/CO-3A
			M12	15 mm	AT1/AO-3H	AT1/CO-3H
	Non schermato <i>Unshielded</i>	Lunga distanza <i>Long distance</i>	Cavo / Wire	20 mm	AT1/AO-4A	AT1/CO-4A
			M12	20 mm	AT1/AO-4H	AT1/CO-4H

AT SERIES - INDUCTIVE SENSORS

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

Modelli / Models	AT*/**-1*	AT*/**-2*	AT*/**-3*	AT*/**-4*
Distanza nominale S_n / Nominal sending distance S_n	10 mm	15 mm	15 mm	20 mm
Distanza di lavoro / Operating distance	0 ÷ 8,1 mm	0 ÷ 12,1 mm	0 ÷ 12,1 mm	0 ÷ 16,2 mm
Corsa differenziale / Hysteresis	1 ÷ 20%			
Dimensione azionatore normalizzato / Standard target	30x30 mm FE 360	45x45 mm FE 360	45x45 mm FE 360	60x60 mm FE 360
Ripetitività / Repeat accuracy	5% U_0 20-30 V $T_a = 23^\circ\text{C} \pm 5^\circ\text{C}$			
Campo di tensione di alimentazione / Supply voltage range	10 ÷ 30 Vcc / Vdc			
Massima ondulazione residua / Max ripple content	≤ 10 %			
Corrente di uscita / Output current	≤ 400 mA (3 ÷ 100 mA per versioni a 2 fili / for 2 wires versions)			
Tensione di saturazione di uscita / Output voltage drop	≤ 1V @ 400 mA (2,8 V @ 100 mA per versioni a 2 fili / for 2 wires versions)			
Corrente di alimentazione senza carico / No load supply current	20 mA			
Corrente di perdita / Leakage current	10 μA / 0,8 mA per versioni a 2 fili / for 2 wires versions			
Frequenza di commutazione / Switching frequency	200 Hz / 100 Hz per 2 fili / for 2 wires		150 Hz (75 Hz per 2 fili / for 2 wires)	
Ritardo all'accensione / Time delay before availability	100 ms (50 ms per versioni a 2 fili / for 2 wires versions)			
Campo di temperatura 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			
Indicatori LED / LED indicators	LED giallo stato dell'uscita / Yellow LED output state			
Grado di protezione / Degree of protection	IP 67 ⁽¹⁾ (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			
IEC 61000-4-3	Livello 3 / Level 3			
IEC 61000-4-4	Livello 3 / Level 3			
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 well mounted.

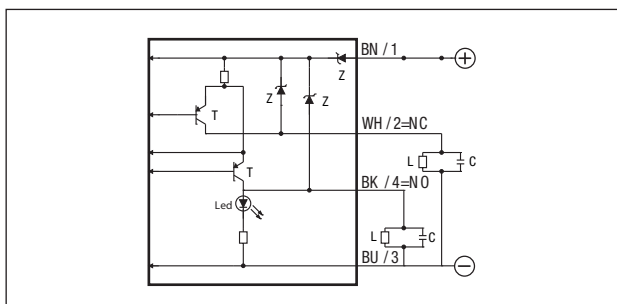
Coefficienti di riduzione - Correction factors

Codice / Code	Acciaio / Steel FE 360	Rame Copper	Alluminio Aluminium	Ottone Brass	Acciaio INOX Stainless steel
AT*/**-1*	1	0.35	0.45	0.50	0.75
AT*/**-2*	1	0.45	0.50	0.55	0.80
AT*/**-3*	1	0.35	0.45	0.50	0.70
AT*/**-4*	1	0.45	0.50	0.55	0.75

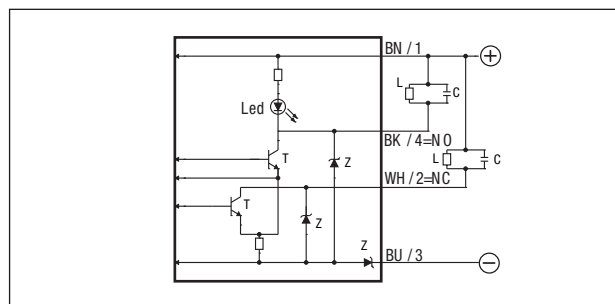
Schemi elettrici delle connessioni - Electrical diagrams of the connections

> Versioni a 4 fili - 4 wires versions

Schema di collegamento PNP
Wiring diagram PNP

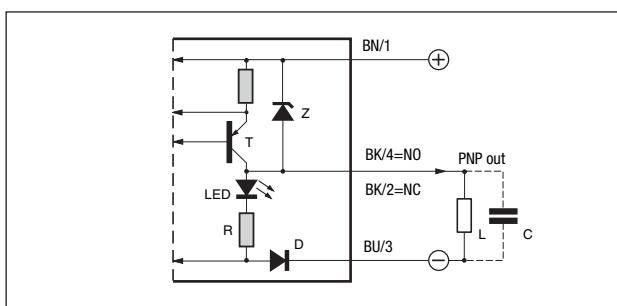


Schema di collegamento NPN
Wiring diagram NPN

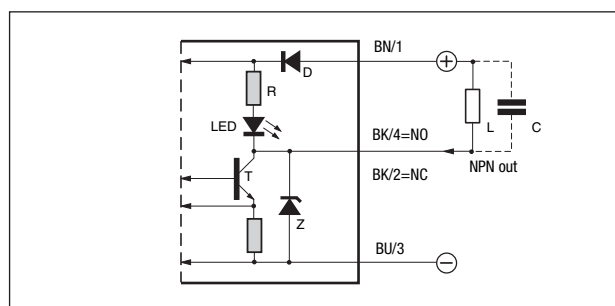


> Versioni a 3 fili - 3 wires versions

Schema di collegamento PNP
Wiring diagram PNP

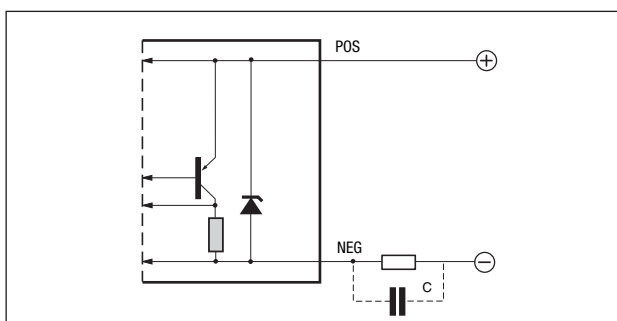


Schema di collegamento NPN
Wiring diagram NPN

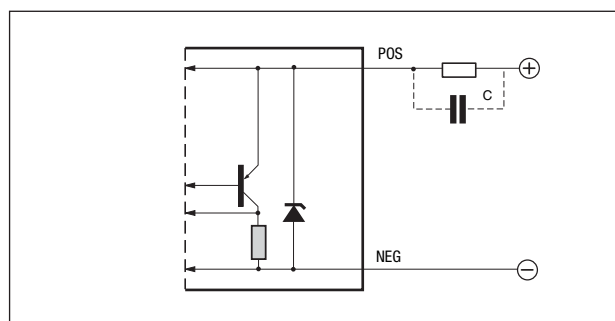


> Versioni a 2 fili - 2 wires versions

Schema di collegamento PNP
Wiring diagram PNP



Schema di collegamento NPN
Wiring diagram NPN



Legenda Key

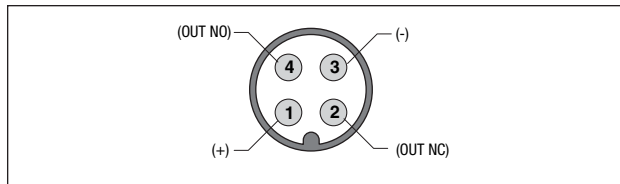
BN → marrone/brown	BU → blu/blue
BK → nero/black	WH → bianco/white
PK → rosa/pink	GY → grigio/gray

AT SERIES - INDUCTIVE SENSORS

Connetture - Plug

> Versioni a 4 fili - 4 wires versions

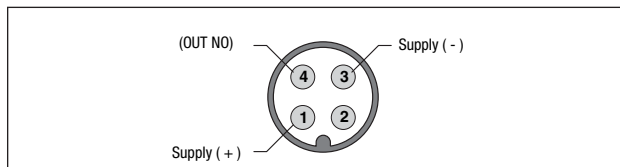
M12 - NO+NC



Connettori serie CD / Connectors CD series

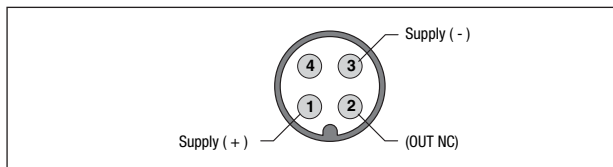
> Versioni a 3 fili - 3 wires versions

M12 - NO



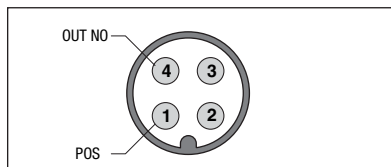
Connettori serie CD / Connectors CD series

M12 - NC



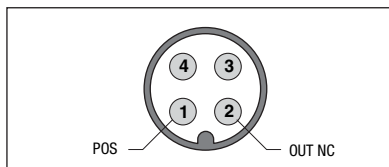
> Versioni a 2 fili - 2 wires versions

M12 - NO

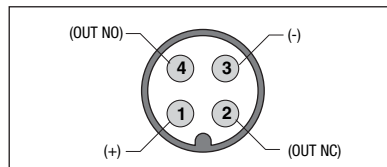


Connettori serie CD / Connectors CD series

M12 - NC

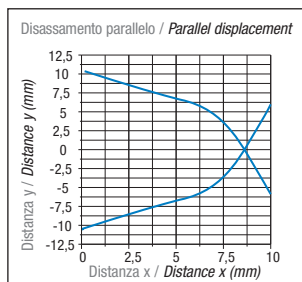


M12 - NO+NC

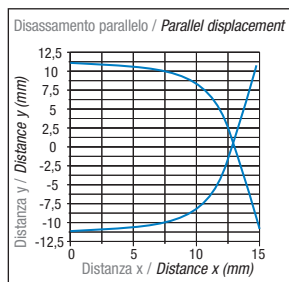


Curva di risposta - Response diagram

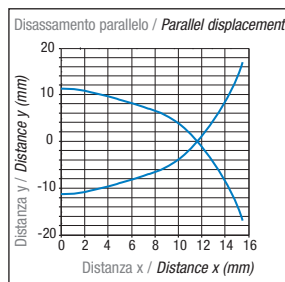
AT*/**-1*



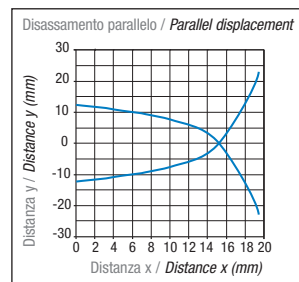
AT*/**-2*



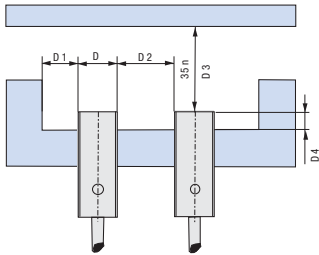
AT*/**-3*



AT*/**-4*



Montaggio - Installation

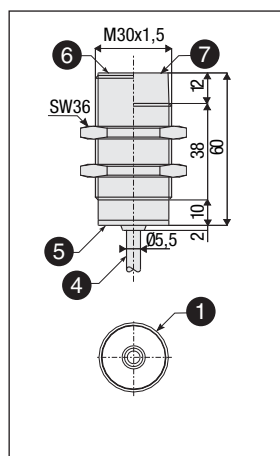


	D4	D1	D2	D3
AT1/**-1*	≥ 0 mm	≥ 10 mm	≥ 30 mm	≥ 30 mm
AT1/**-2*	≥ 18 mm ⁽¹⁾	≥ 15 mm	≥ 45 mm	≥ 45 mm
AT1/**-3*	≥ 3 mm	≥ 15 mm	≥ 40 mm	≥ 45 mm
AT1/**-4*	≥ 20 mm ⁽¹⁾	≥ 20 mm	≥ 60 mm	≥ 60 mm

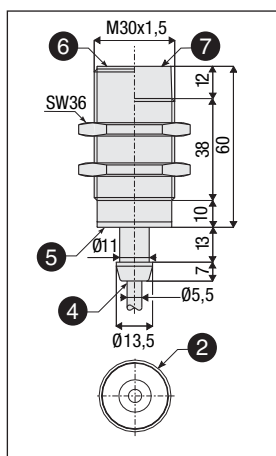
(1) ≥ 9 mm per materiali non magnetici / for non magnetic materials.

Dimensioni - Dimensions

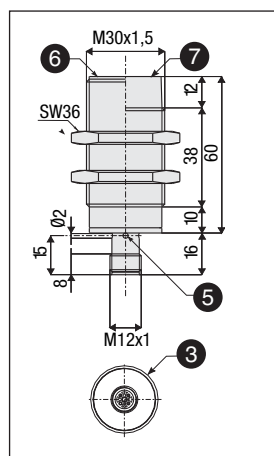
AT1/**-A



AT1/**-B



AT1/**-H



Legenda / Key

- ① Uscita cavo assiale / Axial cable exit
- ② Uscita cavo assiale con codolo / Axial cable exit with tang
- ③ Uscita connettore M12 / M12 plug cable exit
- ④ Cavo 2 o 3 poli x 0,22 mm², Ø 5,5 mm
Cable 2 o 3 poli x 0,22 mm², Ø 5,5 mm
- ⑤ Indicatore LED di stato
Led status indicator
- ⑥ Versione schermata
Shielded version
- ⑦ Versione non schermata
Unshielded version

Sensori di prossimità induttivi M12 in CA serie VM

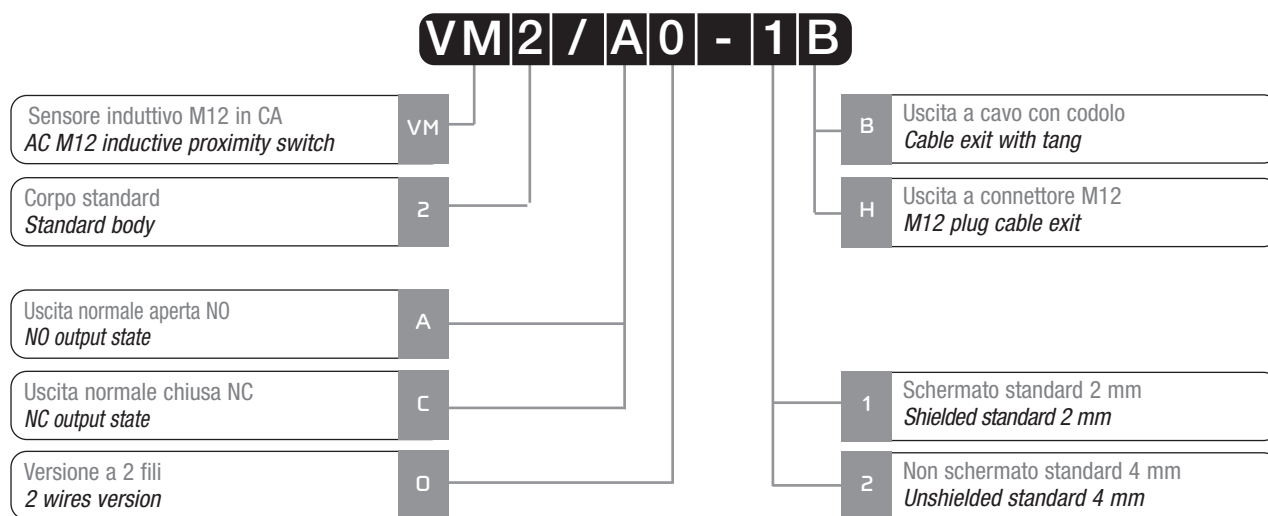
AC M12 inductive proximity sensors VM series



Caratteristiche principali Main features

- > Uscite: cavo e connettore M12
- > Output: cable and M12 plug cable exit
- > Modelli a 2 fili
- > Models with 2 wires
- > Grado di protezione IP67
- > IP67 protection degree
- > Multitensione 20 ... 253Vac
- > Multivoltage 20 ... 253Vac
- > Marchio CE
- > CE Mark

Descrizione del codice - Code structure



Modelli disponibili - Available models

Corpo Standard / Standard housing

Diametro Diameter	Montaggio Installation	Portata Distance	Conn. Plug	Distanza Distance	NO	NC
M12	Schermato Shielded	Standard	Cavo con codolo / Wire with tang	2 mm	VM2/A0-1B	VM2/C0-1B
			M12	2 mm	VM2/A0-1H	VM2/C0-1H
	Non scherm. Unshielded	Standard	Cavo con codolo / Wire with tang	4 mm	VM2/A0-2B	VM2/C0-2B
			M12	4 mm	VM2/A0-2H	VM2/C0-2H

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

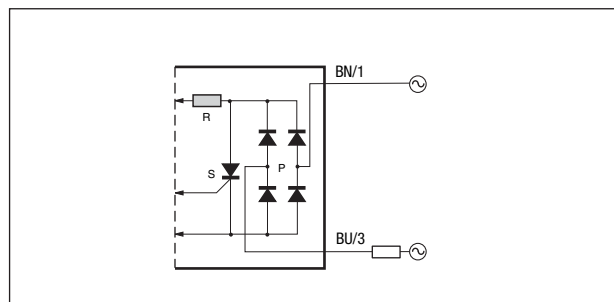
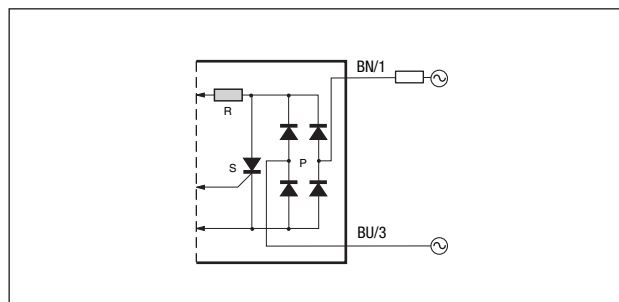
Modelli / Models	VM2/**-1*	VM2/**-2*
Distanza nominale S_n (1) / Nominal sensing distance S_n (1)	2 mm	4 mm
Distanza di lavoro / Operating distance	0 ... 1,6 mm	0 ... 3,2 mm
Corsa differenziale / Hysteresis	1 ... 20%	
Dimensione azionatore normalizzato / Standard target	12x12 mm FE360	
Ripetibilità / Repeat accuracy	5%	
Campo di tensione di alimentazione / Supply voltage range	20 ... 253 Vac – 50/60 Hz	
Corrente di picco non ripetitiva / Inrush current	7A (Ton = 10 ms)	
Corrente di uscita / Output current	5 ... 300 mA RMS	
Tensione di saturazione di uscita / Output voltage drop	Vedi curve / See diagram	
Tipo di uscita / Output type	TRIAC – NO o/ or NC	
Corrente di perdita / Leakage current	1 mA RMS max.	
Frequenza di commutazione / Switching frequency	25 Hz	
Ritardo all'accensione / Time delay before availability	200 ms	
Campo di temperature ambiente / Ambient temperature range	-25° ... +70°C	
Deriva termica di S_r / Temperature drift of S_r	10% S_r	
Protezione al corto circuito / Short-circuit protection	NO	
Indicatori LED / LED indicators	Giallo (uscita attiva) / Yellow (output energized)	
Grado di protezione / Degree of protection	IP 67 (1)	
Protezione EMC / EMC protection:	Secondo / According to IEC/EN60947-5-2	
	IEC 60255-5	1 kV
	IEC 61000-4-2	Livello 3 / Level 3
	IEC 61000-4-3	Livello 3 / Level 3
	IEC 61000-4-4	Livello 3 / Level 3
Materiale del corpo / Housing material	Ottone nichelato / Nickel-plated brass	
Superficie sensibile / Sensing face	PBT	
Connessione / Connection	Connettore M12 / M12 plug	
Cavo / Cable	2 m	
Peso / Weight	100 g versione a cavo / cable version 30 g versione a connettore M12 / M12 plug version	

(1) Protezione garantita solo con il cavo a connettore correttamente montato
(1) 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
VM2/**-1*	1	0.40	0.50	0.55	0.75
VM2/**-2*	1	0.45	0.50	0.60	0.80

Schemi elettrici delle connessioni - Electrical diagrams of the connections

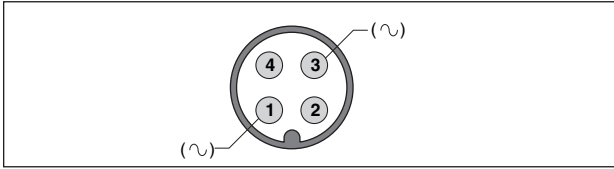


Legenda Key

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

Connettore - Plug

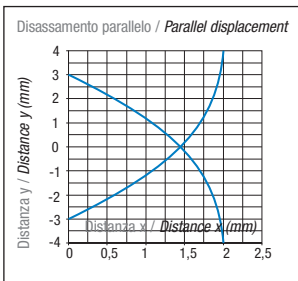
M12



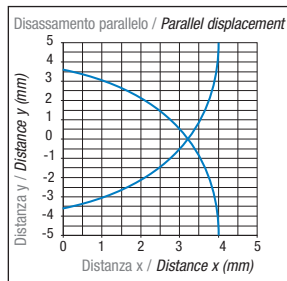
Connettori serie CD / Connectors CD series

Curva di risposta - Response diagram

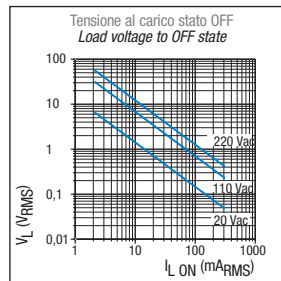
VM2/*0-1*



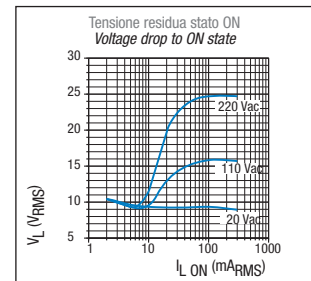
VM2/*0-2*



VM2/*0-**



VM2/*0-**

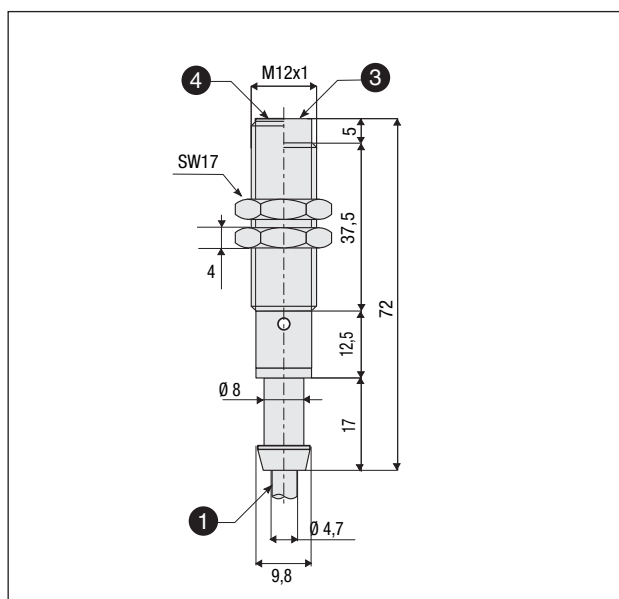


Montaggio - Installation

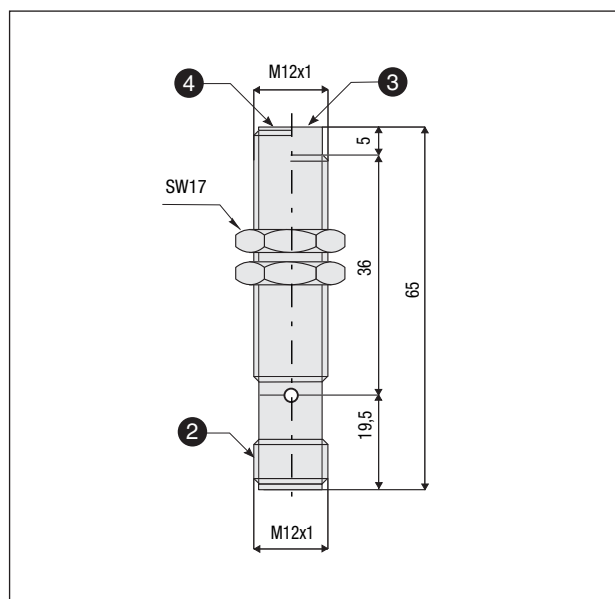
	D4	D1	D2	D3
VM2/**-1*	≥ 1,2 mm	≥ 2 mm	≥ 12 mm	≥ 6 mm
VM2/**-2*	≥ 5 mm	≥ 4 mm	≥ 24 mm	≥ 12 mm

Dimensioni - Dimensions

VM2/**-*B



VM2/**-*H



Legenda / Key

- ① Cavo con codolo 2x0,34 mm², Ø 4,7 mm, PVC, 2 m
Cable with tang 2x0,34 mm², Ø 4,7 mm, PVC, 2 m
- ② Connettore M12
M12 plug
- ③ Versione non schermata
Unshielded version
- ④ Versione schermata
Shielded version

Sensori di prossimità induttivi M18 in CA serie VK

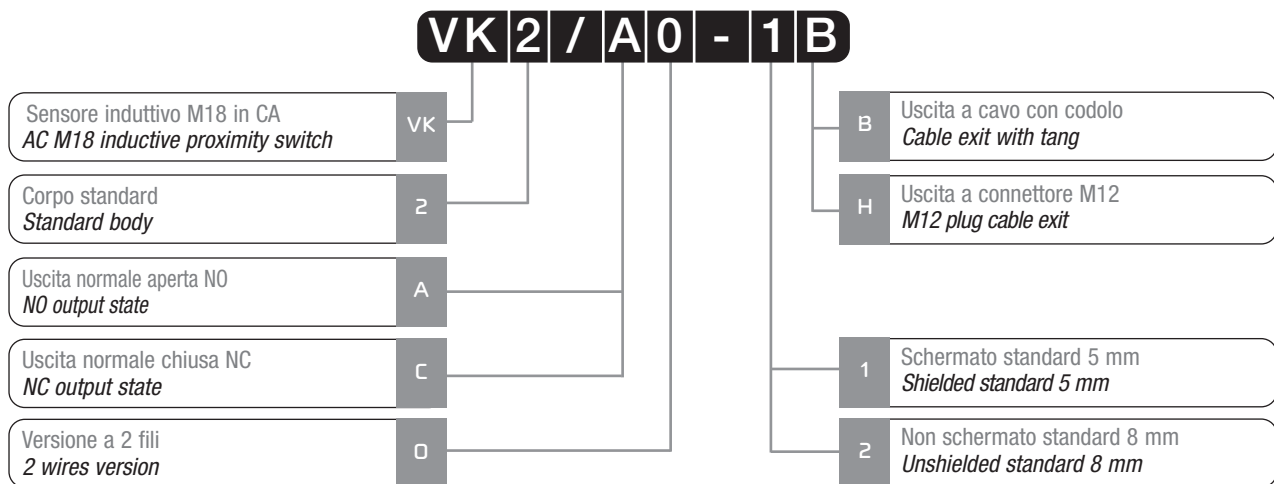
AC M18 inductive proximity sensors VK series



Caratteristiche principali Main features

- > Uscite: cavo e connettore M12
> *Output: cable and M12 plug cable exit*
- > Modelli a 2 fili
> *Models with 2 wires*
- > Grado di protezione IP 67
> *IP 67 protection degree*
- > Multitensione 20 ... 253 Vac
> *Multivoltage 20 ... 253 Vac*
- > Marchio **CE**
> **CE Mark**

Descrizione del codice - Code structure



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>	NO	NC
M12	Schermato <i>Shielded</i>	Standard	Cavo con codolo / <i>Wire with tang</i>	5 mm	VK2/A0-1B	VK2/C0-1B
			M12	5 mm	VK2/A0-1H	VK2/C0-1H
	Non schermato <i>Unshielded</i>	Standard	Cavo con codolo / <i>Wire with tang</i>	8 mm	VK2/A0-2B	VK2/C0-2B
			M12	8 mm	VK2/A0-2H	VK2/C0-2H

a

VK SERIES

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

Modelli / Models	VK2/*0-1*	VK2/*0-2*
Distanza nominale Sn / Nominal sensing distance Sn	5 mm	8 mm
Distanza di lavoro / Operating distance	0 ... 4 mm	0 ... 6,5 mm
Corsa differenziale / Hysteresis	1 ... 20%	
Dimensione azionatore normalizzato / Standard target	18x18 mm FE360	24x24 mm FE360
Ripetibilità / Repeat accuracy	5%	
Campo di tensione di alimentazione / Supply voltage range	20 ... 253 Vac – 50/60 Hz	
Corrente di picco non ripetitiva / Inrush current	7A (Ton = 10 ms)	
Corrente di uscita / Output current	5 ... 300 mA RMS	
Tensione di saturazione di uscita / Output voltage drop	Vedi curve / See diagram	
Tipo di uscita / Output type	TRIAC – NO o / or NC	
Corrente di perdita / Leakage current	1 mA RMS max	
Frequenza di commutazione / Switching frequency	25 Hz	
Ritardo all'accensione / Time delay before availability	200 ms	
Campo di temperature ambiente / Ambient temperature range	-25° ... +70°C	
Deriva termica di Sr / Temperature drift of Sr	10% Sr	
Protezione al corto circuito / Short-circuit protection	NO	
Indicatori LED / LED indicators	Giallo (uscita attiva) / Yellow (output energized)	
Grado di protezione / Degree of protection	IP 67 ⁽¹⁾	
Protezione EMC / EMC protection:	Secondo / According to IEC/EN60947-5-2	
	IEC 60255-5	1 kV
	IEC 61000-4-2	Livello 3 / Level 3
	IEC 61000-4-3	Livello 3 / Level 3
	IEC 61000-4-4	Livello 3 / Level 3
Materiale del corpo / Housing material	Ottone nichelato / Nickel-plated brass	
Superficie sensibile / Sensing face	PBT	
Connessione / Connection	Connettore M12 / M12 plug	
Cavo / Cable	2 m	
Peso / Weight	107 g versione a cavo / cable version 53 g versione a connettore M12 / M12 plug version	

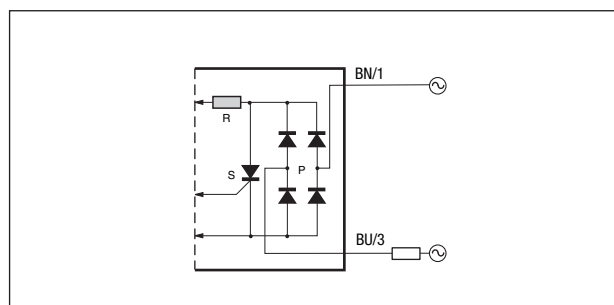
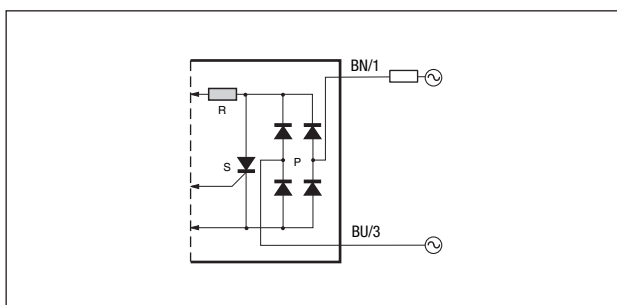
(1) Protezione garantita solo con il cavo a connettore correttamente montato

(1) 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
VK2/*-1*	1	0.35	0.40	0.50	0.80
VK2/*-2*	1	0.40	0.45	0.55	0.95

Schemi elettrici delle connessioni - Electrical diagrams of the connections

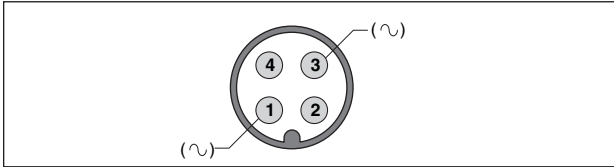


Legenda Key

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

Connettore - Plug

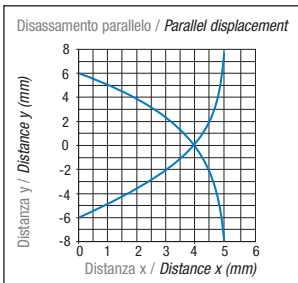
M12



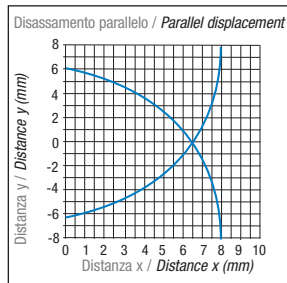
Connettori serie CD / Connectors CD series

Curva di risposta - Response diagram

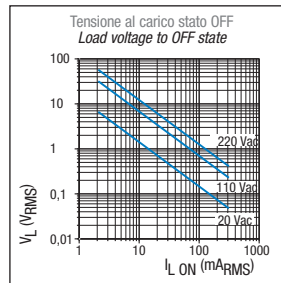
VK2/*0-1*



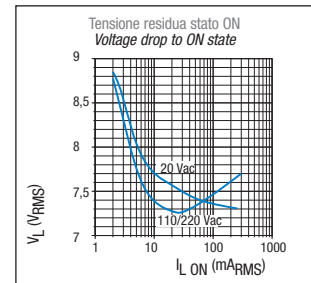
VK2/*0-2*



VK2/*0-**



VK2/*0-**



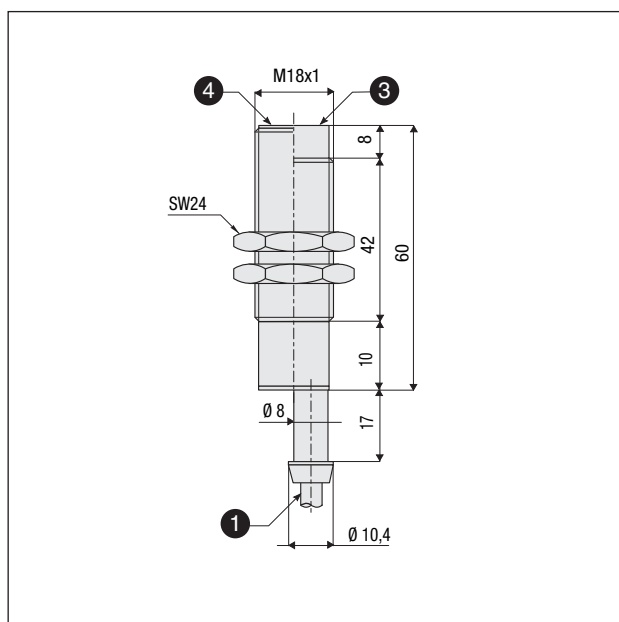
Montaggio - Installation

	D4	D1	D2	D3
VK2/**-1*	≥ 1,35 mm	≥ 5 mm	≥ 18 mm	≥ 15 mm
VK2/**-2*	≥ 8,5 mm	≥ 8 mm	≥ 36 mm	≥ 24 mm

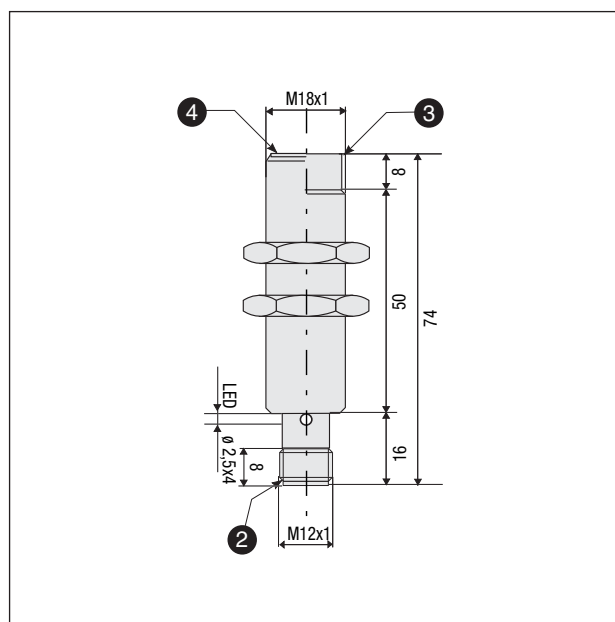
a

Dimensioni - Dimensions

VK2/**-*B



VK2/**-*H



Legenda / Key

- ① Cavo con codolo 2x0,34 mm², Ø4,7 mm, PVC, 2 m
Cable with tang 2x0,34 mm², Ø4,7 mm, PVC, 2 m
- ② Connettore M12
M12 plug
- ③ Versione non schermata
Unshielded version
- ④ Versione schermata
Shielded version

Sensori di prossimità induttivi M30 in CA serie VT

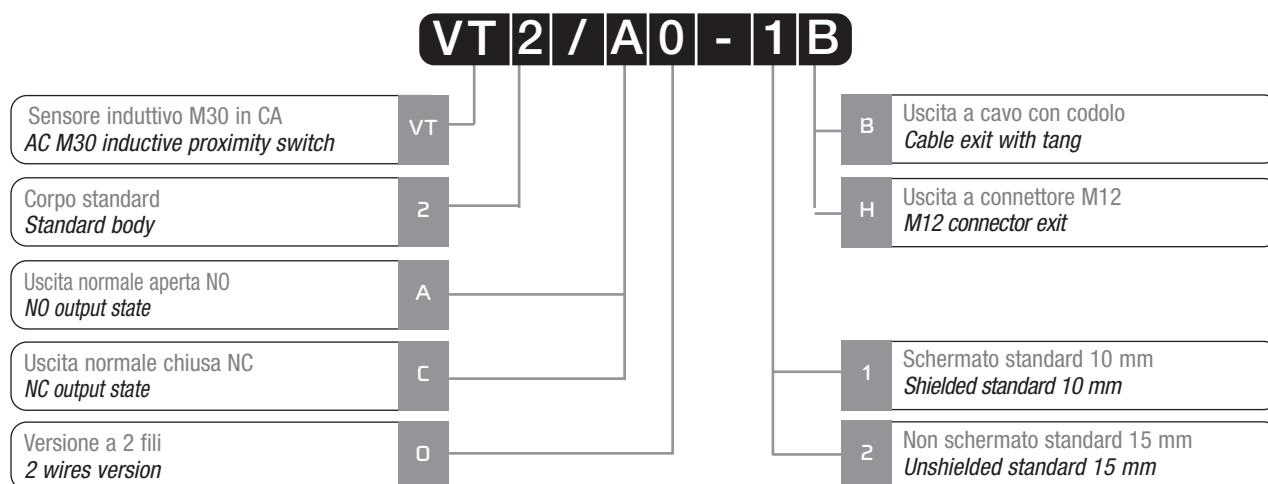
AC M30 inductive proximity sensors VT series



Caratteristiche principali Main features

- > Uscite: cavo e connettore M12
> *Output: cable and M12 plug cable exit*
- > Modelli a 2 fili
> *Models with 2 wires*
- > Grado di protezione IP 67
> *IP 67 protection degree*
- > Multitensione 20 ... 253 Vac
> *Multivoltage 20 ... 253 Vac*
- > Marchio CE
> *CE Mark*

Descrizione del codice - Code structure



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>	NO	NC
M30	Schermato <i>Shielded</i>	Standard	Cavo con codolo / <i>Wire with tang</i>	10 mm	VT2/A0-1B	VT2/C0-1B
			M12	10 mm	VT2/A0-1H	VT2/C0-1H
	Non scherm. <i>Unshielded</i>	Standard	Cavo con codolo / <i>Wire with tang</i>	15 mm	VT2/A0-2B	VT2/C0-2B
			M12	15 mm	VT2/A0-2H	VT2/C0-2H

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

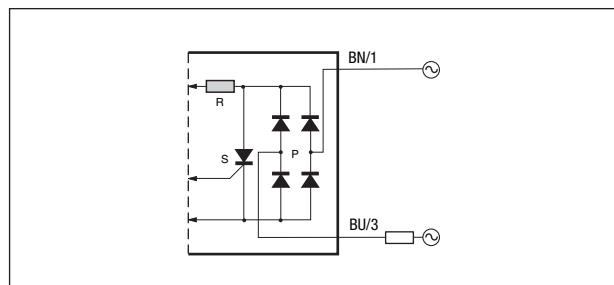
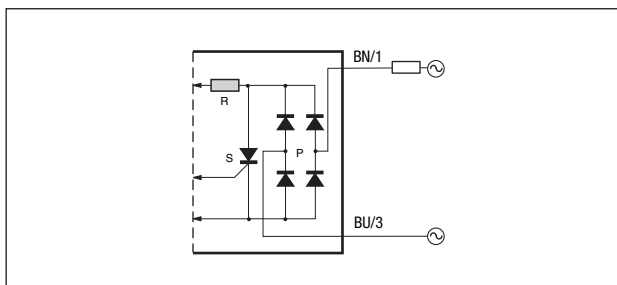
Modelli / Models	VT2/**-1*	VT2/**-2*
Distanza nominale S_n / Nominal sensing distance S_n	10 mm	15 mm
Distanza di lavoro / Operating distance	0 ... 8,1 mm	0 ... 12,1 mm
Corsa differenziale / Hysteresis	1 ... 20%	
Dimensione azionatore normalizzato / Standard target	30x30 mm FE360	45x45 mm FE360
Ripetibilità / Repeat accuracy	5%	
Campo di tensione di alimentazione / Supply voltage range	20 ... 253 Vac - 50/60 Hz	
Corrente di picco non ripetitiva / Inrush current	7A (Ton = 10 ms)	
Corrente di uscita / Output current	5 ... 300 mA RMS	
Caduta di tensione in uscita / Output voltage drop	Vedi curve / See diagram	
Tipo di uscita / Output type	TRIAC - NO o / or NC	
Corrente di perdita / Leakage current	1 mA RMS max.	
Frequenza di commutazione / Switching frequency	25 Hz	
Ritardo all'accensione / Time delay before availability	200 ms	
Campo di temperature ambiente / Ambient temperature range	-25° ... +70°C	
Deriva termica di S_r / Temperature drift of S_r	10% S_r	
Protezione al corto circuito / Short-circuit protection	NO	
Indicatori LED / LED indicators	Giallo (uscita attiva) / Yellow (output energized)	
Grado di protezione / Degree of protection	IP 67 (1)	
Protezione EMC / EMC protection:	Secondo / According to IEC/EN60947-5-2	
IEC 60255-5	1 kV	
IEC 61000-4-2	Livello 3 / Level 3	
IEC 61000-4-3	Livello 3 / Level 3	
IEC 61000-4-4	Livello 3 / Level 3	
Materiale del corpo / Housing material	Ottone nichelato / Nickel-plated brass	
Superficie sensibile / Sensing face	PBT	
Connessione / Connection	Connettore M12 / M12 plug	
Cavo / Cable	2 m	
Peso / Weight	275 g versione a cavo / cable version 170 g versione a connettore M12 / M12 plug version	

(1) Protezione garantita solo con il cavo a connettore correttamente montato
(1) 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
VT2/**-1*	1	0.40	0.45	0.50	0.82
VT2/**-2*	1	0.45	0.50	0.55	0.82

Schemi elettrici delle connessioni - Electrical diagrams of the connections

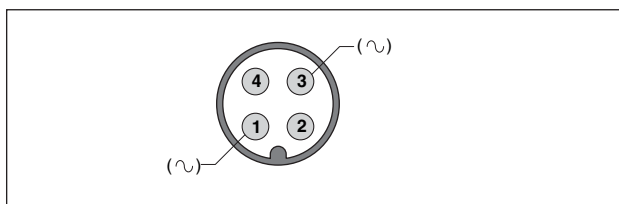


Legenda Key

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

Connettore - Plug

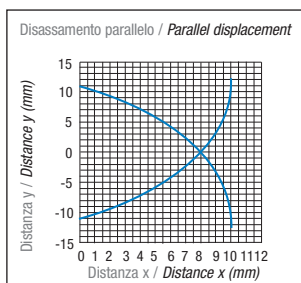
M12 - NO/NC



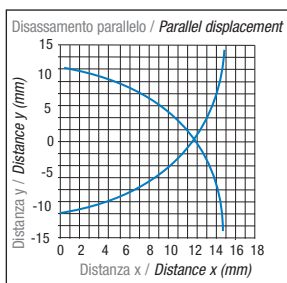
Connettori serie CD / Connectors CD series

Curva di risposta - Response diagram

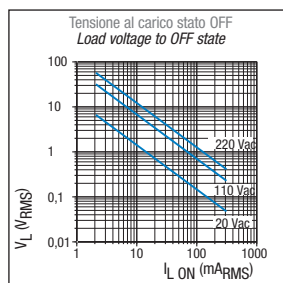
VT2/*0-1*



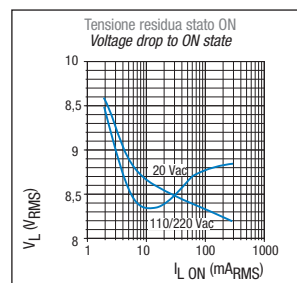
VT2/*0-2*



VT2/*0-**



VT2/*0-**



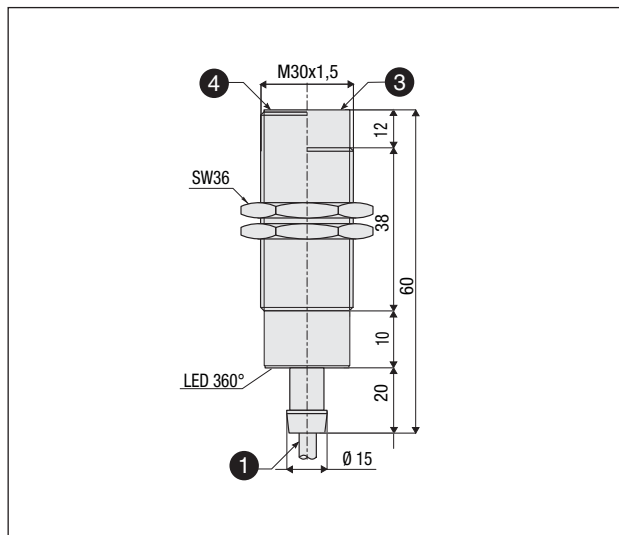
Montaggio - Installation

	D4	D1	D2	D3
VT2/**-1*	≥ 3,5 mm	≥ 10 mm	≥ 30 mm	≥ 30 mm
VT2/**-2*	≥ 16 mm	≥ 15 mm	≥ 60 mm	≥ 45 mm

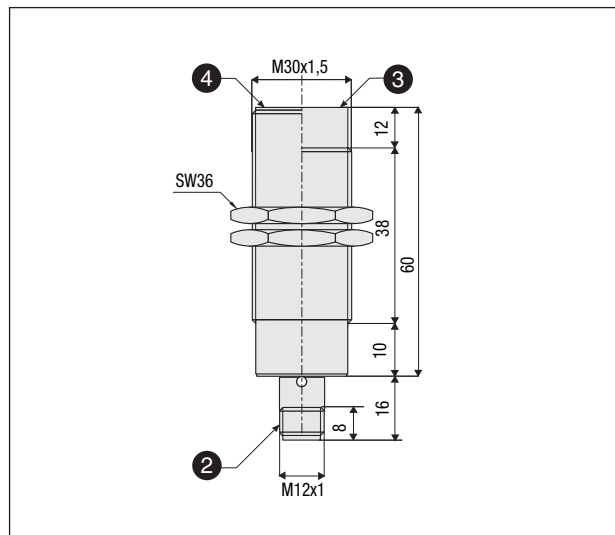
a

Dimensioni - Dimensions

VT2/**-*B



VT2/**-*H



Legenda / Key

- | | |
|---|---|
| <p>① Cavo con codolo 2x0,50 mm², Ø5,5 mm, PVC, 2 m
Cable with tang 2x0,22 mm², Ø4,7 mm, PVC, 2 m</p> <p>② Connettore M12
M12 plug</p> | <p>③ Versione non schermata
Unshielded version</p> <p>④ Versione schermata
Shielded version</p> |
|---|---|



SENSORI INDUTTIVI PER APPLICAZIONI ALIMENTARI

INDUCTIVE SENSORS FOR FOOD AND BEVERAGE APPLICATIONS



JohnsonDiversey

Clean is just the beginning



I sensori serie PFM, PFK e FF sono stati testati con i seguenti detergenti :

- ✓ **OXOFOAM** → alcalino, moderatamente clorinato
- ✓ **HYPOFOAM** → alcalino, fortemente clorinato
- ✓ **UNIFOAM** → fortemente alcalino
- ✓ **ENDURO CID** → gel acido disincrostante
- ✓ **ACIFOAM** → schiuma acida disincrostante
- ✓ **DELLADET** → disinfettante neutro neutro
- ✓ **VIRAGRI PLUS** → disinfettante neutro con glutaraldeide

Condizioni di test:

- ✓ immersione completa nei vari detergenti alla concentrazione del 4%
- ✓ durata test 25 giorni
- ✓ sequenza di test
 - 20 ore a +5°C
 - 4 ore a +20°C
 - 20 ore a +40°C
 - 4 ore a + 20°C

Equivalenze tra prodotti chimici:

HYPOFOAM ↔ ENDURO PLUS
 UNIFOAM ↔ ENDURO FORCE
 ENDURO CID ↔ ENDURO ECO ↔ ACIFOAM
 VIRAGRI PLUS ↔ TEGODOR ↔ DIVOSAN 2000
 DELLADET ↔ SEPTINEIGE PLUS

JohnsonDiversey

Clean is just the beginning



PFM, PFK and FF series have been tested with the following detergent:

- ✓ **OXOFOAM** → *alkaline moderately chlorinated*
- ✓ **HYPOFOAM** → *alkaline strongly chlorinated*
- ✓ **UNIFOAM** → *strongly alkaline*
- ✓ **ENDURO CID** → *gel descaling acid*
- ✓ **ACIFOAM** → *foam descaling acid*
- ✓ **DELLADET** → *neutral detergent disinfectant*
- ✓ **VIRAGRI PLUS** → *neutral disinfectant with glutaraldehyde*

Tests conditions:

- ✓ *full immersion in the various detergents at the concentration of 4%*
- ✓ *time of contact 25 days*
- ✓ *test sequence*
 - *20 hours at +5°C*
 - *4 hours at +20°C*
 - *20 hours at +40°C*
 - *4 hours at + 20°C*

Chemicals equivalences:

ECOLAB®

I sensori serie PFM, PFK e FF sono stati testati con i seguenti detergenti:

- ✓ acqua deionizzata
- ✓ P3-clint KF → alcalina
- ✓ P3-topactive DES → acqua ossigenata e acido peracetico
- ✓ P3-topax 19 → alcalina
- ✓ P3-topax 36 → altamente alcalina
- ✓ P3-topax 52 → acida
- ✓ P3-topax 66 → alcalina con cloro
- ✓ P3-topax 91 → neutra
- ✓ P3-oxonia active → acqua ossigenata e acido peracetico

Condizioni di test:

- ✓ immersione completa nei vari detergenti a concentrazioni differenti
- ✓ durata del test 28 giorni
- ✓ metodo di test Ecolab R&D-P3-E No.40-1

ECOLAB®

PFM, PFK and FF series have been tested with the following detergent:

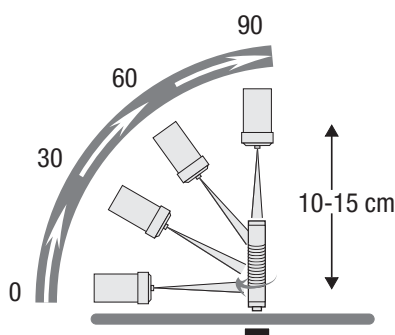
- ✓ deionised water
- ✓ P3-clint KF V alkaline
- ✓ P3-topactive DES V contains hydrogen peroxide and peracetic acid
- ✓ P3-topax 19 V alkaline
- ✓ P3-topax 36 V highly alkaline
- ✓ P3-topax 52 V acid
- ✓ P3-topax 66 V alkaline with available chlorine
- ✓ P3-topax 91 V neutral
- ✓ P3-oxonia active V contains hydrogen peroxide and peracetic acid

Tests conditions:

- ✓ full immersion in the various detergents at different conditions
- ✓ duration of the test 28 days
- ✓ test method Ecolab R&D-P3-E No. 40-1



Fraunhofer Institut
Chemische Technologie



Grado di protezione:

IP69K (secondo DIN 40050 parte 9)

Protection degree:

IP69K (according to DIN 40050 part 9)

Sensori di prossimità induttivi M12 serie PFM per applicazioni alimentari

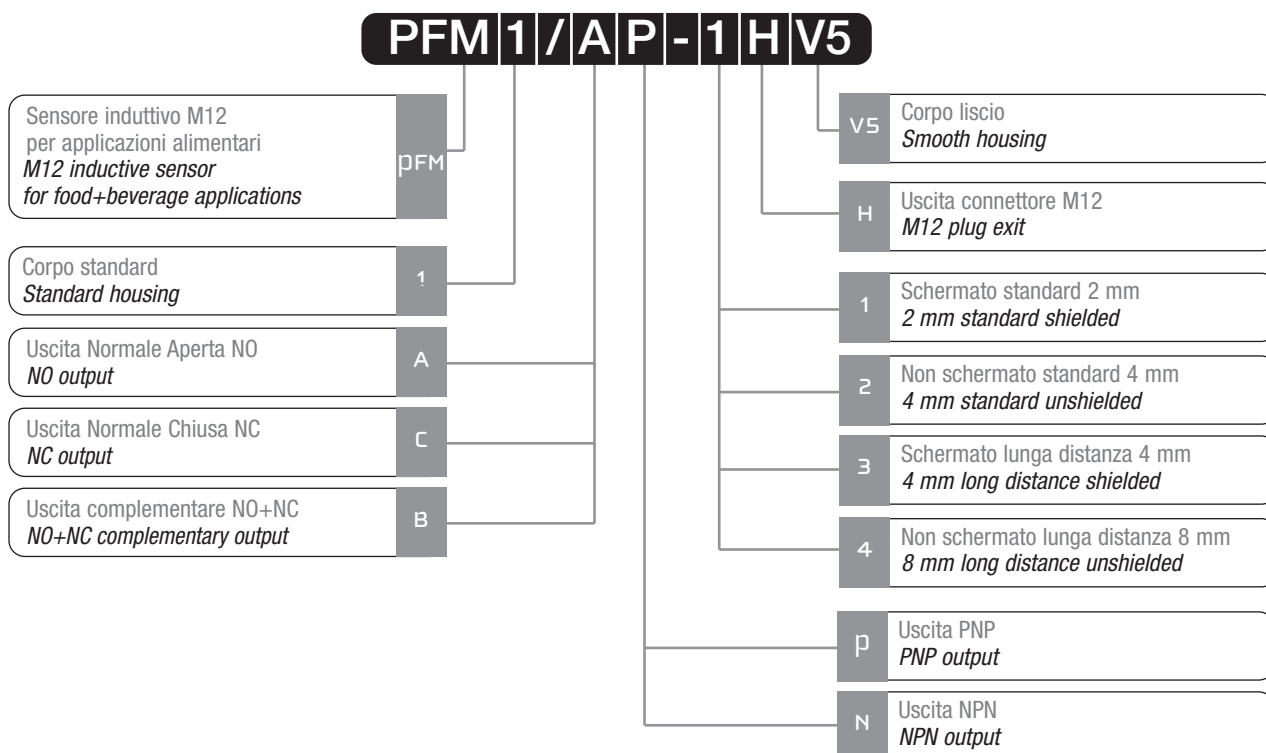
*M12 proximity inductive sensors
PFM series for food and beverage applications*



Caratteristiche principali Main features

- > Corpo in acciaio inox AISI 316L (DIN 1.4404)
- > *AISI 316L (DIN 1.4404) stainless steel housing*
- > Indicatore LED
- > *LED status indicator*
- > Grado di protezione IP67 – IP68 – IP69K
- > *IP67 – IP68 – IP69K protection degree*
- > Totalmente protetti contro danneggiamenti di tipo elettrico
- > *Complete protection against electrical damages*
- > Modelli distanza standard e lunga distanza
- > *Standard and long distance models*
- > Marchio
- > *CE Mark*

Descrizione del codice - Code structure



a

PFM SERIES

Modelli disponibili - Available models

> Modelli Standard - Standard Models

Diametro Model	Montaggio Installation	Portata Sensing	Uscita Output	Distanza Distance	NPN-NO	PNP-NO
M12	Schermato <i>Shielded</i>	Standard	M12	2 mm	PFM1/AN-1H	PFM1/AP-1H
	Non schemato <i>Unshielded</i>	Standard	M12	4 mm	PFM1/AN-2H	PFM1/AP-2H
	Schermato <i>Shielded</i>	Lunga dist. <i>Long dist.</i>	M12	4 mm	PFM1/AN-3H	PFM1/AP-3H
	Non schemato <i>Unshielded</i>	Lunga dist. <i>Long dist.</i>	M12	8 mm	PFM1/AN-4H	PFM1/AP-4H

> Modelli con uscita complementare - Models with complementary output

Diametro Model	Montaggio Installation	Portata Sensing	Uscita Output	Distanza Distance	NPN NO + NC	PNP NO + NC
M12	Schermato <i>Shielded</i>	Standard	M12	2 mm	PFM1/BN-1H	PFM1/BP-1H
	Non schemato <i>Unshielded</i>	Standard	M12	4 mm	PFM1/BN-2H	PFM1/BP-2H
	Schermato <i>Shielded</i>	Lunga dist. <i>Long dist.</i>	M12	4 mm	PFM1/BN-3H	PFM1/BP-3H
	Non schemato <i>Unshielded</i>	Lunga dist. <i>Long dist.</i>	M12	8 mm	PFM1/BN-4H	PFM1/BP-4H

Codici di classe C / C class codes

N.B. I prodotti di classe C possono presentare limitazioni nei termini di consegna o sui quantitativi ordinabili

Note: The class C products could be subject to delays in delivery terms or limits for the quantities to be ordered

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

Modello / Model	PFM1/**-1H	PFM1/**-2H	PFM1/**-3H	PFM1/**-4H
Distanza nominale / Rated operating distance <i>S_n</i>	2 mm	4 mm	4 mm	8 mm
Corsa differenziale / Hysteresis		1 ÷ 20%		
Dimensione azionatore normalizzato / Standard target		12x12 mm Fe360		24x24 mm Fe360
Ripetibilità / Repeat accuracy @ UB 20-30 V Ta = 23°C ± 5°C		5%		
Campo di tensione di alimentazione Supply voltage range		10 ÷ 30Vcc		
Massima ondulazione residua / Max ripple content		≤ 10%		
Corrente di uscita / Output current		≤ 200 mA		
Tensione di saturazione di uscita / Output voltage drop		≤ 2V		
Corrente di alimentazione senza carico No load supply current		≤ 15 mA		
Corrente di perdita / Leakage current		≤ 10 µA		
Frequenza di commutazione / Switching frequency		2 kHz		
Ritardo all'accensione / Time delay before availability		50 ms		
Campo di temperature ambiente Ambient temperature range		-40 ÷ +80 °C, breve esposizione (15') a 100°C (durante processi di igienizzazione) short exposure (15') to 100°C (during cleaning processes)		
Deriva termica di <i>S_r</i> / Temperature drift of <i>S_r</i>		10%		
Protezione al corto circuito / Short-circuit protection		Si autoripristinante / Yes auto reset		
Protezione all'inversione di polarità di alimentazione Voltage reversal protection		Si / Yes		
Protezione ai carichi induttivi / Induction protection		Si / Yes		
Colpi e vibrazioni / Shocks and vibration		IEC EN60947-5-2 / §7.4		
Peso / Weight		35 g		
Indicatori LED / LED indicators		Uscita NO / NO output state		
Grado di protezione / Degree of protection		IP67, IP68 (1m, 7 giorni / days); IP69K (secondo / according to DIN 40050 part 9)		
Protezione EMC / EMC protection:		Secondo / According to IEC EN60947-5-2		
	IEC 60255-5	1 kV		
	IEC 61000-4-2	Livello / Level 3 aria / air 8 kV		
	IEC 61000-4-3	Livello / Level 3 10 V/m		
	IEC 61000-4-4	Livello / Level 3 2 kV		
Materiale del corpo / Housing material		Acciaio inox / Stainless Steel AISI316L (DIN 1.4404)		
Superficie sensibile / Sensing face		PPS (FDA certificato / certified)		
Connessione / Connection		Connettore M12 con contatti dorati / M12 plug with gold-plated pins		
Coppia di serraggio / Tightening torque		25 Nm		

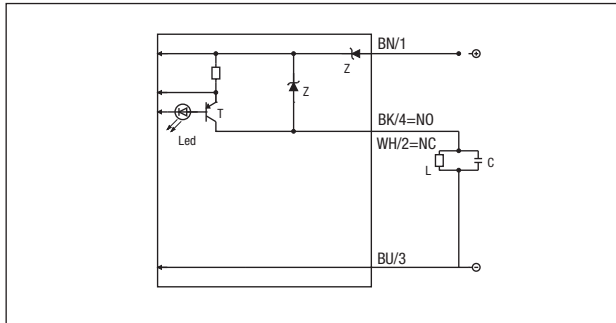
Coefficienti di riduzione - Correction factors

Codice Code	Acciaio Steel FE 360	Rame Copper	Alluminio Aluminum	Ottone Brass	Acciaio INOX Stainless steel
PFM1/**-1*	1	0.25	0.3	0.4	0.75
PFM1/**-2*	1	0.33	0.4	0.5	0.8
PFM1/**-3*	1	0.3	0.35	0.4	0.75
PFM1/**-4*	1	0.33	0.4	0.45	0.75

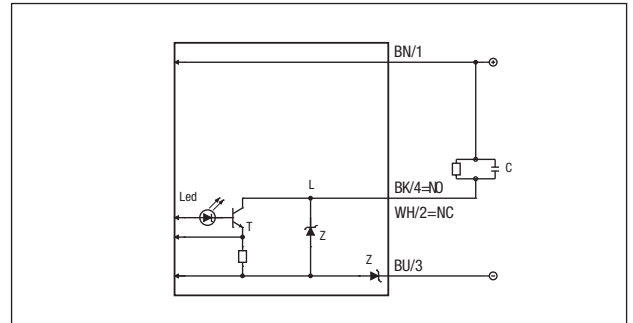
Tolleranza ±10% / Tolerance ±10%

Schemi elettrici delle connessioni - Electrical diagrams of the connections

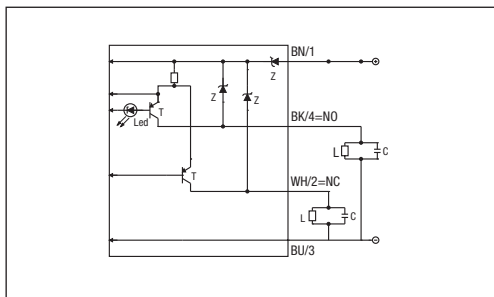
PNP – NO o/or NC



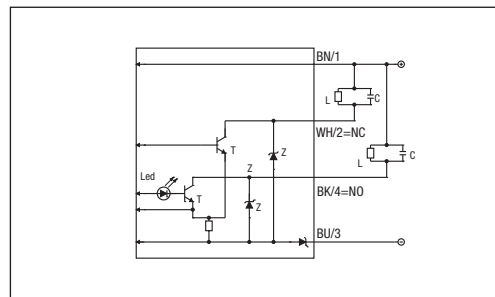
NPN – NO o/or NC



PNP – NO + NC



NPN – NO + NC

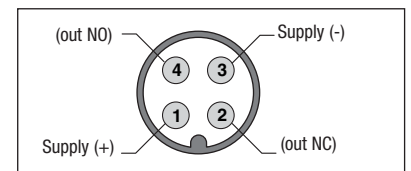
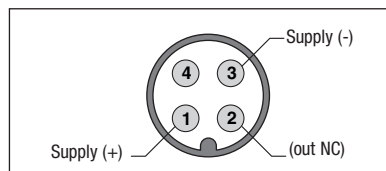
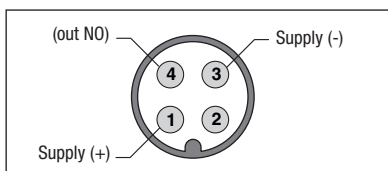


Legenda Key

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

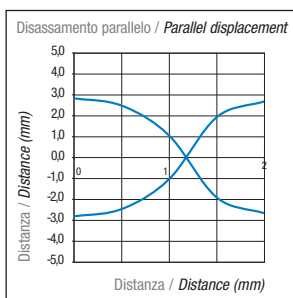
Connettore - Plug

> M12

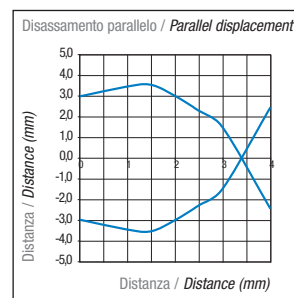


Curva di risposta - Response diagram

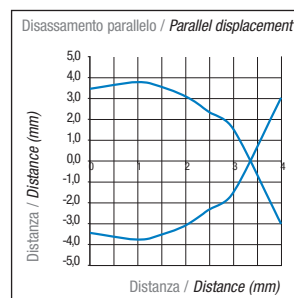
PFM1/**-1H



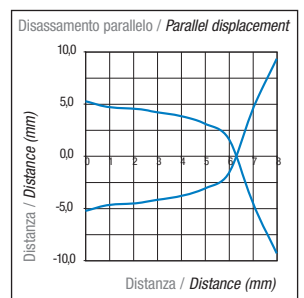
PFM1/**-2H



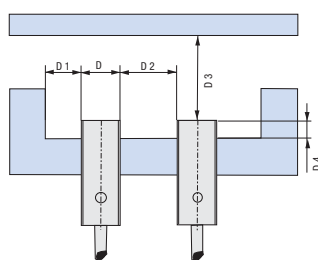
PFM1/**-3H



PFM1/**-4H



Montaggio - Installation



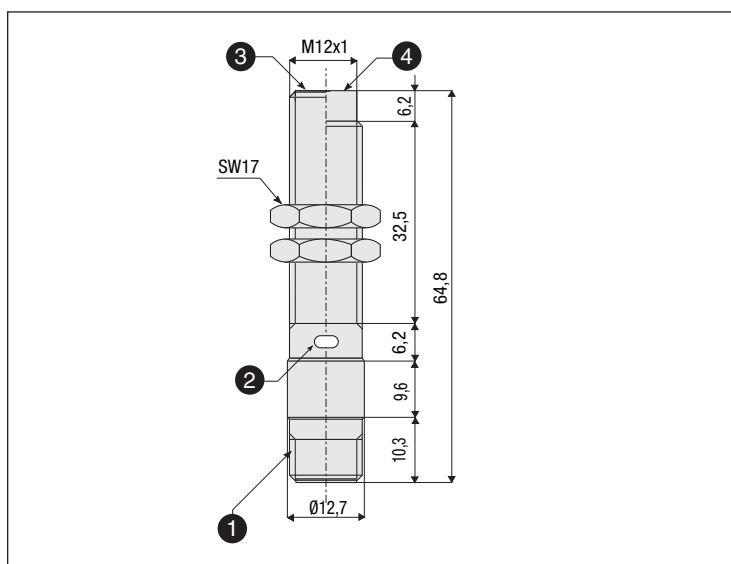
	D4	D1	D2	D3
PFM/**-1*	≥ 0 mm ⁽¹⁾	≥ 6 mm	≥ 12 mm	≥ 6 mm
PFM/**-2*	≥ 6 mm ⁽²⁾	≥ 12 mm	≥ 24 mm	≥ 12 mm
PFM/**-3*	≥ 0 mm ⁽³⁾	≥ 6 mm	≥ 12 mm	≥ 12 mm
PFM/**-4*	≥ 12 mm	≥ 12 mm	≥ 24 mm	≥ 24 mm

(1) ≥ 2 mm per materiali non magnetici / for non magnetic material

(2) ≥ 0 mm per materiali non magnetici / for non magnetic material

(3) ≥ 2.4 mm per materiali non magnetici / for non magnetic material

Dimensioni - Dimensions



Legenda / Key

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

Sensori di prossimità induttivi M18 serie PFK per applicazioni alimentari

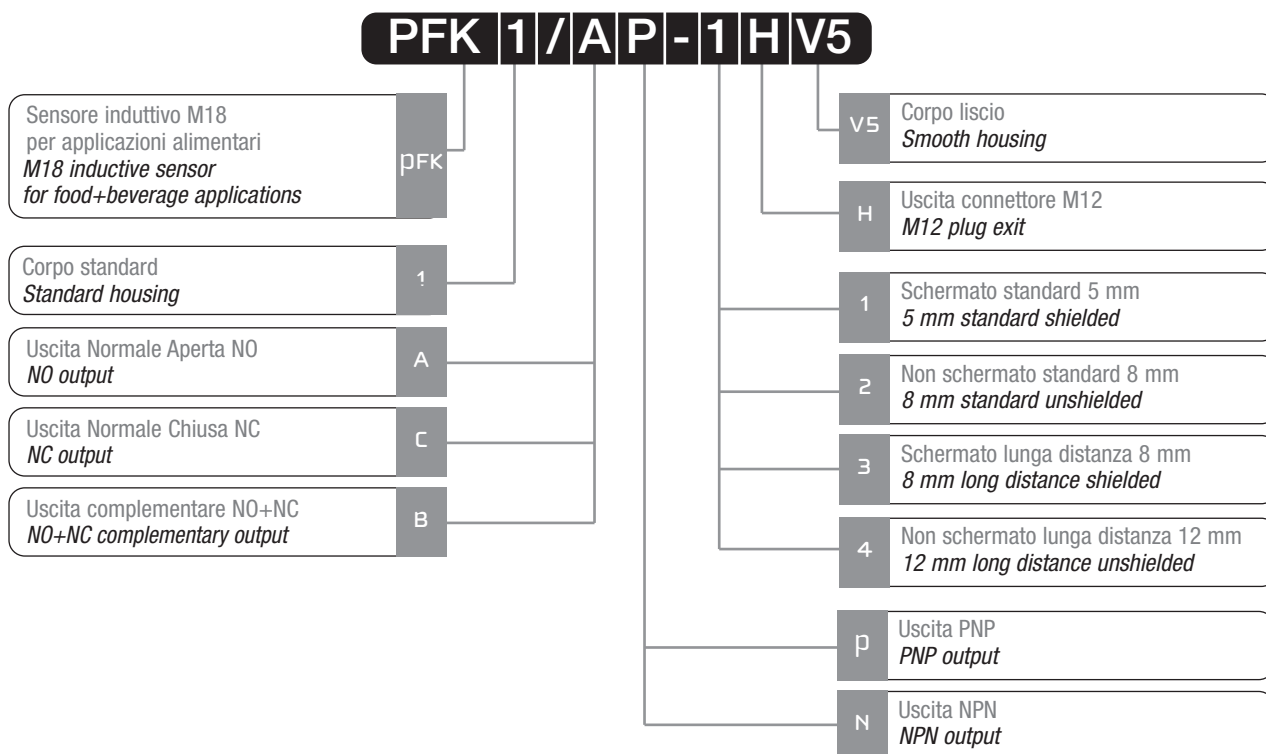
M18 proximity inductive sensors PFK series for food and beverage applications



Caratteristiche principali Main features

- > Corpo in acciaio inox AISI 316L (DIN 1.4404)
- > *AISI 316L (DIN 1.4404) stainless steel housing*
- > Indicatore LED
- > *LED status indicator*
- > Grado di protezione IP67 – IP68 – IP69K
- > *IP67 – IP68 – IP69K protection degree*
- > Totalmente protetti contro danneggiamenti di tipo elettrico
- > *Complete protection against electrical damages*
- > Modelli distanza standard e lunga distanza
- > *Standard and long distance models*
- > Marchio
- > *CE Mark*

Descrizione del codice - Code structure



Modelli disponibili - Available models

> Modelli Standard - Standard Models

Diametro Model	Montaggio Installation	Portata Sensing	Uscita Output	Distanza Distance	NPN-NO	PNP-NO
M18	Schermato <i>Shielded</i>	Standard	M12	5 mm	PFK1/AN-1H	PFK1/AP-1H
	Non schemato <i>Unshielded</i>	Standard	M12	8 mm	PFK1/AN-2H	PFK1/AP-2H
	Schermato <i>Shielded</i>	Lunga dist. <i>Long dist.</i>	M12	8 mm	PFK1/AN-3H	PFK1/AP-3H
	Non schemato <i>Unshielded</i>	Lunga dist. <i>Long dist.</i>	M12	12 mm	PFK1/AN-4H	PFK1/AP-4H

> Modelli con uscita complementare - Models with complementary output

Diametro Model	Montaggio Installation	Portata Sensing	Uscita Output	Distanza Distance	NPN NO + NC	PNP NO + NC
M18	Schermato <i>Shielded</i>	Standard	M12	5 mm	PFK1/BN-1H	PFK1/BP-1H
	Non schemato <i>Unshielded</i>	Standard	M12	8 mm	PFK1/BN-2H	PFK1/BP-2H
	Schermato <i>Shielded</i>	Lunga dist. <i>Long dist.</i>	M12	8 mm	PFK1/BN-3H	PFK1/BP-3H
	Non schemato <i>Unshielded</i>	Lunga dist. <i>Long dist.</i>	M12	12 mm	PFK1/BN-4H	PFK1/BP-4H

Codici di classe C / C class codes

N.B. I prodotti di classe C possono presentare limitazioni nei termini di consegna o sui quantitativi ordinabili

Note: The class C products could be subject to delays in delivery terms or limits for the quantities to be ordered

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

Modello / Model	PFK1/**-1H	PFK1/**-2H	PFK1/**-3H	PFK1/**-4H
Distanza nominale / Rated operating distance S_n	5 mm	8 mm	8 mm	12 mm
Corsa differenziale / Hysteresis		1 ÷ 20%		
Dimensione azionatore normalizzato / Standard target	18x18 mm Fe360	24x24 mm Fe360		36x36 mm Fe360
Ripetibilità / Repeat accuracy @ UB 20-30 V $T_a = 23^\circ\text{C} \pm 5^\circ\text{C}$		5%		
Campo di tensione di alimentazione Supply voltage range		10 ÷ 30Vcc		
Massima ondulazione residua / Max ripple content		≤ 10%		
Corrente di uscita / Output current		≤ 200 mA		
Tensione di saturazione di uscita / Output voltage drop		≤ 2V		
Corrente di alimentazione senza carico No load supply current		≤ 15 mA		
Corrente di perdita / Leakage current		≤ 10 μA		
Frequenza di commutazione / Switching frequency		1,5 kHz		
Ritardo all'accensione / Time delay before availability		50 ms		
Campo di temperature ambiente Ambient temperature range		-40 ÷ +80 °C, breve esposizione (15') a 100°C (durante processi di igienizzazione) short exposure (15') to 100°C (during cleaning processes)		
Deriva termica di S_r / Temperature drift of S_r		10%		
Protezione al corto circuito / Short-circuit protection		Si autoripristinante / Yes auto reset		
Protezione all'inversione di polarità di alimentazione Voltage reversal protection		Si / Yes		
Protezione ai carichi induttivi / Induction protection		Si / Yes		
Colpi e vibrazioni / Shocks and vibration		IEC EN60947-5-2 / §7.4		
Peso / Weight		35g		
Indicatori LED / LED indicators		Uscita NO / NO output state		
Grado di protezione / Degree of protection		IP67, IP68 (1m, 7 giorni / days); IP69K (secondo / according to DIN 40050 part 9)		
Protezione EMC / EMC protection:		secondo / according to IEC EN60947-5-2		
IEC 60255-5		1 kV		
IEC 61000-4-2		Livello / Level 3 aria / air 8 kV		
IEC 61000-4-3		Livello / Level 3 10 V/m		
IEC 61000-4-4		Livello / Level 3 2 kV		
Materiale del corpo / Housing material		Acciaio inox / Stainless Steel AISI316L (DIN 1.4404)		
Superficie sensibile / Sensing face		PPS (FDA certificato / certified)		
Connessione / Connection		Connettore M12 con contatti dorati / M12 plug with gold-plated pins		
Coppia di serraggio / Tightening torque		107 Nm		

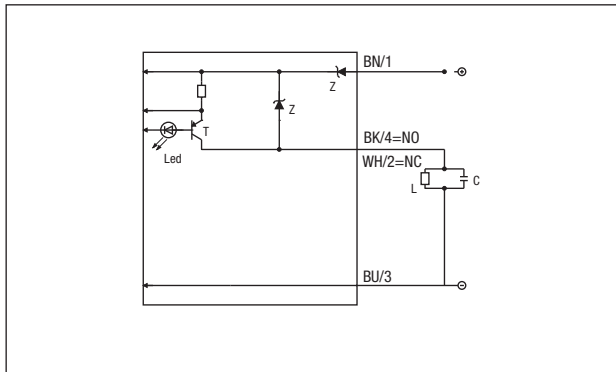
Coefficienti di riduzione - Correction factors

Code Codice	Acciaio Steel FE 360	Rame Copper	Alluminio Aluminum	Ottone Brass	Acciaio INOX Stainless steel
PFK1/**-1*	1	0.25	0.35	0.4	0.7
PFK1/**-2*	1	0.27	0.35	0.42	0.7
PFK1/**-3*	1	0.2	0.3	0.4	0.65
PFK1/**-4*	1	0.3	0.38	0.42	0.65

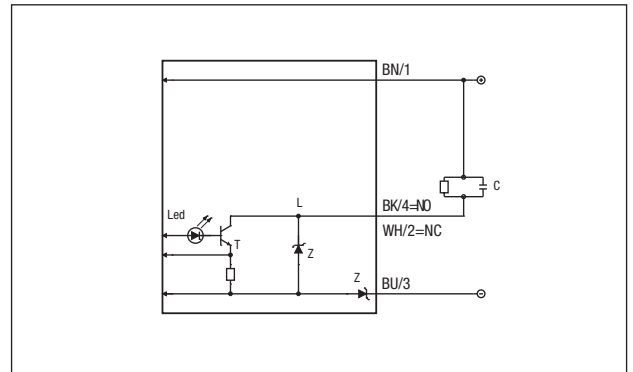
Tolleranza ±10% / Tolerance ±10%

Schemi elettrici delle connessioni - Electrical diagrams of the connections

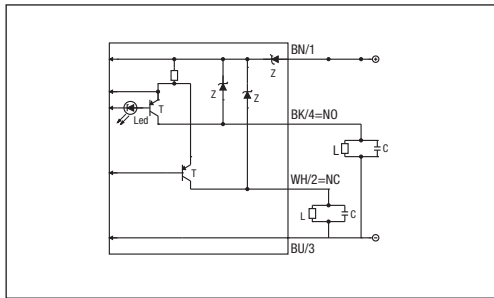
PNP – NO o/or NC



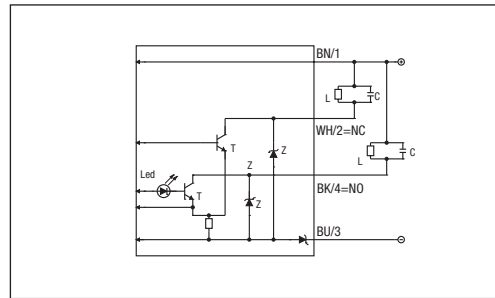
NPN – NO o/or NC



PNP – NO + NC



NPN – NO + NC

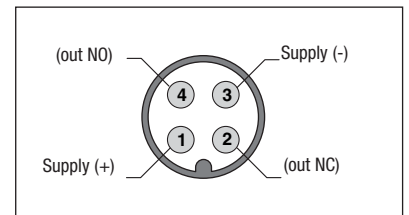
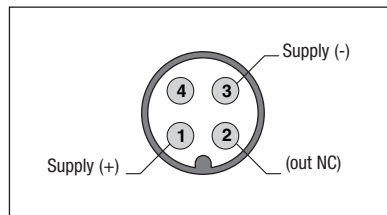
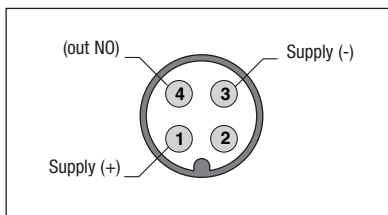


Legenda Key

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

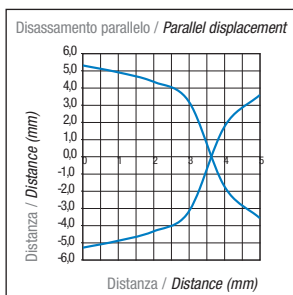
Connettore - Plug

> M12

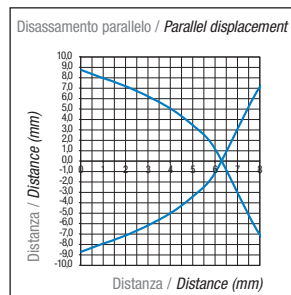


Curva di risposta - Response diagram

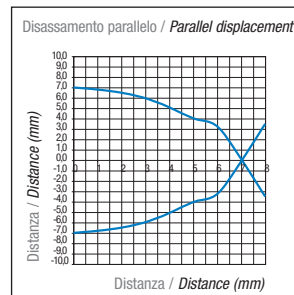
PFK1/**-1H



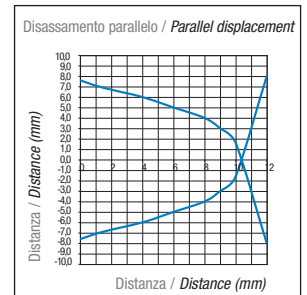
PFK1/**-2H



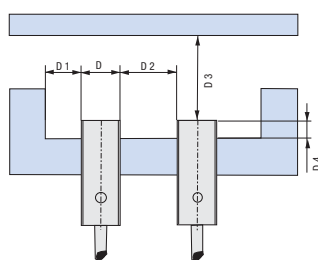
PFK1/**-3H



PFK1/**-4H



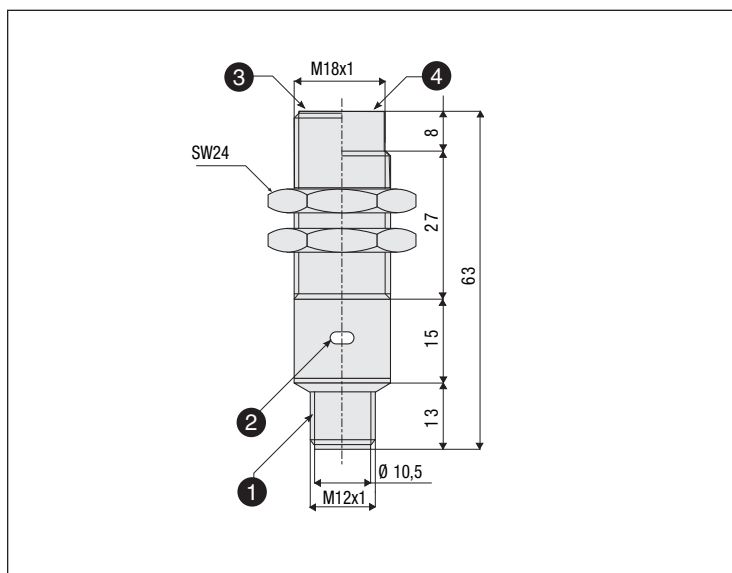
Montaggio - Installation



	D4	D1	D2	D3
PFK/**-1*	≥ 3,6 mm	≥ 9 mm	≥ 18 mm	≥ 15 mm
PFK/**-2*	≥ 12 mm	≥ 18 mm	≥ 36 mm	≥ 24 mm
PFK/**-3*	≥ 1,8 mm ⁽¹⁾	≥ 9 mm	≥ 18 mm	≥ 24 mm
PFK/**-4*	≥ 16 mm	≥ 18 mm	≥ 36 mm	≥ 36 mm

(1) ≥ 5.4 mm per materiali non magnetici / for non magnetic material

Dimensioni - Dimensions



Legenda / Key

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

a



SENSORI INDUTTIVI ANALOGICI
INDUCTIVE analog sensors



Sensori di prossimità induttivi con uscita analogica

Inductive proximity sensors with analogue output



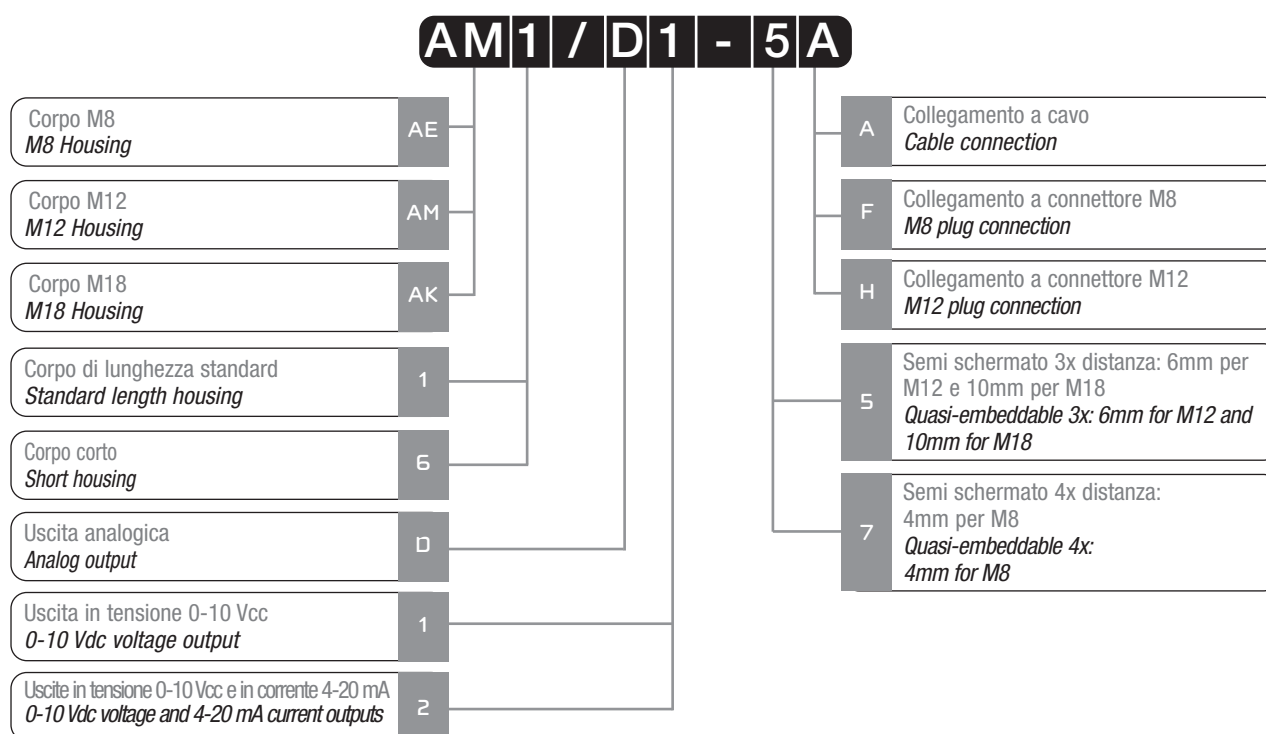
Caratteristiche principali Main features

- > Ampia scelta di dimensioni: M8, M12 e M18
> *Wide choice of sizes M8, M12 and M18*
- > Grande distanza massima di lavoro: 4 mm per M8, 6 mm per M12 e 10 mm per M18
> *Wide usable sensing ranges: 4 mm for M8, 6 mm for M12 and 10 mm for M18*
- > Eccellente risoluzione (nessuna digitalizzazione)
> *Excellent resolution (no digitalization)*
- > Eccellente stabilità in temperatura alle piccole distanze
> *Excellent temperature stability at low distances*
- > Uscita in tensione e in corrente nello stesso dispositivo (solo M12 e M18)
> *Voltage and current output in the same device (M12 and M18 only)*
- > Marchio
> *CE Mark*

Applicazioni Applications

- > Avvicinamento controllato alla posizione finale
> *Regulated approach to end positions*
- > Diversi punti di commutazione con un solo dispositivo
> *Several switching points with only one device*
- > Misura di vibrazioni
> *Vibrations measurement*
- > Misura di concentricità
> *Concentricity measurement*

Descrizione del codice - Code structure



Modelli disponibili - Available models

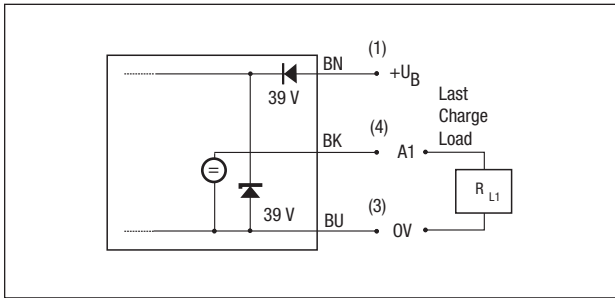
AE1/D1-7A	AE1/D1-7F	AM1/D2-5A	AM1/D2-5H	AK6/D2-5A	AK6/D2-5H
-----------	-----------	-----------	-----------	-----------	-----------

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

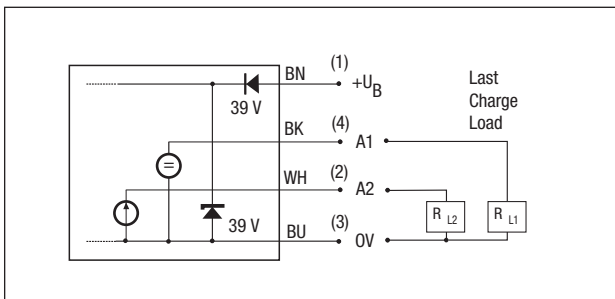
Modelli / Models	AE1/D1-7A	AE1/D1-7F	AM1/D2-5A	AM1/D2-5H	AK6/D2-5A	AK6/D2-5H
Distanza operativa / Sensing range Sd	0...4 mm		0...6 mm		0...10 mm	
Ostacolo nominale / Standard target	12x12x1 mm		18x18x1 mm		30x30x1 mm	
Ripetibilità / Repeat accuracy	0,3 mm (UB = 20...30 Vcc / Vdc TA = 23°C ± 5° C)					
Ripetibilità / Repeat accuracy (TA = cost.)	± 0,01 mm		± 0,01 mm		± 0,02 mm	
Risoluzione / Resolution	≤ 1 µm		≤ 1 µm		≤ 2 µm	
Tensione di alimentazione / Supply voltage range UB	15...30 Vcc / Vdc					
Ondulazione residua massima/ Max. ripple content	≤ 20% UB					
Uscita in tensione / output voltage A1						
S = 0 mm	0 V -0 +0,4V (23° C)					
S = 1/2 Sd	+ 5,2 V ± 0,4 V (23° C)					
S = Sd	+ 10 V ± 0,4 V (23° C)					
Corrente di carico su: / Load current at: A1	≤ 10 mA					
Uscita in corrente / Output current A2						
S = 0 mm	-					
S = Sd	-					
Carico massimo su: / Max load at: A2	-					
Corrente assorbita senza carico	≤ 10 mA		≤ 12 mA			
No-load supply current	≤ 10 mA		≤ 12 mA			
Frequenza di taglio / Cut-off frequency (-3dB 1/2 Sd)	1600 Hz		1000 Hz		500 Hz	
Ritardo all'accensione / Time delay before availability	≤ 50 ms					
Campo di temperature ambiente	-25...+70° C					
Ambient temperature range	-25...+70° C					
Deriva termica / Temperature drift % Sr	± 5% (0...+70°C) ± 10% (-25...0°C)				≤ 10%	
Montaggio / Mounting	Parzialmente schermato / Quasi-embeddable					
Protezione al corto circuito / Short-circuit protection	Si / Yes					
Protezione all'inversione di polarità di alimentazione	-					
Voltage reversal protection	Si / Yes					
Colpi e vibrazioni / Shocks and vibration	IEC 60947-5-2 / 7.4					
EMC protection:						
IEC 60255-5	5 kV					
IEC 61000-4-2	Livello 2 / Level 2					
IEC 61000-4-3	Livello 3 / Level 3					
IEC 61000-4-4	Livello 2 / Level 2					
Grado di protezione / Degree of protection	IP 67					
Peso / Weight	50 g	20 g	95 g	33 g	116 g	55 g
Materiale del corpo / Housing material	Ottone cromato / cr/cr plated brass					
Superficie sensibile / Sensing face	PBT					
Cavo di connessione / Connection cable	PUR 3x0,14mmq 72x0,05 Ø	-	PUR 4x0,25mmq 128x0,05 Ø	-	PUR 4x0,25mmq 128x0,05 Ø	-
Tipo di connettore / Connector type	-	M8 3P	-	M12 4P	-	M12 4P

Schemi elettrici delle connessioni - Electrical diagrams of the connections

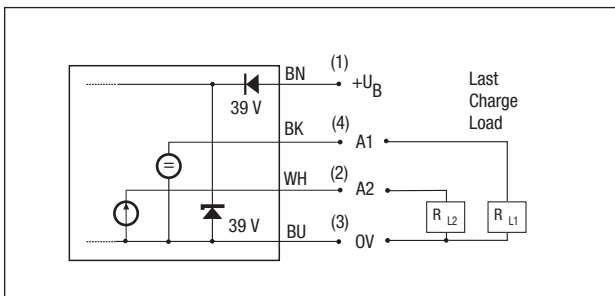
> Versione M8 / M8 Version



> Versione M12 / M12 Version



> Versione M18 / M18 Version

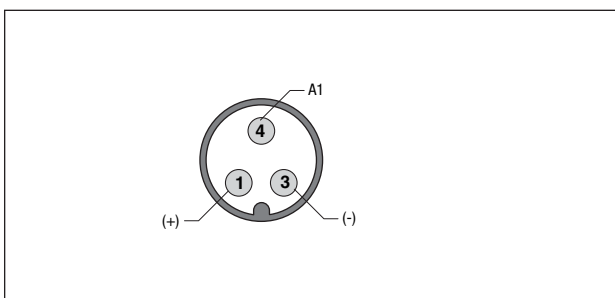


Legenda Key

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

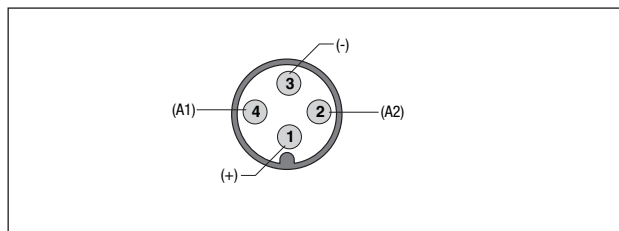
Connettore - Plug

> Versione M8 / M8 Version



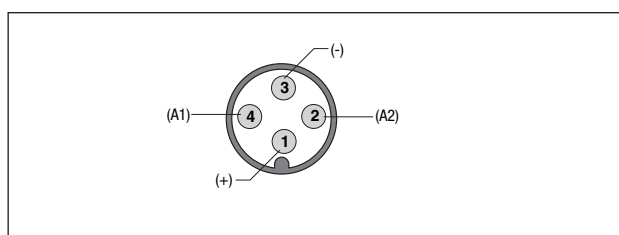
Connettori serie CD / Connectors CD series

> Versione M12 / M12 Version



Connettori serie CD / Connectors CD series

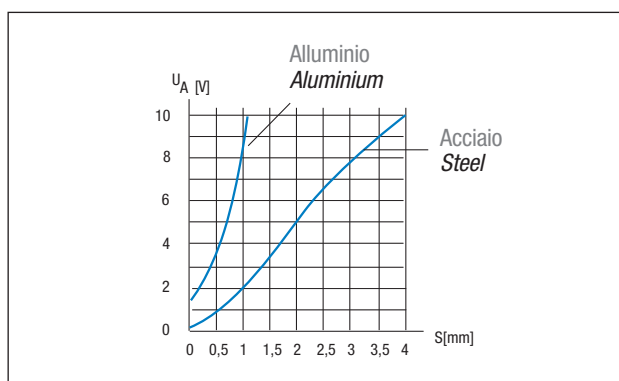
> Versione M18 / M18 Version



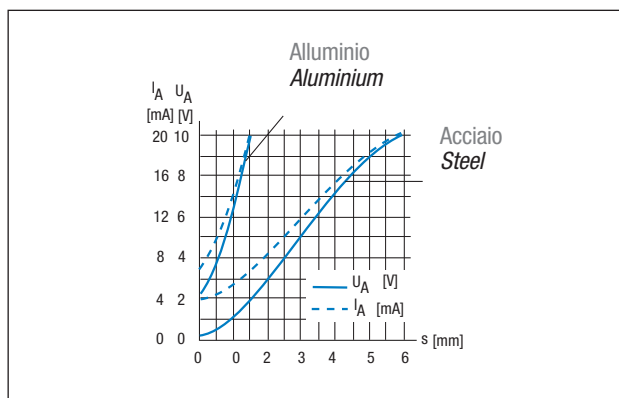
Connettori serie CD / Connectors CD series

Curva di risposta - Response diagram

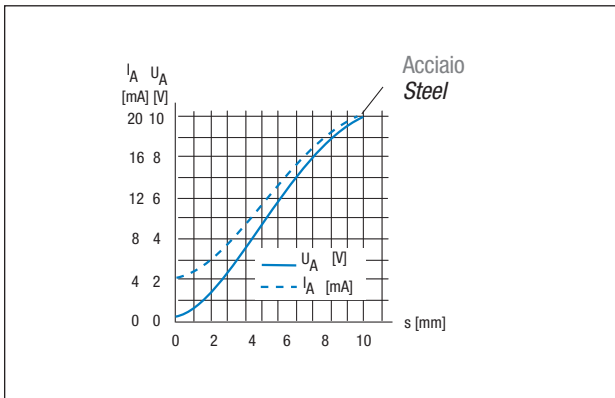
> Versione M8 / M8 Version



> Versione M12 / M12 Version

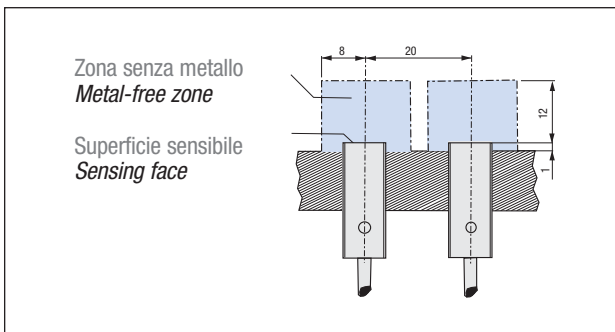


> Versione M18 / M18 Version

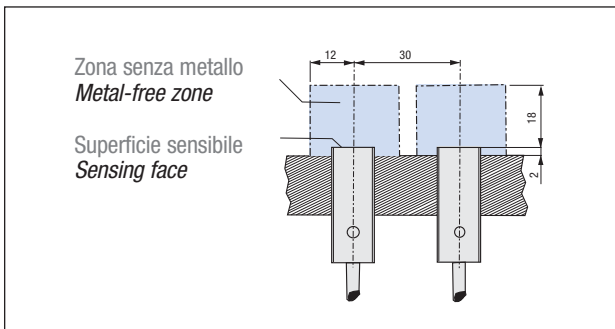


Montaggio - Installation

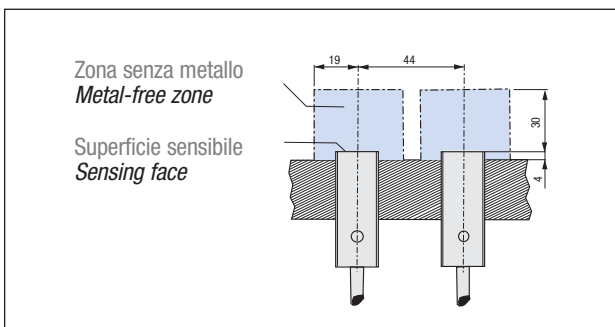
> Versione M8 / M8 Version



> Versione M12 / M12 Version

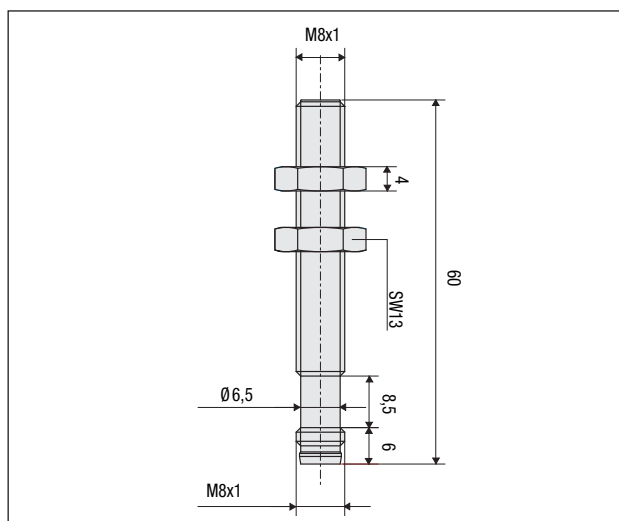


> Versione M18 / M18 Version

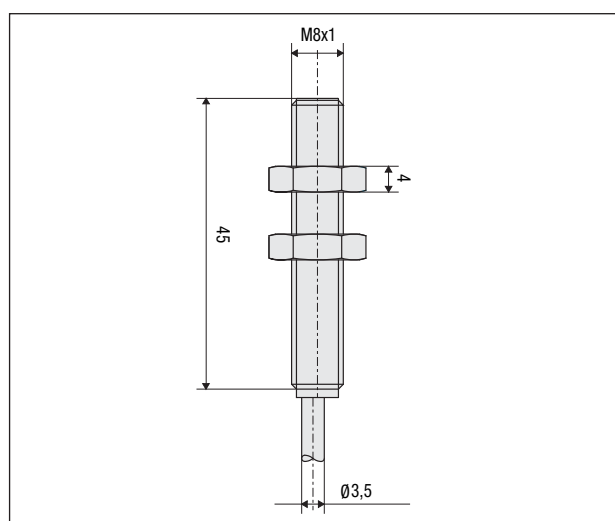


Dimensioni - Dimensions

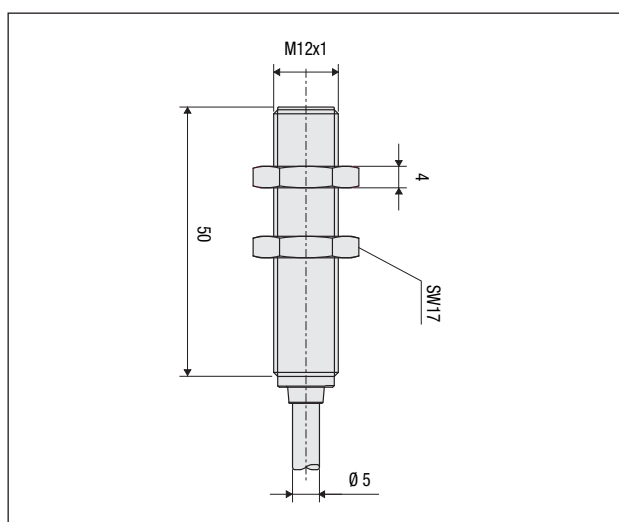
AE1/D2-5A



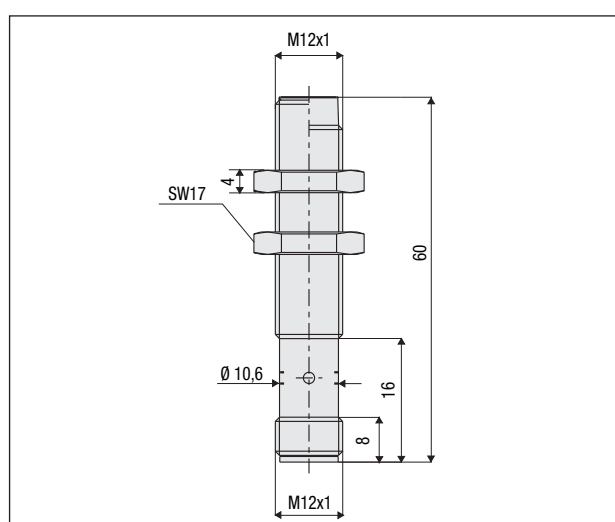
AE1/D2-5H



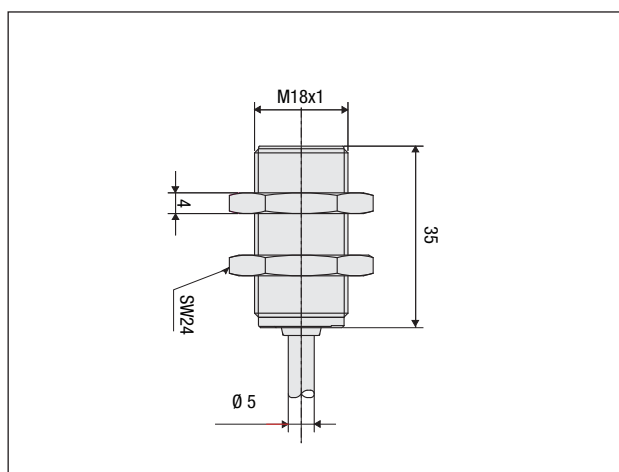
AM1/D2-5A



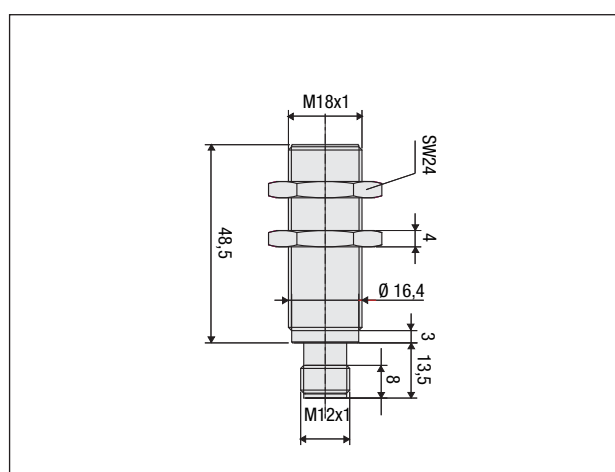
AM1/D2-5H



AK6/D2-5A



AK6/D2-5H





SENSORI CAPACITIVI
capacitive sensors



Sensori capacitivi Ø 20 serie CE

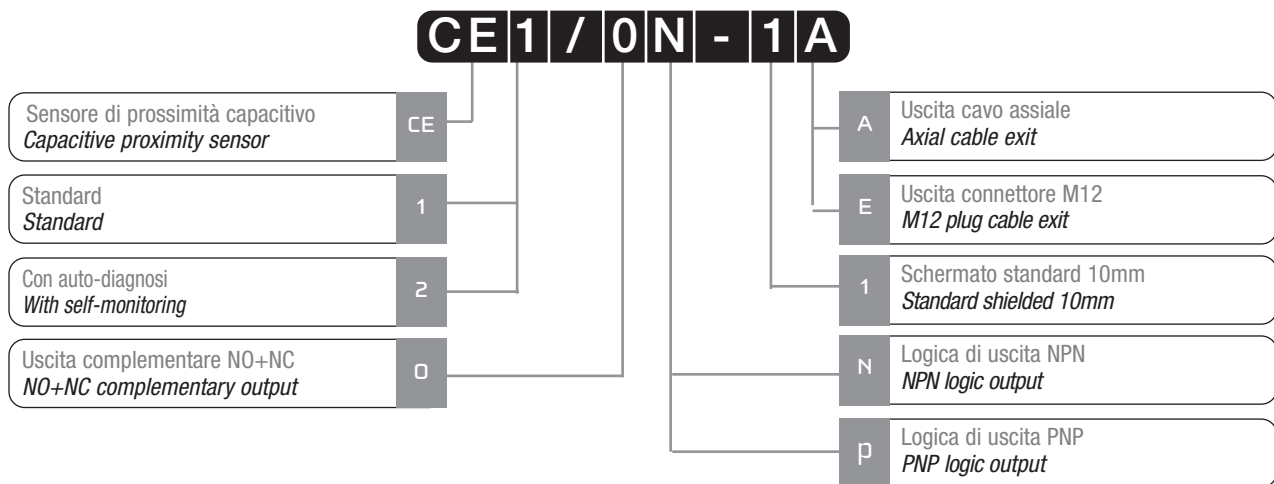
Ø 20 capacitive sensor CE series



Caratteristiche principali Main features

- > Modelli con e senza autodiagnosi
> *Models with or without self-monitoring*
- > Regolazione della sensibilità mediante trimmer
> *Sensitivity adjustment with trimmer*
- > Uscita complementare NO+NC
> *NO+NC complementary output*
- > Contenitore in inox
> *Stainless steel housing*
- > Grado di protezione IP65
> *IP65 protection degree*
- > Totalmente protetti contro danneggiamenti di tipo elettrico
> *Complete protection against electrical damages*
- > Uscita cavo assiale o connettore M12 plastico
> *Axial cable exit or M12 plastic plug cable exit*
- > Marchio CE
> **CE Mark**

Descrizione del codice - Code structure



Modelli disponibili - Available models

Modelli / Models

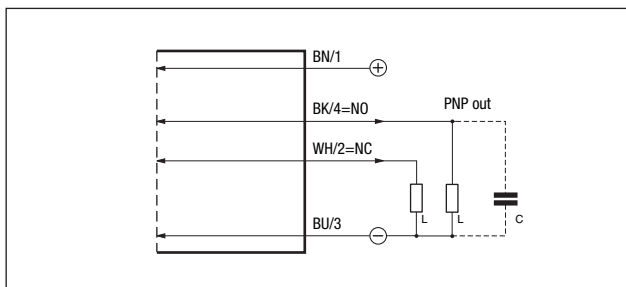
Diametro <i>Diameter</i>	Montaggio <i>Installation</i>	Portata <i>Distance</i>	Conn. <i>Plug</i>	Auto-diagnosi <i>Self-monitoring</i>	PNP-NO + NC	NPN-NO + NC
Ø 20	Schermato <i>Shielded</i>	10 mm	Cavo / Wire	No	CE1/0P-1A	CE1/0N-1A
			M12		CE1/0P-1E	CE1/0N-1E
			Cavo / Wire	Si / Yes	CE2/0P-1A	CE2/0N-1A
			M12		CE2/0P-1E	CE2/0N-1E

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

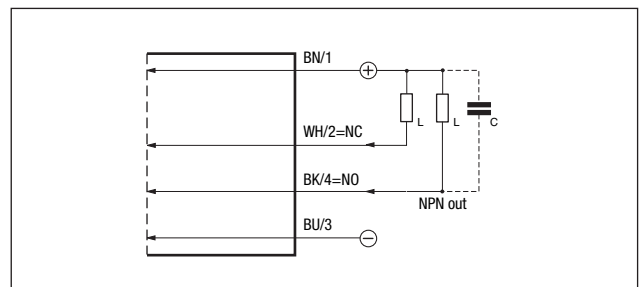
Modelli / Models	CE1/0*-1*	CE2/0*-1*
Distanza di rilevazione nominale / Nominal sensing distance S_n	10 mm	
Distanza di lavoro / Operating distance	1,5...7,2 mm (schermato / shielded)	
Corsa differenziale / Differential travel	2...15%	
Ripetibilità / Repeat accuracy	5%	
Tensione di alimentazione / Supply voltage	10...30 Vdc	
Ondulazione residua / Ripple	≤ 15%	
Corrente assorbita / No-load supply current	17 mA	
Corrente di uscita / Load current	≤ 100 mA	
Corrente di perdita / Leakage current	≤ 1 μA	
Caduta di tensione in uscita / Voltage drop	1,5V max. $I_L=100$ mA	
Tipo di uscita / Output type	NPN o / or PNP NO+NC - collettore aperto / open collector	
Frequenza di commutazione / Switching frequency	300 Hz	
Frequenza di auto-diagnosi / Self-monitoring pulse frequency	Periodo / Period 4-8 ms (6,2 ms nominale / nominal) Durata / Duration 150-300 μs (220 μs nominale / nominal)	
Protezioni elettriche alimentazione / Supply electrical protection	Inversione di polarità, sovratensioni impulsive <i>Polarity reversal, transient</i>	
Protezione elettriche uscita / Output electrical protection	Corto circuito (autoripristinante) / Short circuit (autoreset)	
Limiti di temperatura / Temperature range	-25°...+70°C	
Deriva termica / Thermal drift	20% Sr	
Grado di protezione / Protection degree	IP 65	
Indicatori LED / LED indicators	Giallo (uscita NO attiva) / Yellow (NO output energized)	
Materiali corpo / Housing material	Acciaio inox / Stainless steel	
Materiali faccia attiva / Sensing face material	LCP	
Peso / Weight	200 g versione a cavo / cable version 80 g versione a connettore M12 / M12 plug version	

Schemi elettrici delle connessioni - Electrical diagrams of the connections

Schema di collegamento PNP
Wiring diagram PNP

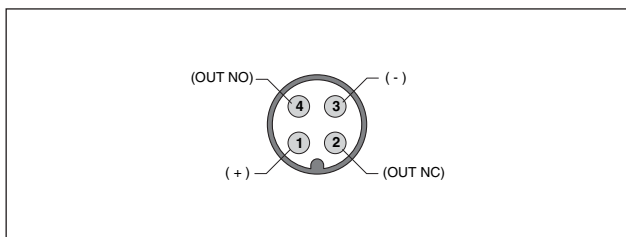


Schema di collegamento NPN
Wiring diagram NPN



Connettore - Plug

M12 - NO+NC

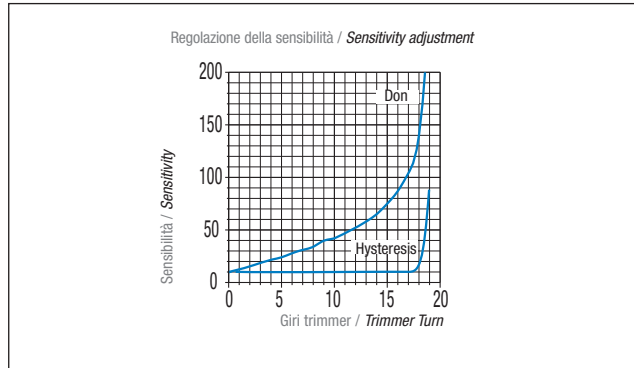
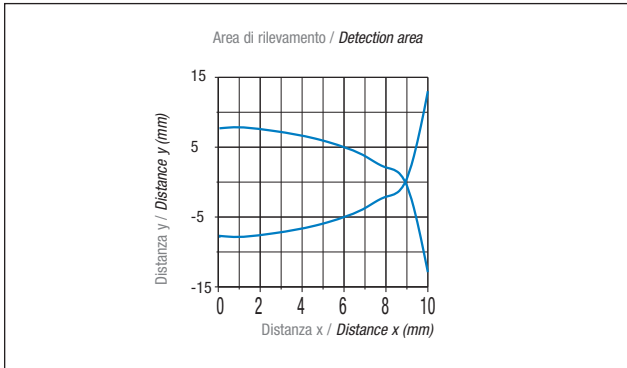


Legenda Key

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

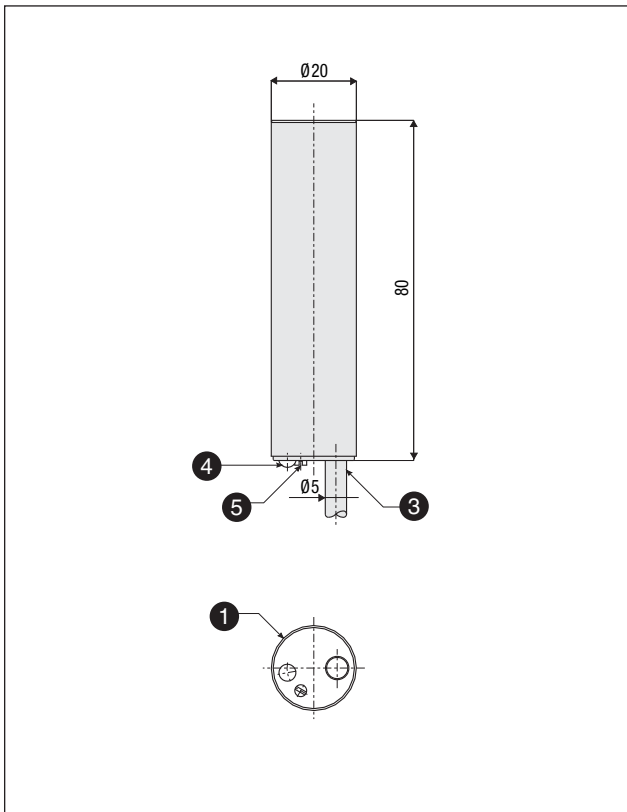
Connettori serie CD / Connectors CD series

Curva di risposta - Response diagram

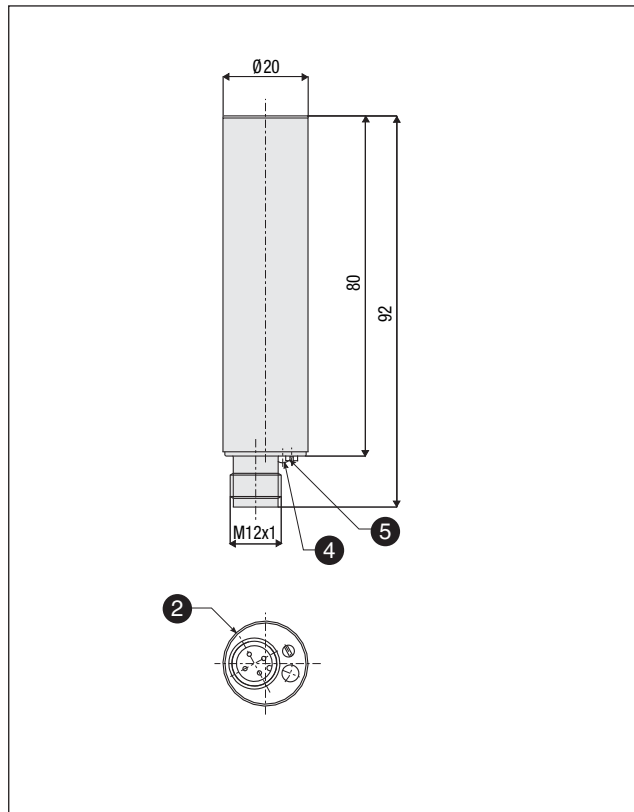


Dimensioni - Dimensions

CE*/0*-1A



CE*/0*-1E



Legenda / Key

- ① Uscita cavo
Axial cable exit
- ② Uscita connettore M12
M12 plug cable exit
- ③ Cavo 3x0,34 mm², Ø5 mm, PVC, 3 m
Cable 3x0,34 mm², Ø5 mm, PVC, 3 m
- ④ Indicatore LED giallo (uscita NO attiva)
Yellow LED indicators (NO output energized)
- ⑤ Trimmer per regolazione sensibilità (20 giri)
Trimmer for sensitivity adjustment (20 turns)

Sensori capacitivi M30 serie CT

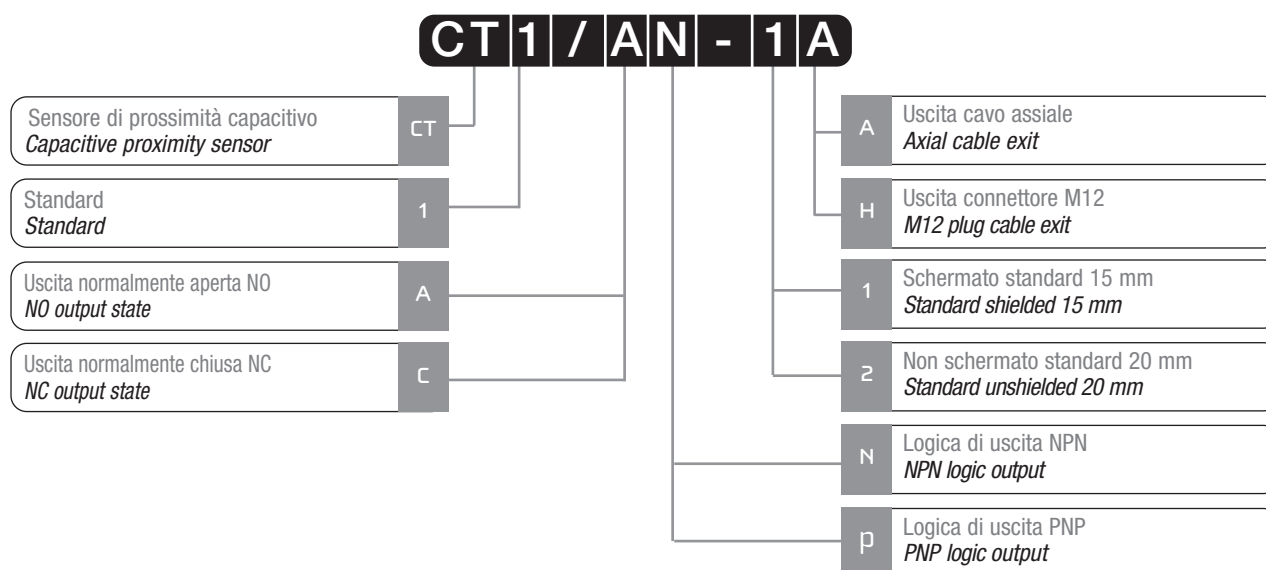
M30 capacitive sensor CT series



Caratteristiche principali Main features

- > Regolazione della sensibilità mediante trimmer
> *Sensitivity adjustment with trimmer*
- > Contenitore metallico
> *Metal housing*
- > Grado di protezione IP65
> *IP65 protection degree*
- > Totalmente protetti contro danneggiamenti di tipo elettrico
> *Complete protection against electrical damages*
- > Uscita cavo assiale o connettore M12
> *Axial cable exit or M12 plug cable exit*
- > Marchio CE
> *CE Mark*

Descrizione del codice - Code structure



Modelli disponibili - Available models

Modelli / Models

Diametro <i>Diameter</i>	Montaggio <i>Installation</i>	Portata <i>Distance</i>	Conn. <i>Plug</i>	NPN-NO	NPN-NC	PNP-NO	PNP-NC
M30	Schermato <i>Shielded</i>	15 mm	Cavo / Wire	CT1/AN-1A	CT1/CN-1A	CT1/AP-1A	CT1/CP-1A
			M12	CT1/AN-1H	CT1/CN-1H	CT1/AP-1H	CT1/CP-1H
	Non Schermato <i>Unshielded</i>	20 mm	Cavo / Wire	CT1/AN-2A	CT1/CN-2A	CT1/AP-2A	CT1/CP-2A
			M12	CT1/AN-2H	CT1/CN-2H	CT1/AP-2H	CT1/CP-2H

Codici di classe C / C class codes

N.B. I prodotti di classe C possono presentare limitazioni nei termini di consegna o sui quantitativi ordinabili

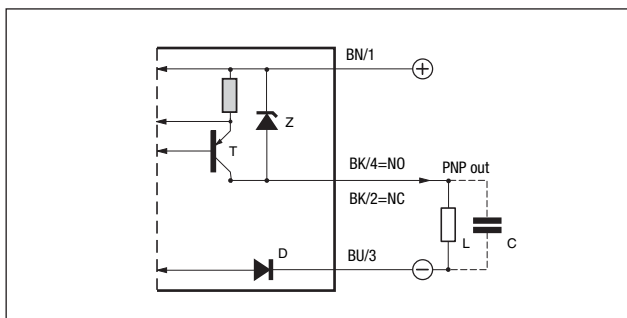
Note: The class C products could be subject to delays in delivery terms or limits for the quantities to be ordered

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

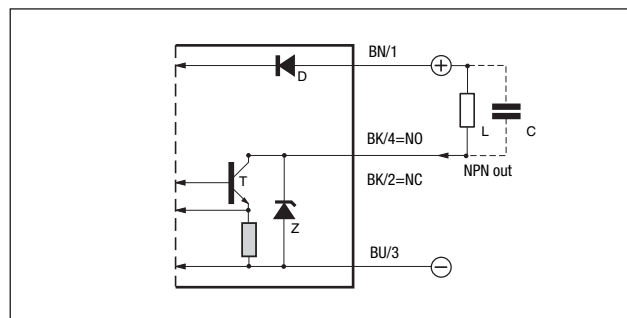
Modelli / Models	CT1/**-1*	CT1/**-2*
Distanza di rilevazione nominale S_n / Nominal sensing distance S_n	2...15 mm	2...20 mm
Distanza di lavoro / Operating distance	2...12 mm	2...16 mm
Corsa differenziale / Differential travel		2...20%
Ripetibilità / Repeat accuracy		10%
Tensione di alimentazione / Supply voltage		10...30 Vdc
Ondulazione residua / Ripple		≤ 10%
Corrente assorbita / No-load supply current		8 mA
Corrente di uscita / Load current		≤ 200 mA
Corrente di perdita / Leakage current		≤ 10 mA
Caduta di tensione in uscita / Voltage drop		0,75/1,8 V max. $I_L=10/200$ mA
Tipo di uscita / Output type	NPN o PNP / NO o NC collettore aperto / Open collector	
Frequenza di commutazione / Switching frequency	100 Hz	
Ritardo alla disponibilità / Time delay before availability	100 ms	
Protezioni elettriche alimentazione / Supply electrical protection	All'inversione di polarità, sovratensioni / Impulsive polarity reversal, transient	
Protezione elettrica uscita / Output electrical protection	Al cortocircuito (autoripristinante) / Short circuit (autoreset)	
Limiti di temperatura / Temperature range	-25°...+70°C	
Deriva termica / Thermal drift	20% Sr	
Grado di protezione / Protection degree	IP65	
Indicatori LED / LED indicators	Verde (alimentazione), rosso (uscita in stato eccitato) Green (supply), red (output energized)	
Materiali corpo / Housing material	Ottone nichelato / Nichel plated brass	
Materiali faccia attiva / Sensing face material	PBT	
Coppia di serraggio / Tightening torque	100 Nm	
Peso / Weight	260 g versione a cavo / cable version 185 g versione a connettore M12 / M12 plug version	

Schemi elettrici delle connessioni - Electrical diagrams of the connections

Schema di collegamento PNP
Wiring diagram PNP

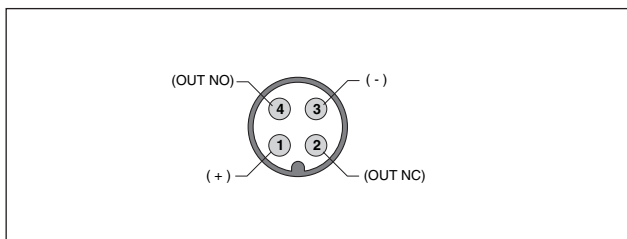


Schema di collegamento NPN
Wiring diagram NPN



Connettore - Plug

M12 NO o/or NC



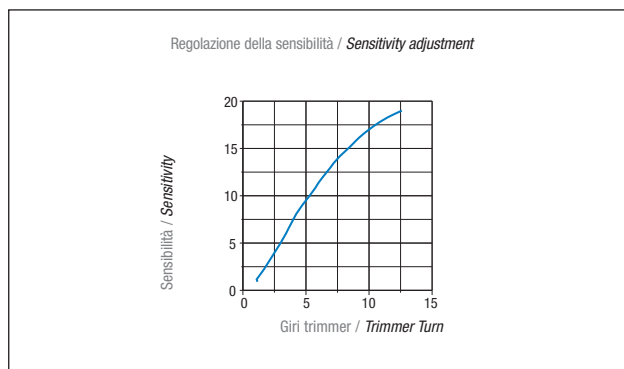
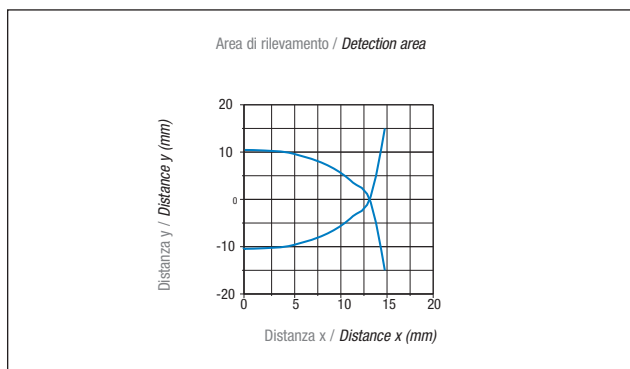
Connettori serie CD / Connectors CD series

Legenda Key

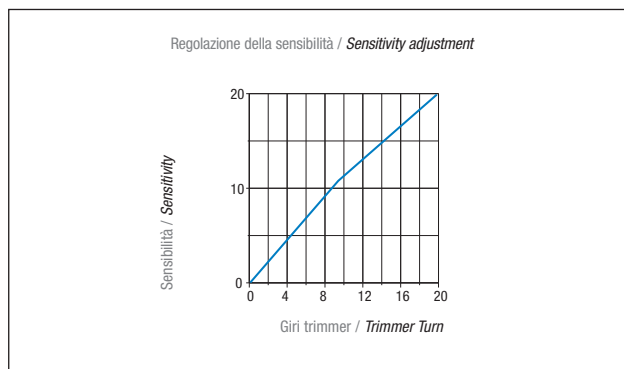
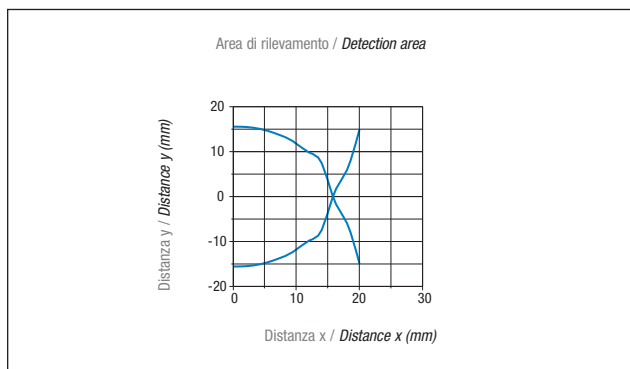
- BN → marrone/brown
- BK → nero/black
- PK → rosa/pink
- BU → blu/blue
- WH → bianco/white
- GY → grigio/gray

Curva di risposta - Response diagram

> CT1/**-1*



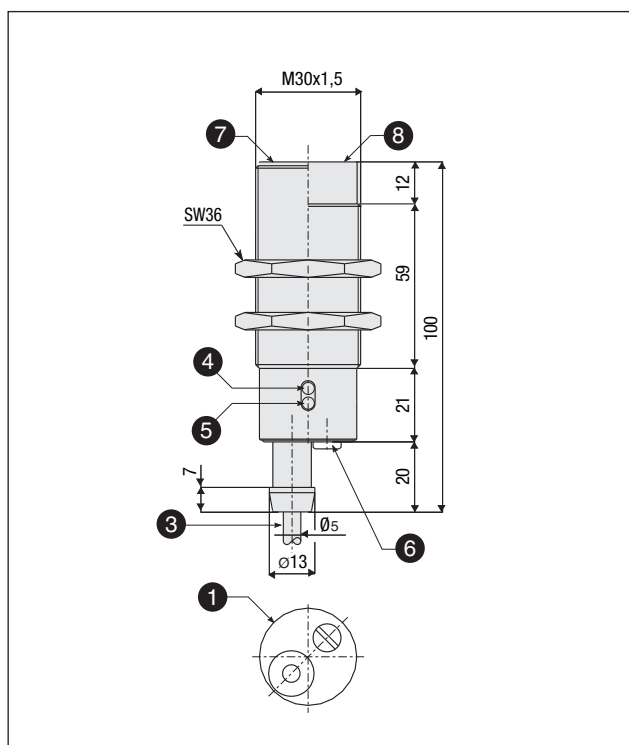
> CT1/**-2*



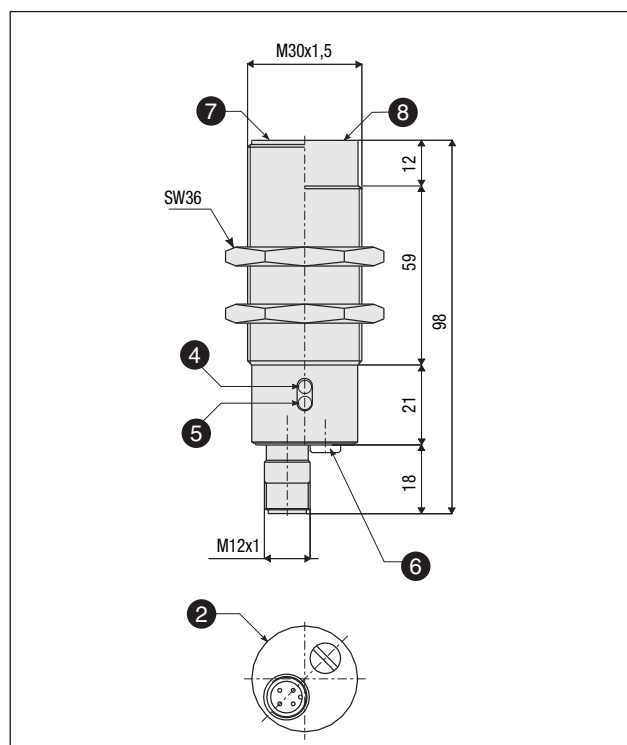
a

Dimensioni - Dimensions

CT1/**-*A



CT1/**-*E



Legenda / Key

- | | |
|--|--|
| <p>① Uscita cavo
<i>Axial cable exit</i></p> <p>② Uscita connettore M12
<i>M12 plug cable exit</i></p> <p>③ Cavo 3x0,34 mm², Ø5 mm, PVC, 2 m
<i>Cable 3x0,34 mm², Ø5 mm, PVC, 2 m</i></p> <p>④ Indicatore LED giallo (uscita NO attiva)
<i>Yellow LED indicators (NO output energized)</i></p> | <p>⑤ Indicatore LED rosso (alimentazione)
<i>Red LED indicators (supply)</i></p> <p>⑥ Trimmer per regolazione sensibilità (20 giri)
<i>Trimmer for sensitivity adjustment (20 turns)</i></p> <p>⑦ Versione schermata
<i>Shielded model</i></p> <p>⑧ Versione non schermata
<i>Unshielded model</i></p> |
|--|--|



MODELLI SPECIALI
special models



Modelli Speciali

Special models



Sono disponibili modelli speciali identificati da due caratteri (XX) dopo il codice standard. Tali modelli possono presentare limitazioni riguardanti quantità minime ordinabili e disponibilità e quindi è necessario contattare sempre MD Micro Detectors o i suoi Distributori.

Special models are available. They are identified through two characters (XX) added at the end of the standard code. They could have limitations on minimum ordered quantity and availability. Hence, contact always MD Micro Detectors or its Distributors.

Per esempio - For example

Codice / Code	AM	1	/	A	P	-	1	H	XX	
Posizione / Position	1	2		3	4		5	6	7	
										Modello speciale Special model

Possibili modelli speciali sono: / Possible special models are:

Modelli / Models	Descrizione / Description	
AN	CE II 3G Ex nA IIC T5 II 3D Ex tD A22 IP67 T 90°C	Certificazione ATEX categoria 3 per i modelli: Category 3 ATEX certification for series: AH, AE
	CE II 3G Ex nA IIC T6 II 3D Ex tD A22 IP67 T 85°C	Certificazione ATEX categoria 3 per i modelli: Category 3 ATEX certification for series: AM-PM3, AK-PK3, AT
	CE II 3G Ex nA IIC T6 II 3D Ex tD A22 IP67/68 T 85°C	Certificazione ATEX categoria 3 per i modelli: Category 3 ATEX certification for series: PMS-PMW, PKS-PKW
4W	Corpo in acciaio inox AISI303 / AISI303 stainless steel housing	
84	Lunghezza cavo 3 m / 3 m cable length	
85	Lunghezza cavo 4 m / 4 m cable length	
86	Lunghezza cavo 5 m / 5 m cable length	
V5	Corpo liscio / Smooth housing	

Altri modelli speciali sono disponibili su richiesta / Other special models are available on request



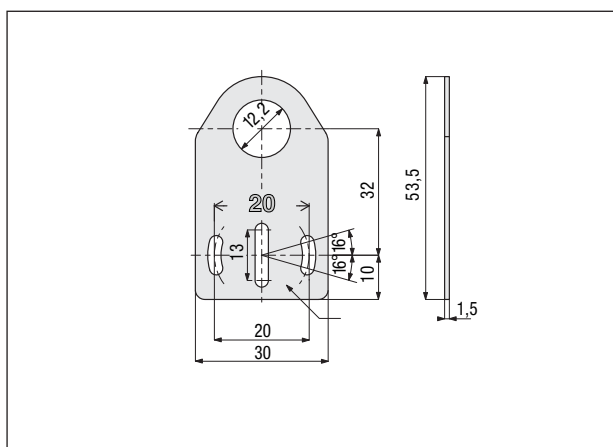
ACCESSORI DI INSTALLAZIONE
MOUNTING accessories



MOUNTING accessories

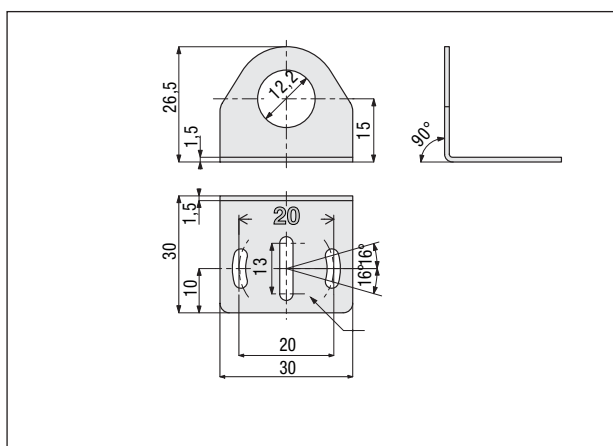
ST12-A

Staffa di fissaggio assiale M12
M12 axial fixing bracket



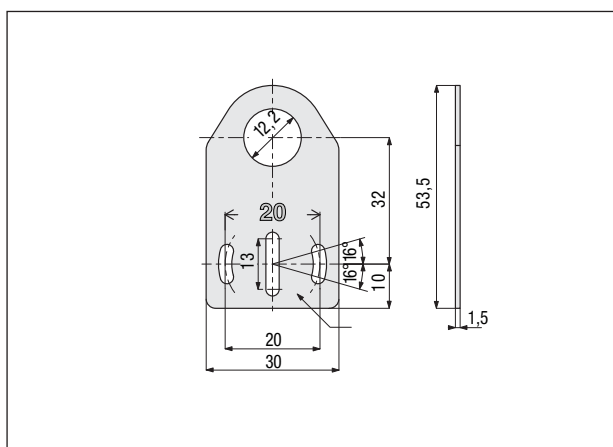
ST12-C

Staffa di fissaggio radiale M12
M12 right angle fixing bracket



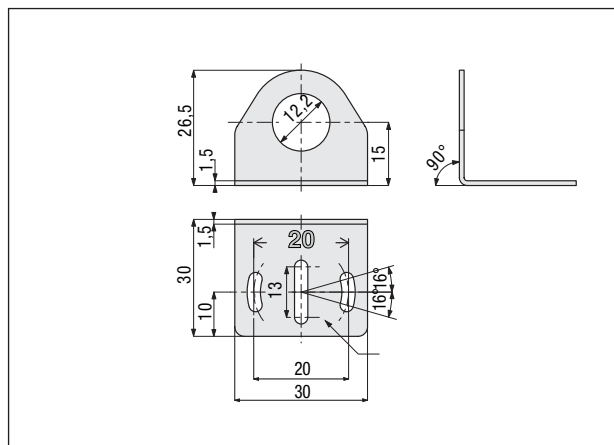
ST12-A7W

Staffa di fissaggio assiale M12 in acciaio inox
AISI316L (DIN 1.4404)
M12 stainless steel AISI316L (DIN 1.4404) axial
fixing bracket



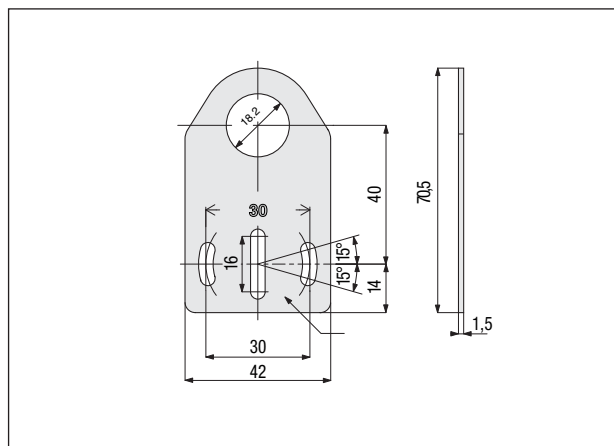
ST12-C7W

Staffa di fissaggio radiale M12 in acciaio inox
 AISI316L (DIN 1.4404)
*M12 stainless steel AISI316L (DIN 1.4404) right
 angle fixing bracket*



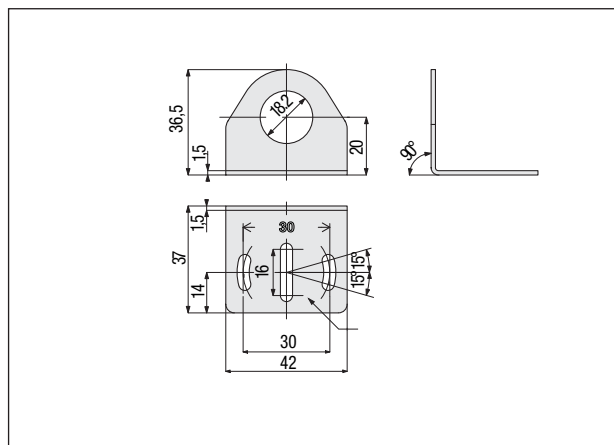
ST18-A

Staffa di fissaggio assiale M18
M18 axial fixing bracket



ST18-C

Staffa di fissaggio radiale M18
M18 right angle fixing bracket

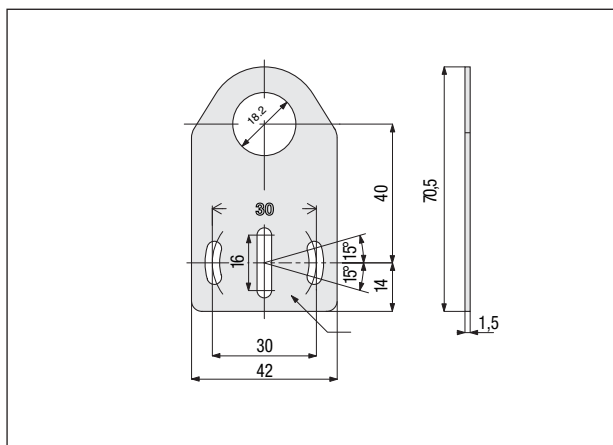


MOUNTING accessories

ST18-A7W

Staffa di fissaggio assiale M18 in acciaio inox
AISI316L (DIN 1.4404)

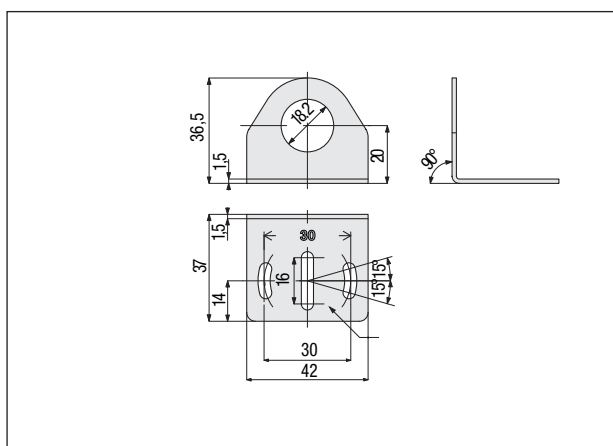
*M18 stainless steel AISI316L (DIN 1.4404) axial
fixing bracket*



ST18-C7W

Staffa di fissaggio radiale M18 in acciaio inox
AISI316L (DIN 1.4404)

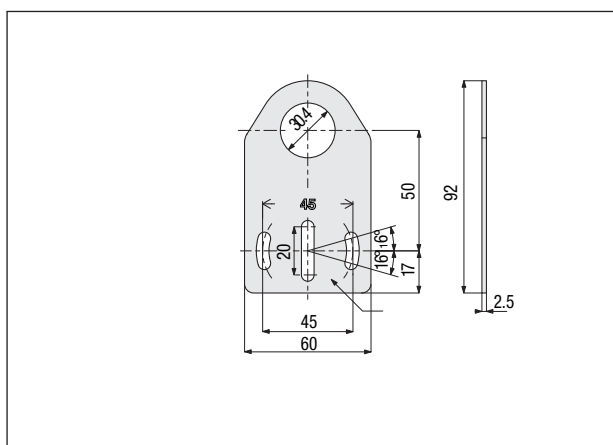
*M18 stainless steel AISI316L (DIN 1.4404) right
angle fixing bracket*



ST30-A

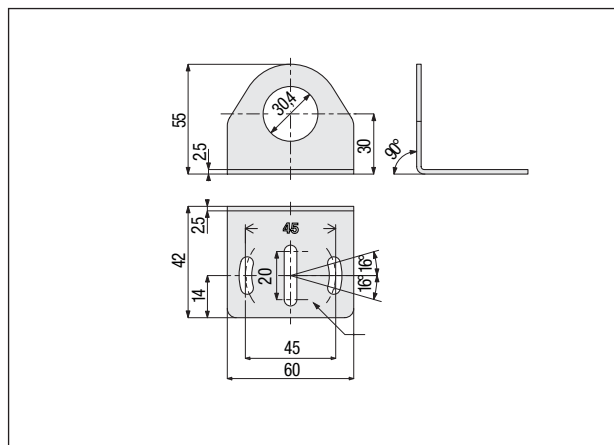
Staffa di fissaggio assiale M30

M30 axial fixing bracket



ST30-C

Staffa di fissaggio radiale M30
M30 right angle fixing bracket



Connettori a cavo in PVC - Connectors with PVC cable

Modelli / Models

Connettore / Plug	Nr. Poli / Wires	Led	Assiale / Axial	90°	Lunghezza (m) / Length (m)
M8	3	no	CD08/OA-***A1	CD08/OA-***C1	2 - 5 - 7 - 10
M12	3 poli / 3 wires NO	no	CD12M/AA-***A1	CD12M/AA-***C1	2 - 5 - 7 - 10
	3 poli / 3 wires NC	no	CD12M/CA-***A1	CD12M/CA-***C1	
	4 poli / 4 wires	no	CD12M/OB-***A1	CD12M/OB-***C1	
M12 LED	3 poli / 3 wires NO-NPN	2 led	/	CD12M/NA-***C1	2 - 5 - 7 - 10
	3 poli / 3 wires NO-PNP	2 led	/	CD12M/PA-***C1	
	4 poli / 4 wires NO/NC -PNP	2 led	/	CD12M/VB-***C1	
	4 poli / 4 wires DECOUT	bi - led	/	CD12M/DB-***C1	
M12 IP69K Food & Beverage	4 poli / 4 wires	no	CD12F/OB-050A1	CD12F/OB-050C1	5

***=020 (2m); ***=050 (5m); ***=070 (7m); ***=100 (10m)

Connettori a cavo in PUR - Connectors with PUR cable

Modelli / Models

Connettore / Plug	Nr. Poli / Wires	Led	Assiale / Axial	90°	Lunghezza (m) / Length (m)
M8	3	no	CD08/OA-***A5	CD08/OA-***C5	2 - 5 - 10
M12	3 poli / 3 wires NO	no	CD12M/AA-***A5	CD12M/AA-***C5	2 - 5 - 10
	4 poli / 4 wires	no	CD12M/OB-***A5	CD12M/OB-***C5	

***=020 (2m); ***=050 (5m); ***=100 (10m)

Connettori a cablare - Connectors without cable

Modelli / Models

Connettore / Plug	Tipo / Type	Fissaggio / Connection	Nr. Poli / Wires	Assiale / Axial	90°
M8	Maschio / Male	Terminali a molla / Spring terminals	3	CV08/1A-00A	/
		Terminali a vite / Screw terminals	3	CV08/OA-00A	/
	Femmina / Female	Terminali a molla / Spring terminals	3	CL08/1A-00A	/
		Terminali a vite / Screw terminals	3	CL08/OA-00A	/
M12	Maschio / Male	Terminali a vite / Screw terminals	4	CV12/OB-00A	CV12/OB-00B
	Femmina / Female	Terminali a vite / Screw terminals	4	CL12/OB-00A	CL12/OB-00C

Cavi di prolunga - Extension cable

Modelli / Models

Connettore / Plug	Nr. Poli / Wires	Conn. Femmina Female plug	Conn. Maschio Male plug	Modello Models	Lunghezza (m) / Length (m)
M8	3	Assiale / Axial	Assiale / Axial	CDP08/OA-***AA	1 - 3
		90°	Assiale / Axial	CDP08/OA-***BA	
		90°	90°	CDP08/OA-***BB	
M12	4	Assiale / Axial	Assiale / Axial	CDP12/OB-***AA	1 - 3
		90°	Assiale / Axial	CDP12/OB-***BA	
		90°	90°	CDP12/OB-***BB	
	3 (F:1,3,2) --> (M:1,3,4)	Assiale / Axial	Assiale / Axial	CDP12/CB-***AA	
		90°	Assiale / Axial	CDP12/CB-***BA	
	3 (F:1,3,2/4) --> (M:1,3,4)	Assiale / Axial	Assiale / Axial	CDP12/CA-***AA	
		90°	Assiale / Axial	CDP12/CA-***BA	
	3 (F:1,3,4) --> (M:1,3,4)	Assiale / Axial	Assiale / Axial	CDP12/AA-***AA	
90°		Assiale / Axial	CDP12/AA-***BA		
M8 - M12	3	M8 Assiale / Axial	M12 Assiale / Axial	CDP82/OA-***AA	1 - 3
		M8 90°	M12 Assiale / Axial	CDP82/OA-***BA	

