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Micro Detectors



SENSORI PER APPLICAZIONI ALIMENTARI

sensors for food and beverage applications

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Micro Detectors

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

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*

Equivalenze tra prodotti chimici:

Chemicals equivalences:

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

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:

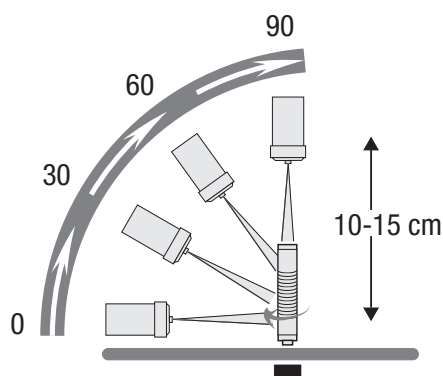
- ✓ *deionised water*
- ✓ *P3-clint KF V alkaline*
- ✓ *P3-topactive DES V contains hydrogen peroxide and peracetic acid*
- ✓ *P3-topax 19 V alkaline*
- ✓ *P3-topax 36 V highly alkaline*
- ✓ *P3-topax 52 V acid*
- ✓ *P3-topax 66 V alkaline with available chlorine*
- ✓ *P3-topax 91 V neutral*
- ✓ *P3-oxonia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

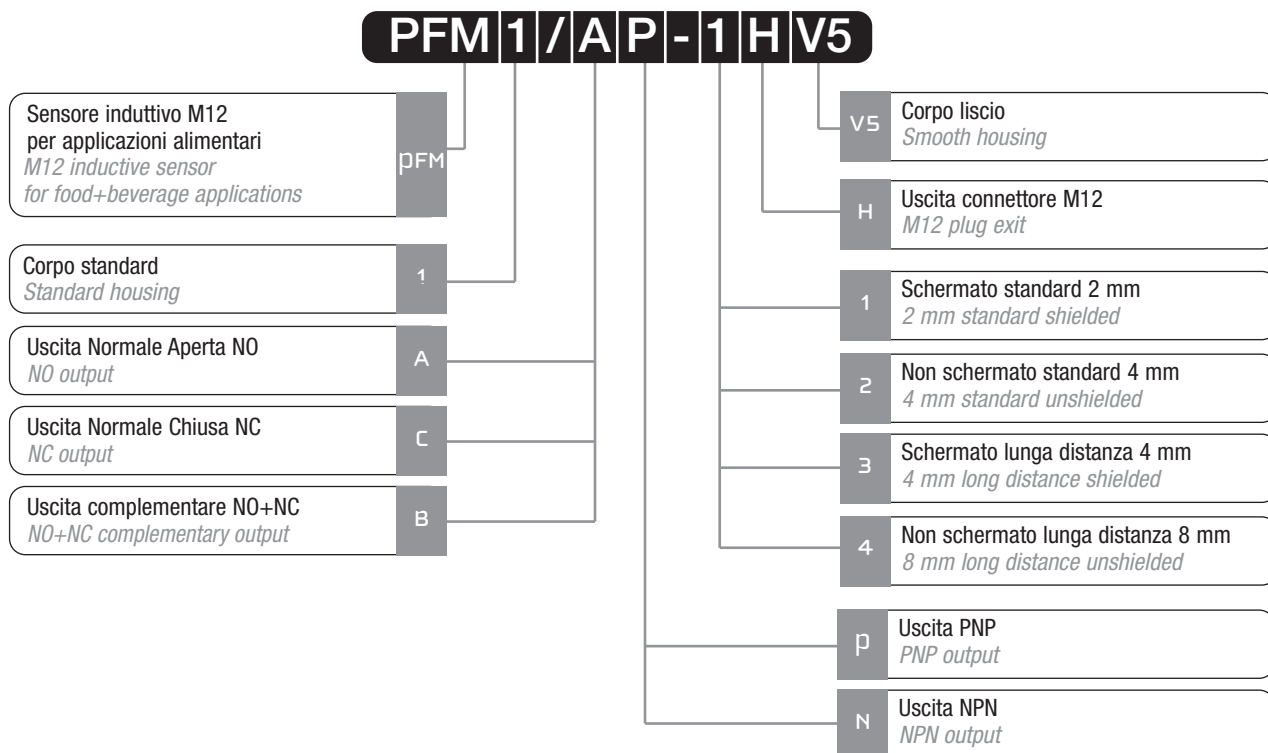


Caratteristiche principali

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
- > CE Mark

Descrizione del codice - Code structure



SENSORI DI PROSSIMITÀ INDUTTIVI M12

M12 proximity inductive sensors

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 schermato <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 schermato <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 schermato <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 schermato <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

Coefficienti di riduzione

Correction factors

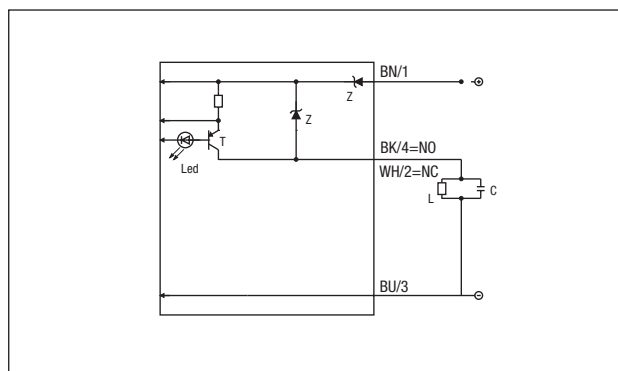
Codice Code	Acciaio Steel FE 360	Rame Copper	Alluminio Aluminum	Ottone Brass	Acciaio INOX Stainless steel
PFM1/**-1*	1	0.02	0.1	0.2	0.68
PFM1/**-2*	1	0.33	0.4	0.5	0.8
PFM1/**-3*	1	0.09	0.16	0.25	0.7
PFM1/**-4*	1	0.33	0.4	0.45	0.75

Tolleranza $\pm 10\%$ / Tolerance $\pm 10\%$

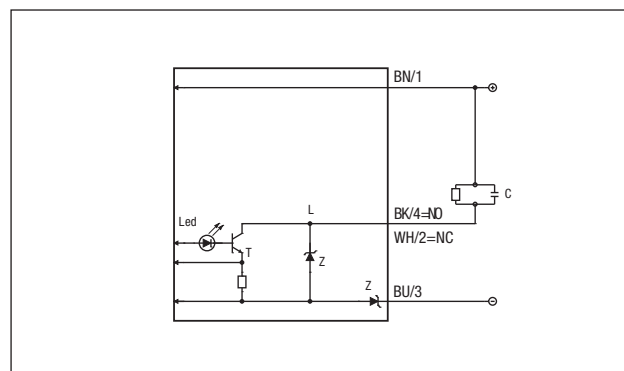
Schema di collegamento

Wiring diagram

PNP - NO o/or NC

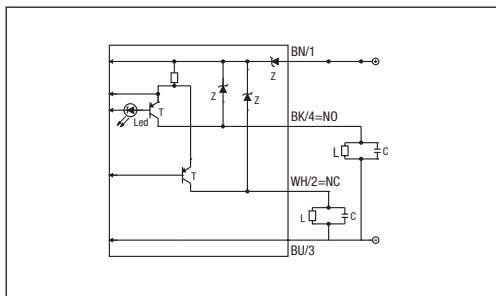


NPN - NO o/or NC

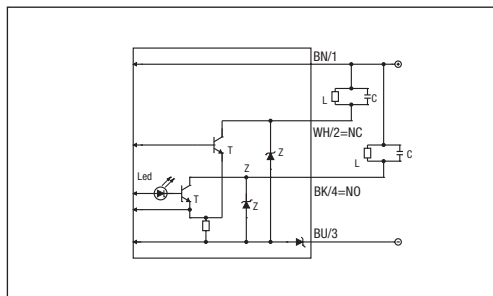


Schema di collegamento - Wiring diagram

PNP – NO + NC



NPN – NO + NC

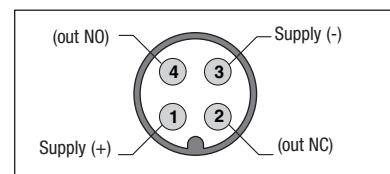
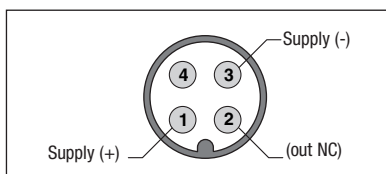
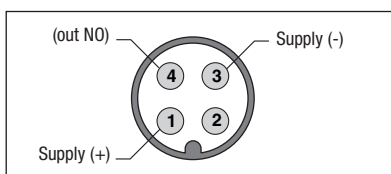


Legenda Legend

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

Connettori - Plugs

> M12



Specifiche (In accordo con IECEN 60947-5-2 / DIN 44030) - Specifications (Acc. to IECEN 60947-5-2 / DIN 44030)

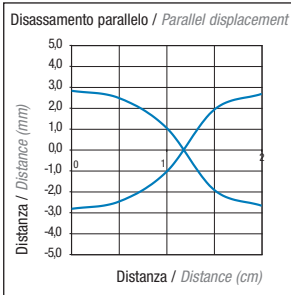
Modello / Model	PFM1/**-1H	PFM1/**-2H	PFM1/**-3H	PFM1/**-4H
Distanza nominale / Rated operative distance <i>S_n</i>	2 mm	4 mm	4 mm	8 mm
Corsa differenziale / Hysteresis		1 ÷ 20%		
Dimensione azionatore normalizzato / Standard target	12x12 mm Fe360			24x24 mm Fe360
Ripetibilità / Repeat accuracy @ UB 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	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	Level 3 aria / air 8 kV		
	IEC 61000-4-3	Level 3 10 V/m		
	IEC 61000-4-4	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			

SENSORI DI PROSSIMITÀ INDUTTIVI M12

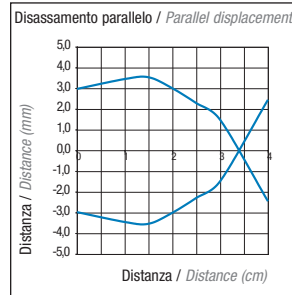
M12 PROXIMITY INDUCTIVE SENSORS

Curva di risposta - Response diagram

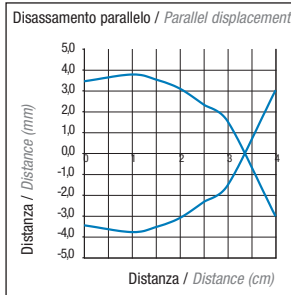
PFM1/**-1H



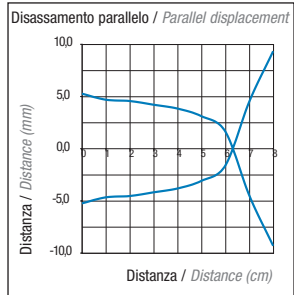
PFM1/**-2H



PFM1/**-3H



PFM1/**-4H

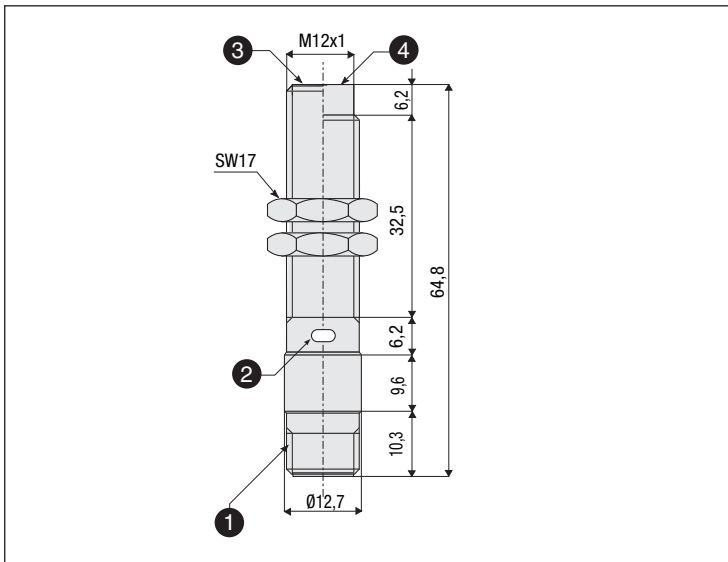


Montaggio

Installation

Modelli / Models	Montaggio / Installation	
	Materiali ferromagnetici Ferromagnetic material	Materiali non ferromagnetici No ferromagnetic material
PFM1/**-1*	0 mm	2.4 (0.2xd) mm
PFM1/**-2*	6 mm	0 mm
PFM1/**-3*	1.2 (0.1xd) mm	3.6 (0.3xd) mm
PFM1/**-4*	12 mm	

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

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PFM SERIES

Sensori di prossimità induttivi M18 - Serie PFK per applicazioni alimentari

M18 proximity inductive sensors – PFK Series
for food and beverage applications

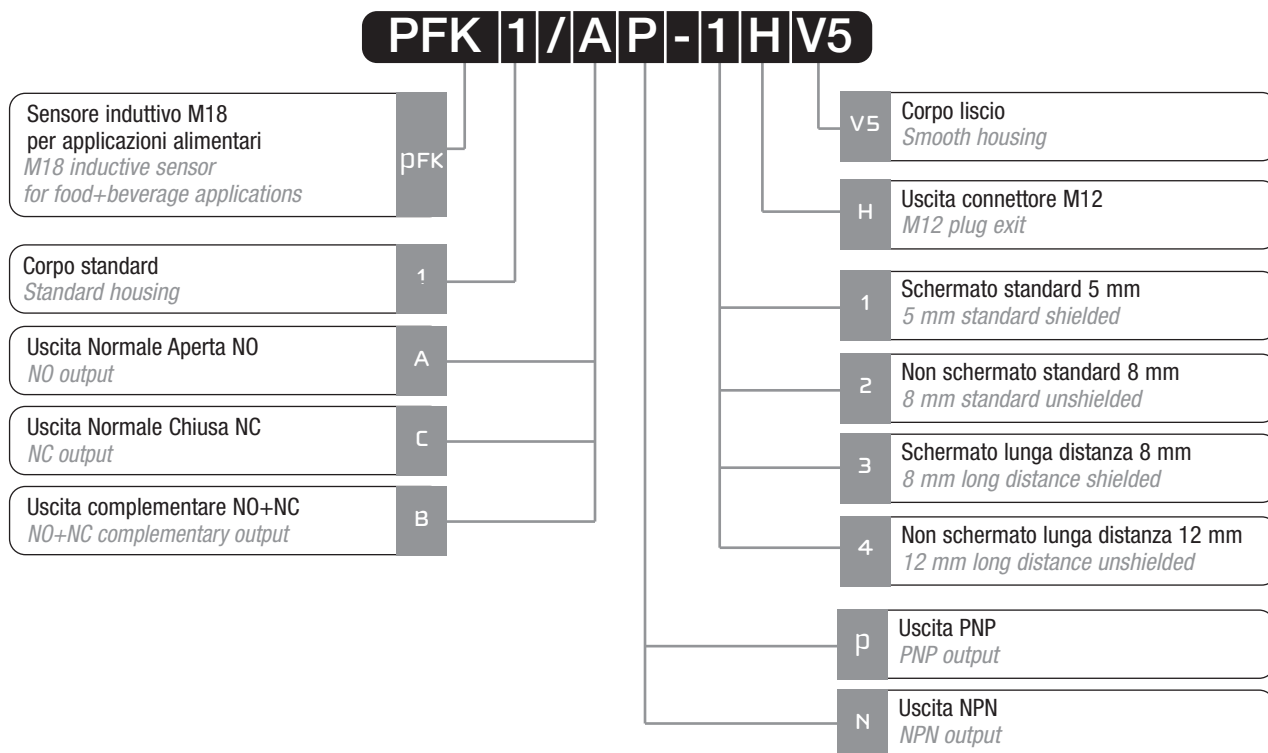


Caratteristiche principali

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
- > CE Mark

Descrizione del codice - Code structure



SENSORI DI PROSSIMITÀ INDUTTIVI M18

M18 proximity inductive sensors

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 schermato <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 schermato <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 schermato <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 schermato <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

Coefficienti di riduzione

Correction factors

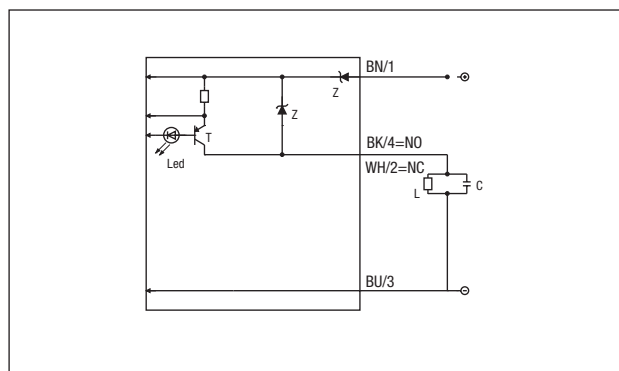
Codice Code	Acciaio Steel FE 360	Rame Copper	Alluminio Aluminum	Ottone Brass	Acciaio INOX Stainless steel
PFK1/**-1*	1	0.13	0.19	0.3	0.7
PFK1/**-2*	1	0.27	0.35	0.42	0.7
PFK1/**-3*	1	0.13	0.2	0.24	0.6
PFK1/**-4*	1	0.3	0.38	0.42	0.65

Tolleranza $\pm 10\%$ / Tolerance $\pm 10\%$

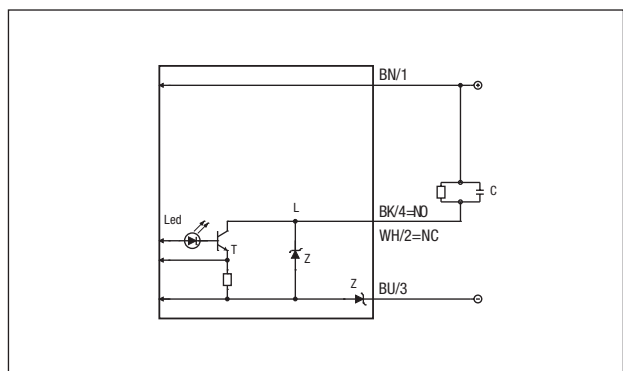
Schema di collegamento

Wiring diagram

PNP – NO o/or NC

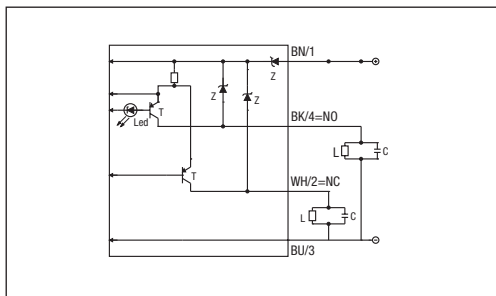


NPN – NO o/or NC

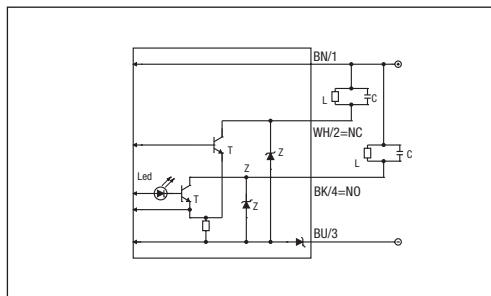


Schema di collegamento - Wiring diagram

PNP – NO + NC



NPN – NO + NC

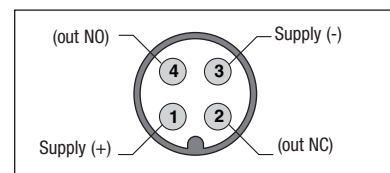
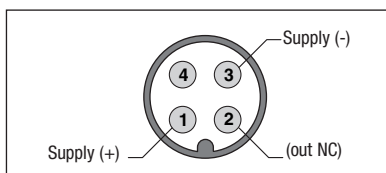
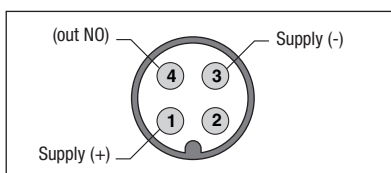


Legenda Legend

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

Connettori - Plugs

> M12



Specifiche (In accordo con IECEN 60947-5-2 / DIN 44030) - Specifications (Acc. to IECEN 60947-5-2 / DIN 44030)

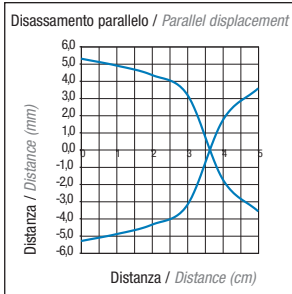
Modello / Model	PFK1/**-1H	PFK1/**-2H	PFK1/**-3H	PFK1/**-4H
Distanza nominale / Rated operative distance <i>Sn</i>	5 mm	8 mm	8 mm	12 mm
Corsa differenziale / Hysteresis		1 ÷ 20%		
Dimensione azionatore normalizzato / Standard target	18x18 mm Fe360	24x24 mm Fe360		36x36 mm Fe360
Ripetibilità / Repeat accuracy @ UB 20-30 V Ta = 23°C ± 5°C		5%		
Campo di tensione di alimentazione <i>Supply voltage range</i>		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 <i>No load supply current</i>		≤ 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 <i>Ambient temperature range</i>	-40 ÷ +80 °C, breve esposizione (15') a 100°C (durante processi di igienizzazione) <i>Short exposure (15') to 100°C (during cleaning processes)</i>			
Deriva termica di Sr / Temperature drift of Sr	10%			
Protezione al corto circuito / Short-circuit protection	Sì autoripristinante / Yes auto reset			
Protezione all'inversione di polarità di alimentazione <i>Voltage reversal protection</i>	Sì / Yes			
Protezione ai carichi induttivi / Induction protection	Sì / 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	Level 3 aria / air 8 kV		
	IEC 61000-4-3	Level 3 10 V/m		
	IEC 61000-4-4	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			

SENSORI DI PROSSIMITÀ INDUTTIVI M18

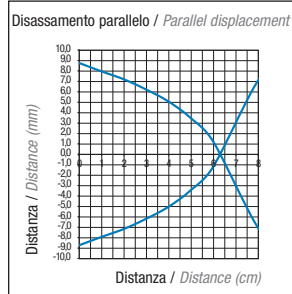
M18 proximity inductive sensors

Curva di risposta - Response diagram

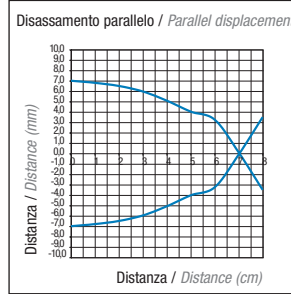
PFK1/**-1H



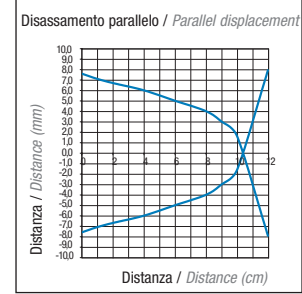
PFK1/**-2H



PFK1/**-3H



PFK1/**-4H

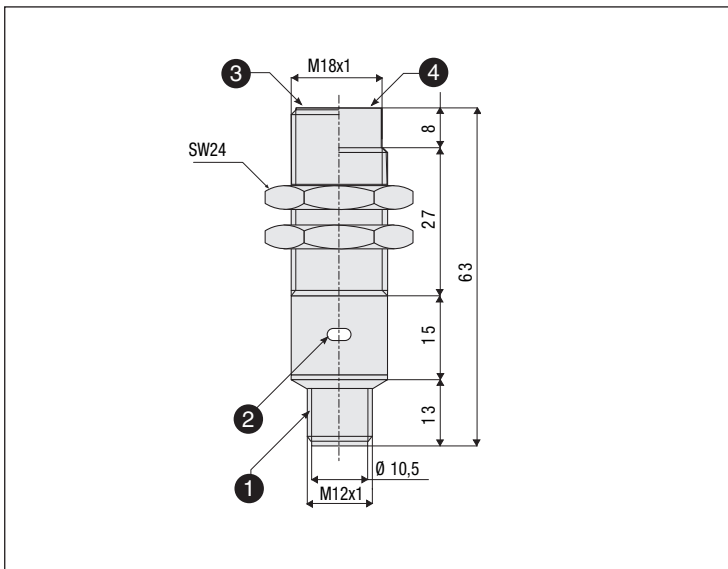


Montaggio

Installation

Modelli / Models	Montaggio / Installation	
	Materiali ferromagnetici <i>Ferromagnetic material</i>	Materiali non ferromagnetici <i>No ferromagnetic material</i>
PFK1/**-1*	3.6 (0.2Xd) mm	
PFK1/**-2*	12 mm	
PFK1/**-3*	1.8 (0.1Xd) mm	5.4 (0.3xd) mm
PFK1/**-4*	16 mm	

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 fotoelettrici M18 Serie FF per applicazioni alimentari

M18 photoelectric sensors – FF Series for food and beverage applications

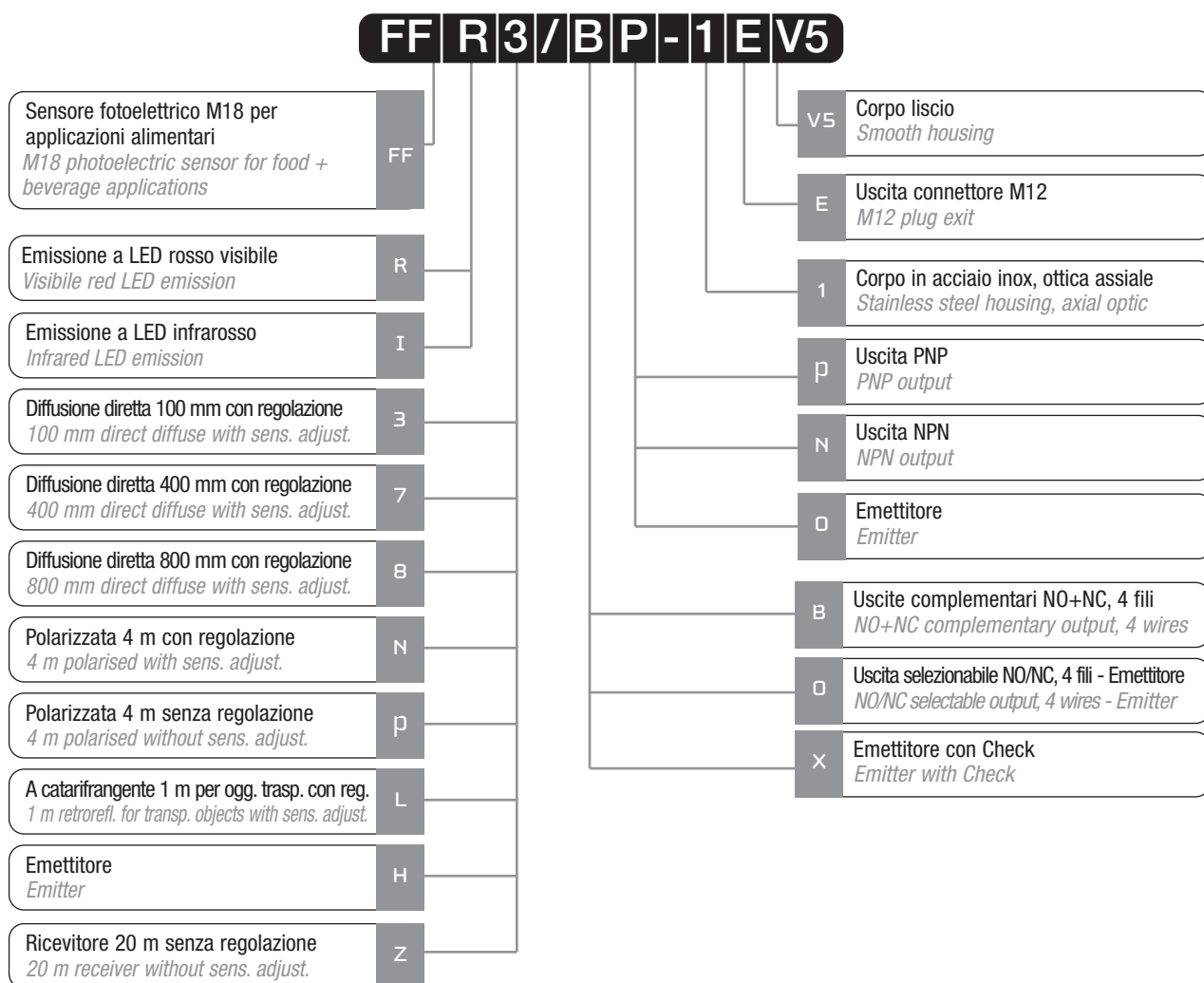


Caratteristiche principali

Main features

- > Corpo in acciaio inox AISI 316L (DIN 1.4404)
- > AISI 316L (DIN 1.4404) stainless steel housing
- > Indicatori LED: giallo (uscita), verde (funzione di teach-in)
- > LED status indicators: yellow (output), green (teach-in function)
- > Grado di protezione IP67 – IP68 – IP69K
- > IP67 – IP68 – IP69K protection degree
- > Totalmente protetti contro danneggiamenti di tipo elettrico
- > Complete protection against electrical damages
- > Modelli a diffusione diretta, polarizzati, a proiettore e ricevitore
- > Models with direct diffuse, polarised, through beam
- > Funzione di teach-in innovativa attraverso in tubo della fotocellula
- > Innovative teach-in function through sensor's housing

Descrizione del codice - Code structure



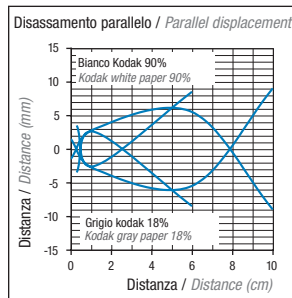
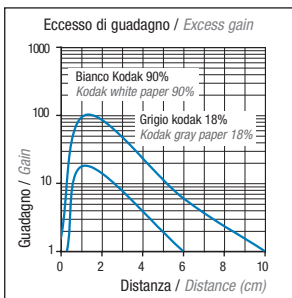
Modelli disponibili

Available models

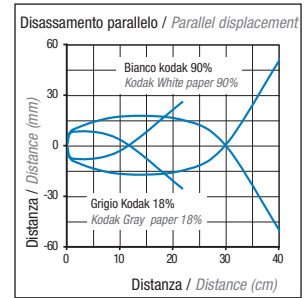
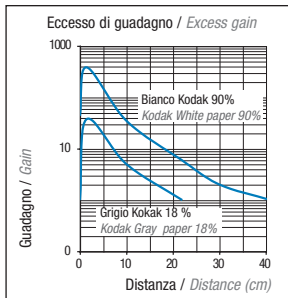
Modelli Models	Corpo Housing	Regolazione Adjustment	Portata Distance	4 fili/Wires NPN LO/DO	4 fili/Wires PNP LO/DO	4 fili/Wires NPN NO+NC	4 fili/Wires PNP NO+NC
Diffusione diretta Direct diffuse	AISI 316L (DIN 1.4404)	Teach-in	100 mm	FFR3/ON-1E	FFR3/OP-1E	FFR3/BN-1E	FFR3/BP-1E
			400 mm	FFI7/ON-1E	FFI7/OP-1E	FFI7/BN-1E	FFI7/BP-1E
			800 mm	FFI8/ON-1E	FFI8/OP-1E	FFI8/BN-1E	FFI8/BP-1E
Polarizzata Polarised	AISI 316L (DIN 1.4404)	Teach-in	4 m	FFRN/ON-1E	FFRN/OP-1E	FFRN/BN-1E	FFRN/BP-1E
		No	4 m	FFRP/ON-1E	FFRP/OP-1E	FFRP/BN-1E	FFRP/BP-1E
Catarifrangente per trasparenti Retroreflector for transparent objects	AISI 316L (DIN 1.4404)	Teach-in	1 m	FFRL/ON-1E	FFRL/OP-1E	FFRL/BN-1E	FFRL/BP-1E
Ricevitore Receiver	AISI 316L (DIN 1.4404)	No	20 m	FFIZ/ON-1E	FFIZ/OP-1E	FFIZ/BN-1E	FFIZ/BP-1E
Emettitore Emitter	AISI 316L (DIN 1.4404)	No	20 m	Senza / Without CHECK		Con / With CHECK	
				FFIH/00-1E	FFIH/X0-1E		

Curva di risposta - Response diagram

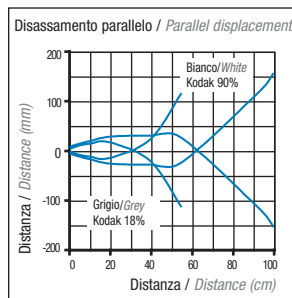
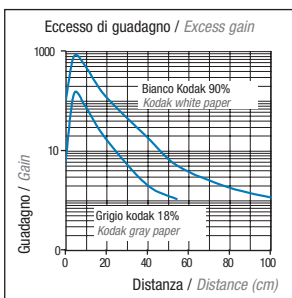
FFR3/**-1E



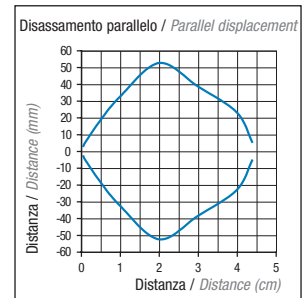
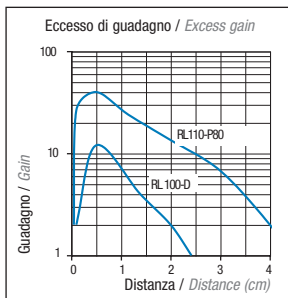
FFI7/**-1E



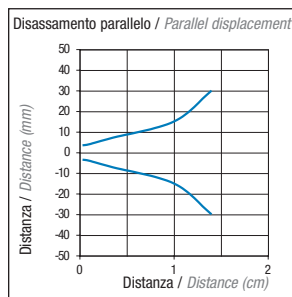
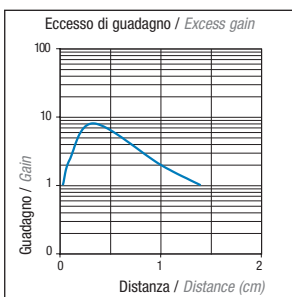
FFI8/**-1E



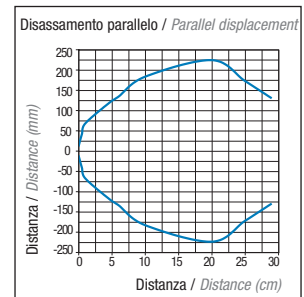
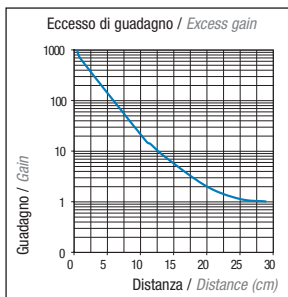
FFRN/**-1E ; FFRP/**-1E



FFRL/**-1E



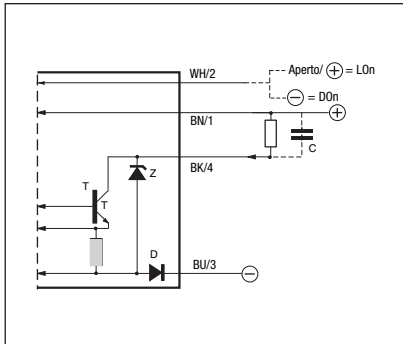
FFIH/**-1E + FFIZ/**-1E



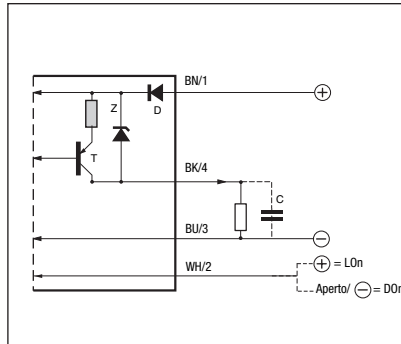
Schema di collegamento - Wiring diagram

> Uscita selezionabile LO/DO - LO/DO selectable output

NPN uscita / NPN output



PNP uscita / PNP output



Legenda Legend

- BN → marrone/brown
- BK → nero/black
- BU → blu/blue
- WH → bianco/white

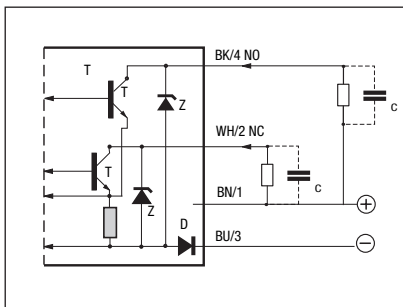
> Uscita complementare NO+NC

NO+NC complementary output

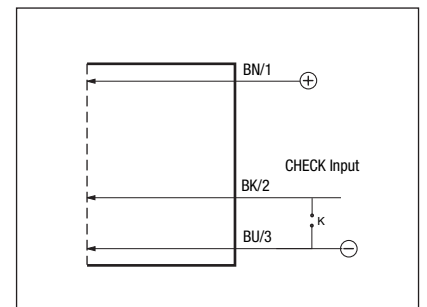
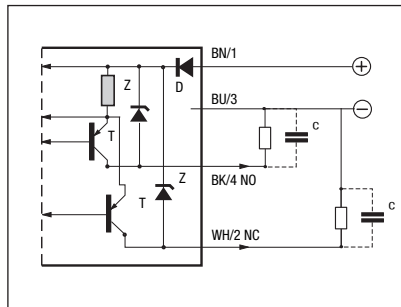
> Emettitori con Check

Emitters with Check

NPN uscita / NPN output

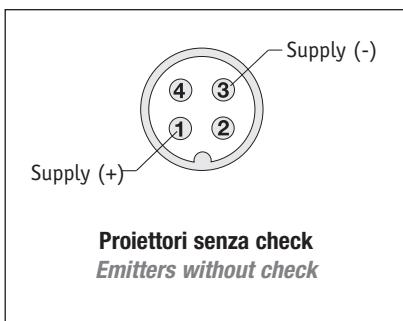


PNP uscita / PNP output

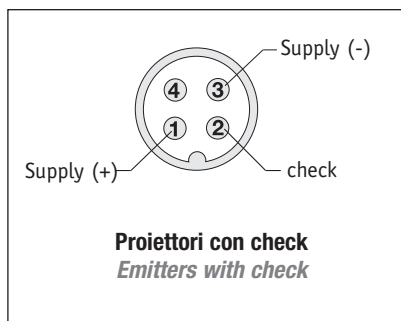


Connettori - Plugs

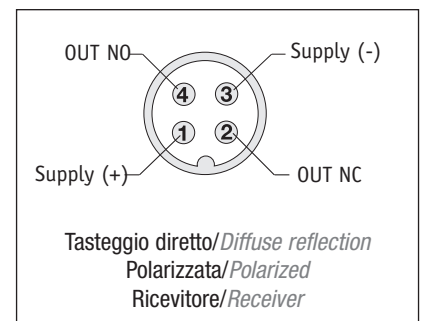
M12



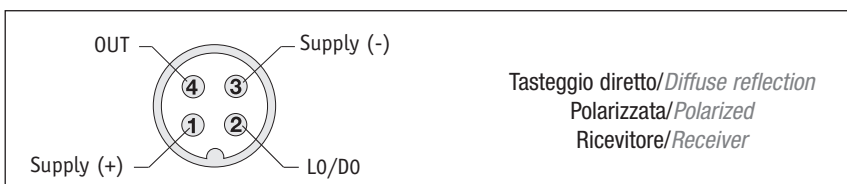
M12



M12 - Modelli/Models FF**/B***



M12 - Modelli/Models FF**/O***



Specifiche (In accordo con IECEN 60947-5-2 / DIN 44030)

Specifications (Acc. to IECEN 60947-5-2 / DIN 44030)

	Diffusione diretta			Catalfrangente			Barriera		
	Direct diffuse			Retroreflective			Through beam		
Modelli / Models	FFR3	FFI7	FFI8	FFRN	FFRP	FFRL	FFIZ	FFIH	
Distanza di rilevamento nominale (Sn) Nominal sensing distance (Sn)	100 mm (1)	400 mm (2)	800 mm (3)	4 m (4)		1 m (5)	20 m		
Emissione / Emission	660 nm			880 nm			-	880 nm	
Corsa differenziale / Differential travel	≤ 10%								
Ripetibilità / Repeat accuracy	5%								
Tolleranza / Tolerance	+15/-5% Sn								
Tensione di alimentazione Operating voltage	10-30 Vdc								
Ondulazione residua / Ripple	≤ 10%								
Corrente assorbita No load supply current	max 35mA (at Val=30V)						25 mA	40 mA	
Corrente di uscita / Load current	100 mA								
Corrente di perdita / Leakage current	≤ 10 µA @ Vmax								
Caduta di tensione in uscita Output voltage drop	2 Vmax. IL =100mA								
Tipo di uscita / Output type	NPN o / or PNP Uscita selezionabile / selectable output LO/DO o / or uscita complementare / complementary output NO+NC								
Frequenza di commutazione Switching frequency	500 Hz						250 Hz	-	
Ritardo alla disponibilità Time delay before availability	200 ms								
Protezioni elettriche alimentazione Supply electrical protections	Inversioni di polarità, transienti Polarity reversal, transient								
Protezioni elettriche uscita Supply electrical output	Corto circuito (autoripristinante) Short circuit (autoreset)								
Regolazione di sensibilità Sensitivity adjustment	Teach			NO		Teach		NO NO	
Limiti di temperature operativa Temperature range	-25°...+80° (senza ghiaccio / without freeze)								
Deriva termica / Temperature drift	10% Sr								
Interferenza alla luce esterna Interference external light	5000 lux (Lampada incandescente / Incandescent lamp) 10000 lux (luce solare / sunlight)								
Grado di protezione / Protection degree	IP67; IP68 (1m , 7 giorni / days); IP69K (secondo / according to DIN 40050 part 9)								
Indicatori LED LED indicators	Verde / Green ON : funzione di teach disponibile / teach function available OFF : funzione di teach bloccata / teach function blocked Lampeggio veloce / Fast flashing: teach fine attivo / fine teach active Lampeggio lento / Slow flashing: teach in corso / teach in progress Giallo / Yellow Stato dell'uscita – Eccesso di guadagno / Output state - Excess gain (*) (0 modelli / models) Stato luce – Eccesso di guadagno / Light State / Excess gain (*) (B modelli / models)						Giallo Yellow: Stato uscita Output state (0 modelli models); Stato luce Light State (B modelli models)	Giallo Yellow: Alimentazione attiva Supply on	
Materiale corpo / Housing material	Acciaio inox / Stainless steel AISI316L (DIN 1.4404)								
Uscita a connettore / Exit Connector	Grilamid								
Material ottica / Optic material	Ottica piana / Flat plane PMMA, FDA certificata / certified								
Coppia di serraggio / Tightening torque	107 Nm								
Approvazioni / Approvals	CE, cULus, IP68, IP69K, ECOLAB, Johnson Diversey								
Peso (approx.) / Weight (approx)	120gr								

(1) Con ostacolo bianco Kodak 90% 100x100 mm / White target Kodak 90% reflectcion 100 x 100 mm

(2) Con ostacolo bianco Kodak 90% 200x200 mm / White target Kodak 90% reflectcion 200 x 200 mm

(3) Con ostacolo bianco Kodak 90% 400x400 mm / White target Kodak 90% reflectcion 400 x 400 mm

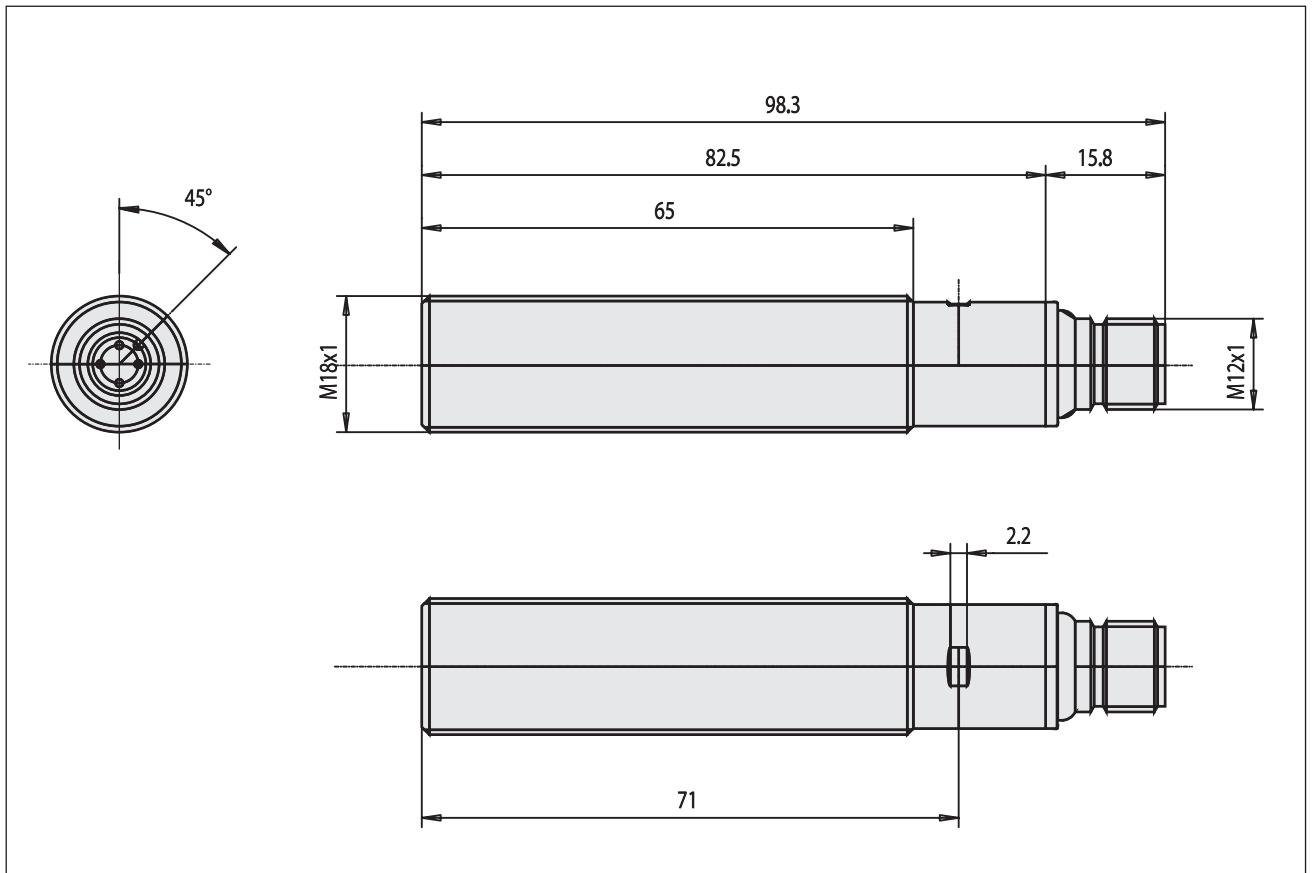
(4) Con riflettore RL110 / With RL110 reflector

(5) Con riflettore RL113G o RL116 / With RL113G or RL116 reflector

(*) LED giallo ON fisso: eccesso di guadagno >=2 / Yellow LED Fixed On: Excess Gain >=2

LED giallo lampeggiante: eccesso di guadagno <2 / Yellow LED flashing: Excess Gain <2

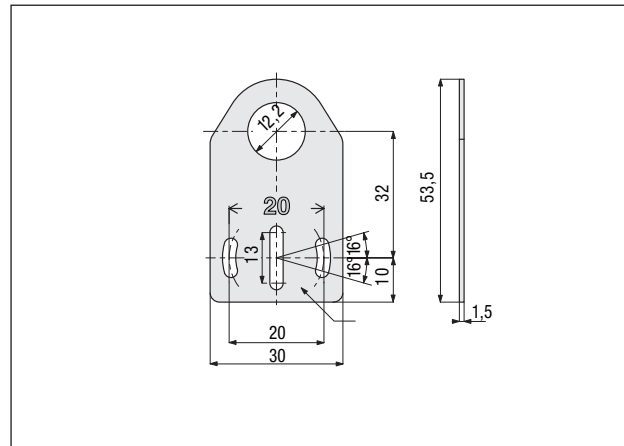
Dimensioni - Dimensions



ST12-A7W

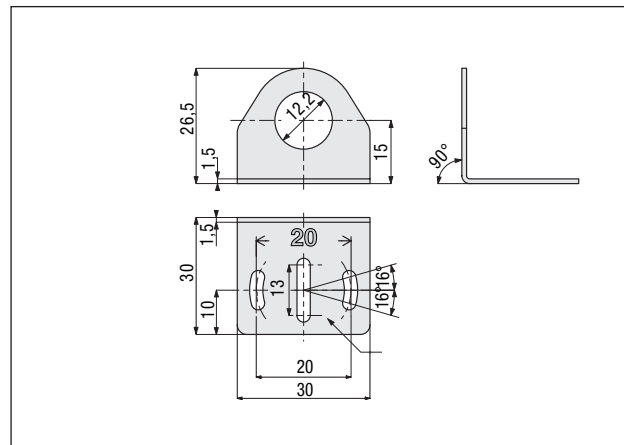
Staffa di fissaggio assiale M12 in acciaio inox
AISI316L (DIN 1.4404)

*M12 stainless steel AISI316L (DIN 1.4404) axial
fixing bracket*

**ST12-C7W**

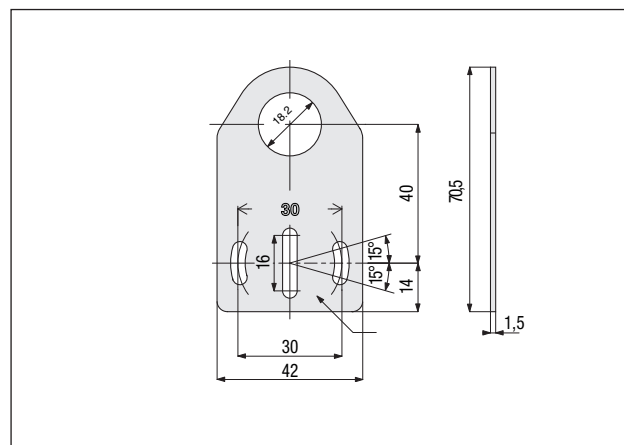
Staffa di fissaggio radiale M12 in acciaio inox
AISI316L (DIN 1.4404)

*M12 stainless steel AISI316L (DIN 1.4404) right
angle fixing bracket*

**ST18-A7W**

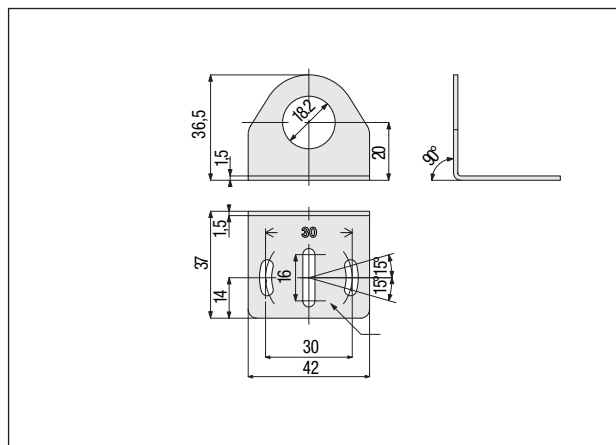
Staffa di fissaggio assiale M18 in acciaio inox
AISI316L (DIN 1.4404)

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



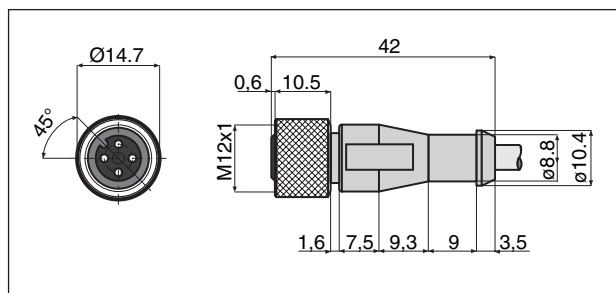
ST18-C7W

Staffa di fissaggio radiale M18 in acciaio inox
 AISI316L (DIN 1.4404)
 M18 stainless steel AISI316L (DIN 1.4404) right
 angle fixing bracket



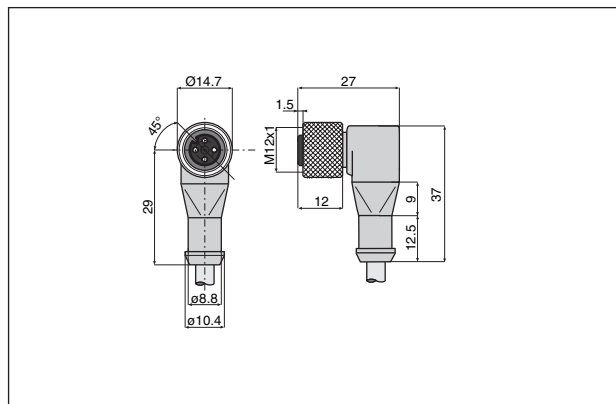
CD12F/0B-050A1

Connettori assiali M12, 4 poli, 5m, PVC
 M12 4 poles, 5m, PVC axial connectors



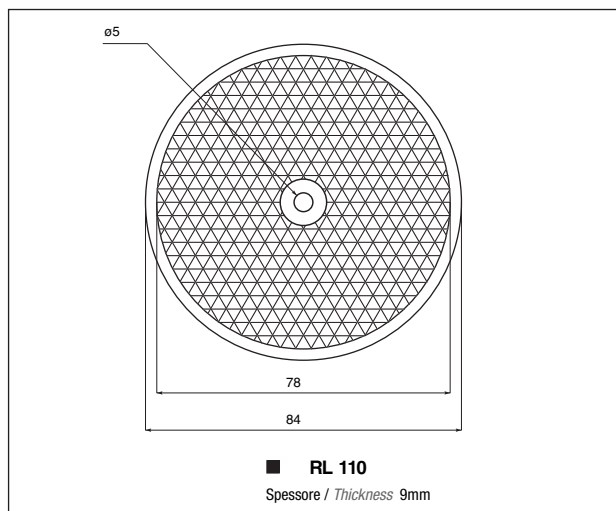
CD12F/0B-050C1

Connettori radiali M12, 4 poli, 5m, PVC
 M12 4 poles, 5m, PVC right angle connectors



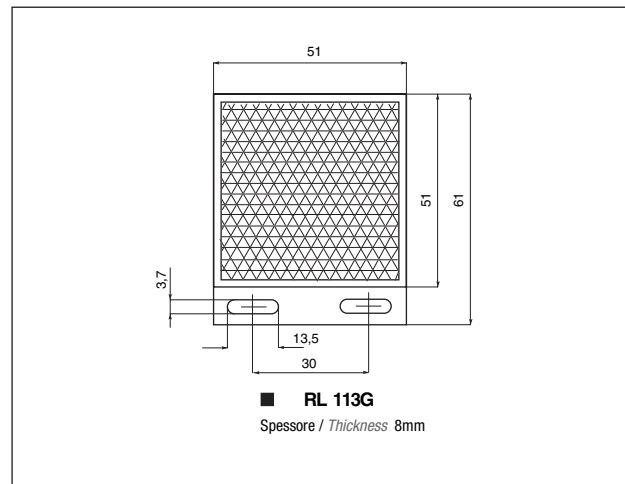
RL 110

Riflettore per fotocellule a catarifrangente e
 polarizzate
 Reflector for retroreflective and polarised
 photoelectric sensors

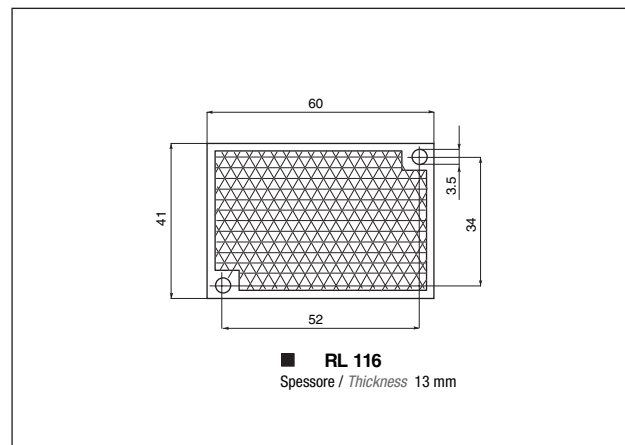


RL 113G

Riflettore per fotocellule a catarifrangente,
polarizzate e per materiali trasparenti
*Reflector for retroreflective, polarised and for
transparent object detection photoelectric sensors*

**RL 116**

Riflettore per fotocellule a catarifrangente,
polarizzate e per materiali trasparenti
*Reflector for retroreflective, polarised and for
transparent object detection photoelectric sensors*

**RL 103**

Riflettore per fotocellule a catarifrangente e
polarizzate
*Reflector for retroreflective and polarised
photoelectric sensors*

