



# PFM series

M12 cylindrical inductive sensors for food and beverage applications



M12 cylindrical for food and beverage applications

## features

- AISI 316L (DIN 1.4404) stainless steel housing
- LED status indicator
- IP67 – IP68 – IP69K protection degree
- ATEX models, cat. 3, available on request
- Complete protection against electrical damages
- Standard and long distance models



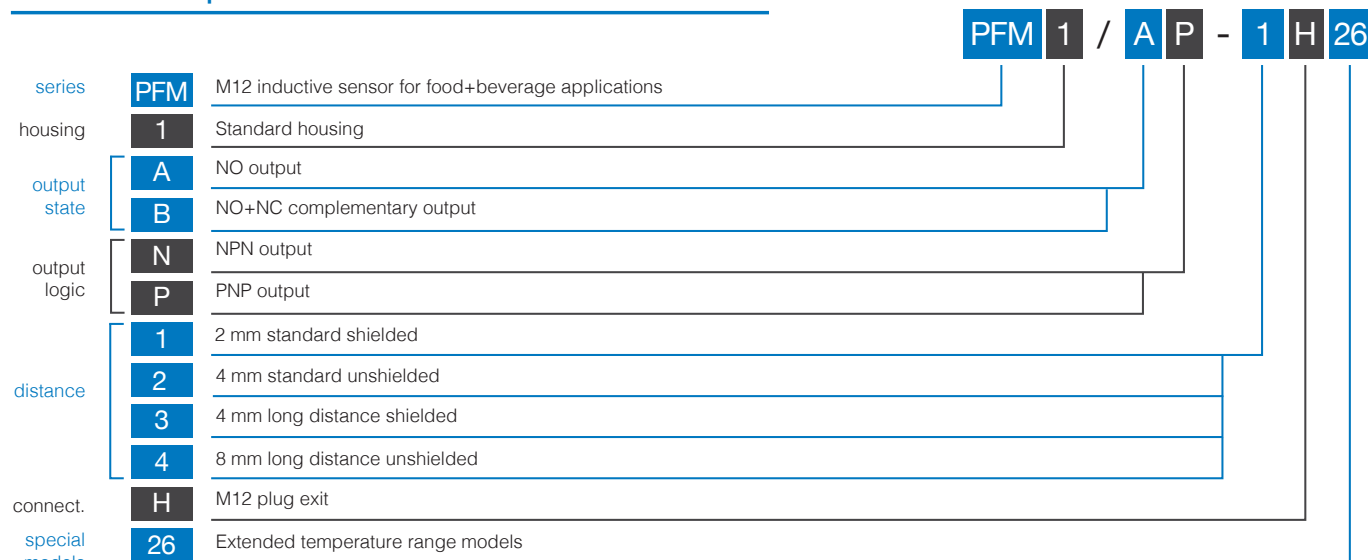
## web contents



- Application notes
- Photos
- Catalogue / Manuals



## code description (\*)



(\*) ATEX models available, contact our Sales Dept. for further information.

## available models

### standard models

model	installation	sensing	plug	distance (mm)	NPN/NO	PNP/NO
M12	shielded	standard	M12	2	PFM1/AN-1H	PFM1/AP-1H
	unshielded			4	PFM1/AN-2H	PFM1/AP-2H
	shielded	long distance			PFM1/AN-3H	PFM1/AP-3H
	unshielded			8	PFM1/AN-4H	PFM1/AP-4H

## available models

### models with complementary output

model	installation	sensing	plug	distance (mm)	NPN/NO+NC	PNP/NO+NC
M12	shielded	standard	M12	2	PFM1/BN-1H	PFM1/BP-1H
	unshielded			4	PFM1/BN-2H	PFM1/BP-2H
	shielded	long distance			PFM1/BN-3H	PFM1/BP-3H
	unshielded			8	PFM1/BN-4H	PFM1/BP-4H

## available models

### models with extended temperature range

model	installation	sensing	plug	distance (mm)	PNP/NO+NC
M12	shielded	standard	M12	2	PFM1/BP-1H 26
	unshielded			4	PFM1/BP-2H 26

## correction factors

code	steel FE 360	copper	alluminium	brass	stainless steel
PFM1/**-1H*	1	0.25	0.3	0.4	0.75
PFM1/**-2H*		0.33	0.4	0.5	0.8
PFM1/**-3H*		0.3	0.35	0.4	0.75
PFM1/**-4H*		0.33	0.4	0.45	

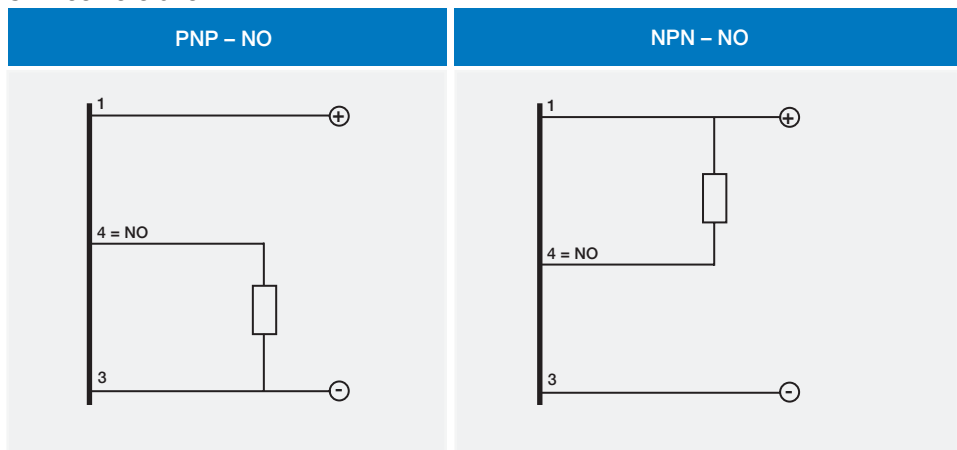
Tolerance ±10%



	PFM1/**-1H	PFM1/**-2H	PFM1/**-3H	PFM1/**-4H
rated operative distance Sn	2 mm	4 mm		8 mm
working distance	0...1.62 mm	0...3.24 mm		0...6.5 mm
hysteresis	1...20%			
standard target	12x12 mm FE360			24x24 mm FE360
repeatability	5%			
operating voltage	10...30 Vcc			
output type	NPN or PNP - NO + NC or NO			
max ripple content	≤ 10%			
output current	≤ 200 mA			
output voltage drop	≤ 2 V			
no-load supply current	≤15 mA			
leakage current	≤15 μA			
switching frequency	2 kHz			
power on delay	50 ms			
ambient temperature range	-40...+80 °C short exposure (15') to 100°C (during cleaning processes) / -25...+110°C (PFM-26 models)			
temperature drift of Sr	10%			
short-circuit protection	●			
voltage reversal protection	●			
induction protection	●			
shocks and vibration	IEC 60947-5-2 / 7.4			
weight	30 g			
LEDs	NO output state / no led (PFM-26 models)			
protection degree	IP67, IP68 (1m, 7days); IP69K (according to DIN 40050 part 9)			
EMC	in conformity with the EMC Directive according to IEC 60947-5-2			
housing material	stainless Steel AISI316L (DIN 1.4404)			
active head material	PPS (FDA certified)			
connection	M12 plug with gold-plated pins			
tightening torque	25 Nm			

### electrical diagrams of connections

3 wires versions

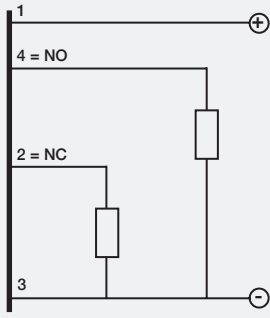


- BN** brown
- BU** blue
- BK** black
- WH** white

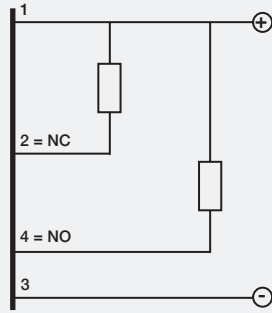
# electrical diagrams of connections

complementary outputs versions

PNP – NO + NC



NPN – NO + NC

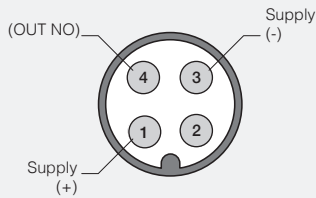


- BN** brown
- BU** blue
- BK** black
- WH** white

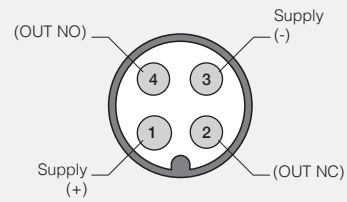
M12 cylindrical for food and beverage applications

## plug

M12

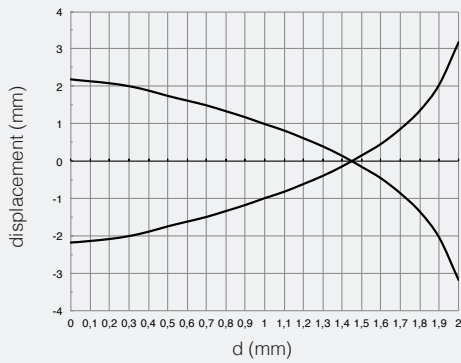


M12

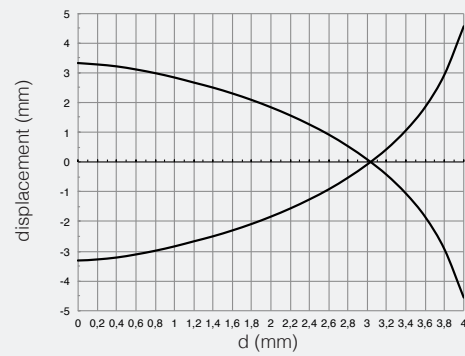


## response diagram

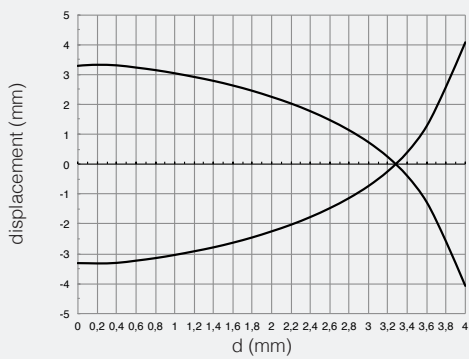
PFM1\*/\*\* -1\* parallel displacement



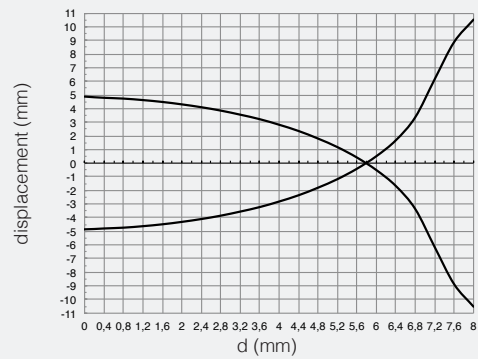
PFM1\*/\*\* -2\* parallel displacement



PFM1\*/\*\* -3\* parallel displacement



PFM1\*/\*\* -4\* parallel displacement



# installation

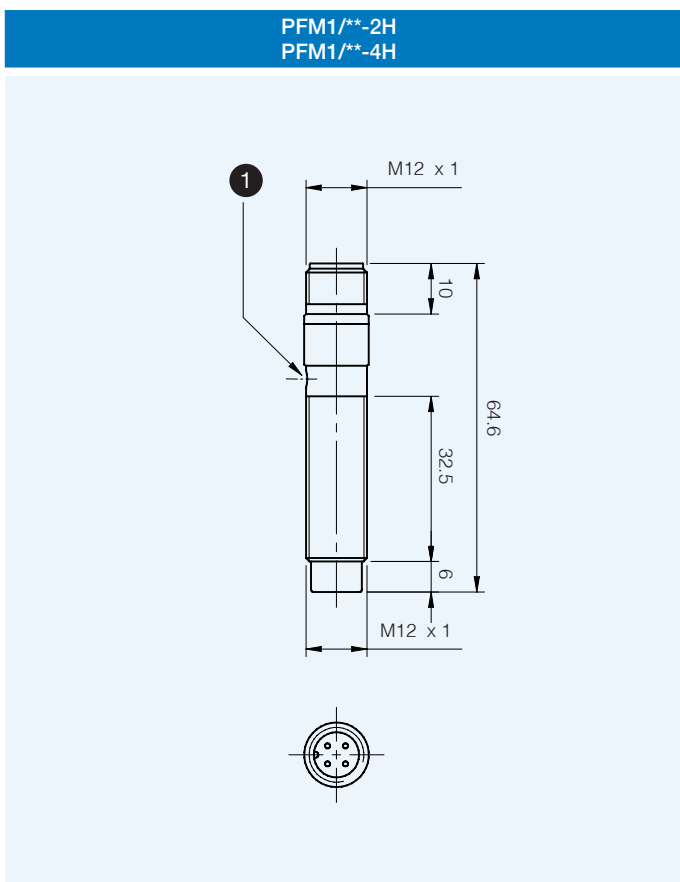
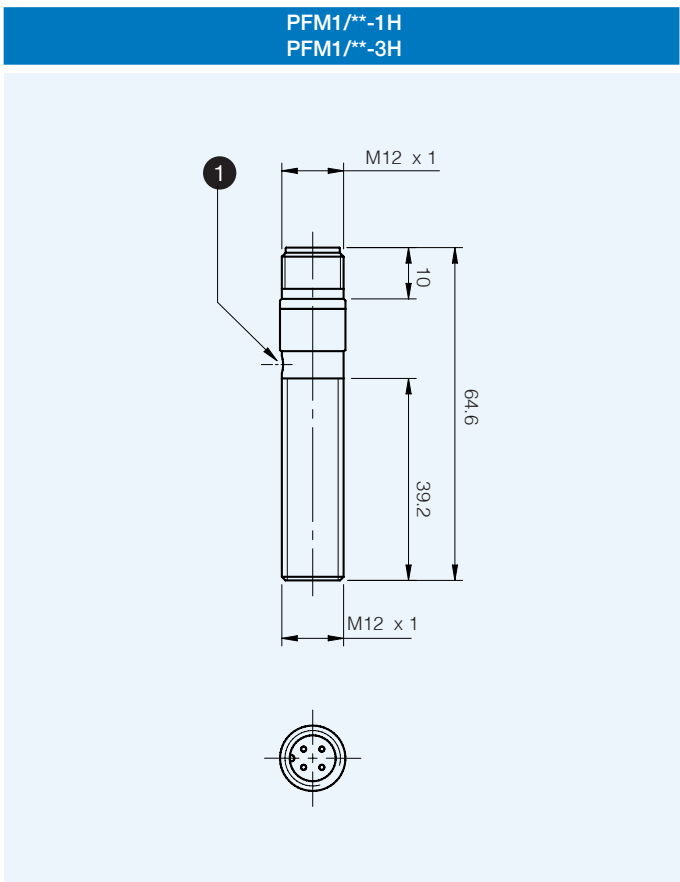


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	code	D4	D1	D2	D3
	PFM1/**-1*	≥ 0 mm <sup>(1)</sup>	≥ 6 mm	≥ 12 mm	≥ 6 mm
	PFM1/**-2*	≥ 6 mm <sup>(2)</sup>	≥ 12 mm	≥ 24 mm	≥ 12 mm
	PFM1/**-3*	≥ 0 mm <sup>(3)</sup>	≥ 6 mm	≥ 12 mm	≥ 24 mm
	PFM1/**-4*	≥ 12 mm	≥ 12 mm	> 24 mm	≥ 24 mm
	PFM1/**-1*26	≥ 0 mm <sup>(4)</sup>	≥ 6 mm	≥ 12 mm	≥ 6 mm
	PFM1/**-2*26	≥ 6 mm <sup>(2)</sup>	≥ 12 mm	≥ 24 mm	≥ 12 mm

(1) ≥ 2 mm for non magnetic material  
 (2) ≥ 6 mm for non magnetic material  
 (3) ≥ 3.6 mm for non magnetic material  
 (4) ≥ 1.2 mm for non magnetic material

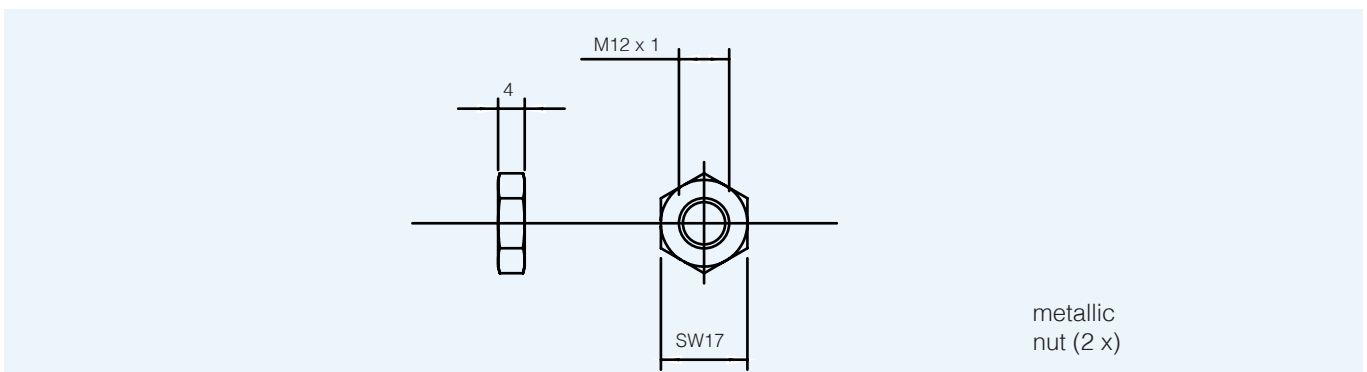
# dimensions



1 LED (no LED in PFM-26 models)

# dimensions (mm)

accessories included in all M12 models



PFM