PFM series

M12 cylindrical inductive sensors
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**

ECOLAB Diversey for a cleaner, healthier future

Ex c UL us CE IP69K

code description (*)

PFM 1 / A P - 1 H 26

series	PFM	M12 inductive sensor for food+beverage applications
housing	1	Standard housing
output state	A	NO output
	B	NO+NC complementary output
output logic	N	NPN output
	P	PNP output
distance	1	2 mm standard shielded
	2	4 mm standard unshielded
	3	4 mm long distance shielded
	4	8 mm long distance unshielded
connect.	H	M12 plug exit
special models	26	Extended temperature range models

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

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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	

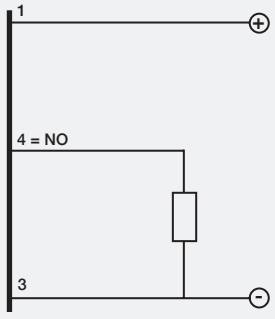
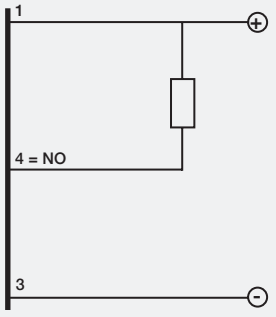
Tolerance ±10%

technical specification

	PFM1/**-1H	PFM1/**-2H	PFM1/**-3H	PFM1/**-4H
				
rated operatine 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
repeatibility	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

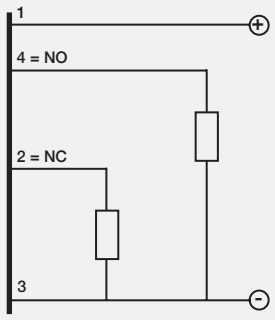
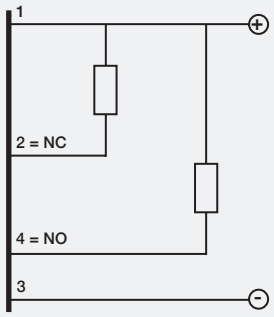
3 wires versions

PNP – NO	NPN – NO
	

BN	brown
BU	blue
BK	black
WH	white

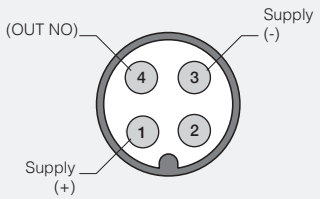
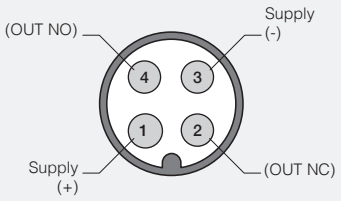
electrical diagrams of connections

complementary outputs versions

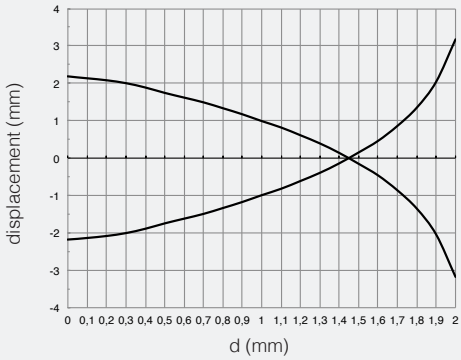
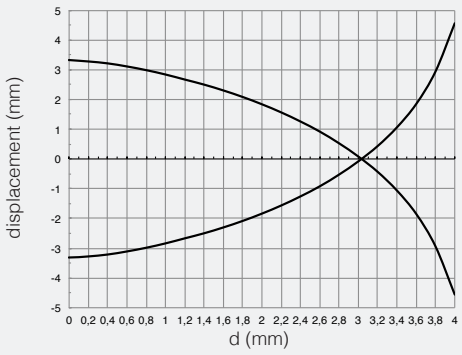
PNP – NO + NC	NPN – NO + NC
	

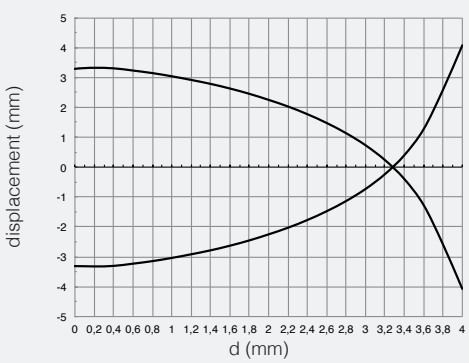
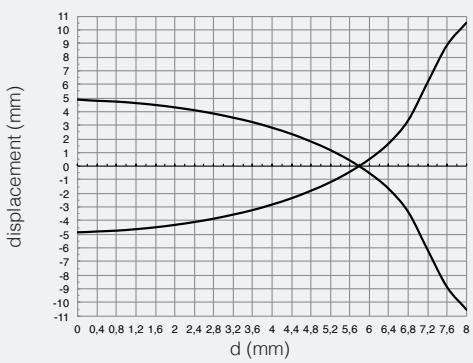
BN	brown
BU	blue
BK	black
WH	white

plug

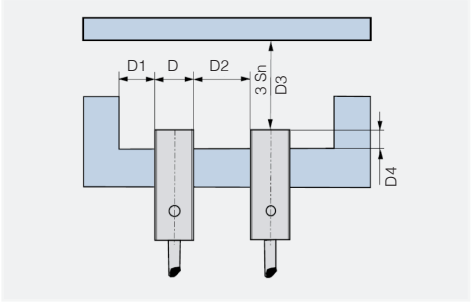
M12	M12
	

response diagram

PFM1*/**-1* parallel displacement	PFM1*/**-2* parallel displacement
	

PFM1*/**-3* parallel displacement	PFM1*/**-4* parallel displacement
	

installation

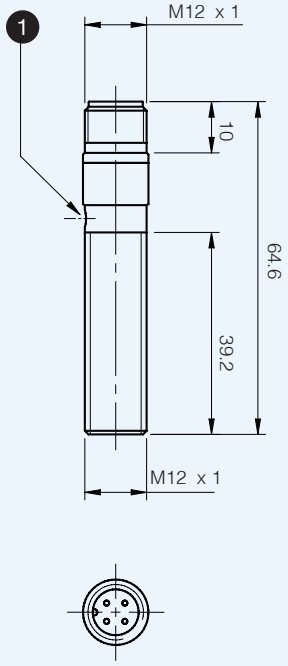


code	D4	D1	D2	D3
PFM1/**-1*	≥ 0 mm (1)	≥ 6 mm	≥ 12 mm	≥ 6 mm
PFM1/**-2*	≥ 6 mm (2)	≥ 12 mm	≥ 24 mm	≥ 12 mm
PFM1/**-3*	≥ 0 mm (3)	≥ 6 mm	≥ 12 mm	
PFM1/**-4*	≥ 12 mm	≥ 12 mm	> 24 mm	≥ 24 mm
PFM1/**-1*26	≥ 0 mm (4)	≥ 6 mm	≥ 12 mm	≥ 6 mm
PFM1/**-2*26	≥ 6 mm (2)	≥ 12 mm	≥ 24 mm	≥ 12 mm

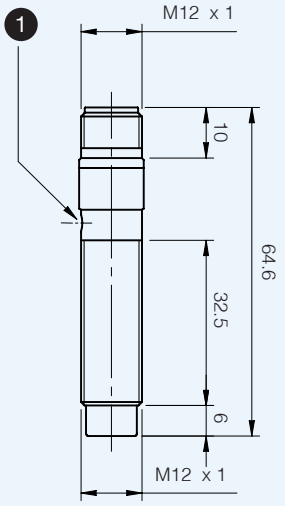
(1) ≥ 2 mm for non magnetic material
(2) ≥ 0 mm for non magnetic material
(3) ≥ 3.6 mm for non magnetic material
(4) ≥ 1.2 mm for non magnetic material

dimensions

PFM1/-1H**
PFM1/-3H**



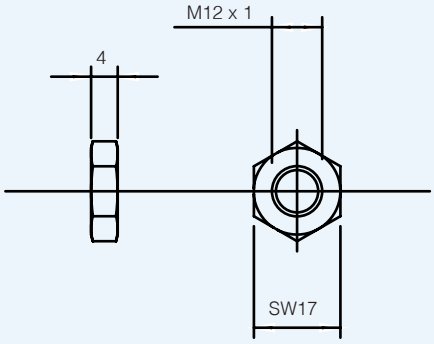
PFM1/-2H**
PFM1/-4H**



1 LED (no LED in PFM-26 models)

dimensions (mm)

accessories included in all M12 models



metallic
nut (2 x)