

PF75H

Electromagnetic flow meter for hygienic applications

PF75H-5#####03D1##2112#110#0

Overview

- Volume and velocity measurement in one sensor
- Especially precise and stable measurements with accuracies to 0.2%
- For media with conductivity > 5 µS/cm in closed systems
- Measurement range 0 ... 280 m³/h with tube diameter DN 3 ... 100
- Hygienic design with 3-A and FDA conformity
- No energy loss thanks to continuous measuring tube without constriction
- Graphic display CombiView DFON optionally available and programmable via touch screen or BCP software



Technical data

Performance characteristics

Measuring principle	Electromagnetic flow measurement
Nominal diameter range	DN 3 ... DN 100
Hysteresis	3 % o. r.
Max. flow velocity	10 m/s
Max. measuring error	± 0.5 % o. r. ± 0.2 % o. r. , optional
Max. turndown ratio	1 : 1000
Measuring range, flow	0 ... 10 m/s 0 ... 288 m³/h
Media characteristics	≥ 5 µS/cm
Step response time	≤ 400 ms
Sampling interval	≤ 200 ms
Min. measuring span	0 ... 10.3 l/h
Damping	0.2 ... 1000 s
Repeatability	≤ 0.1 % o. r.

Process conditions

Process temperature	-20 ... 100 °C
Process pressure	-1 ... 16 bar
SIP/CIP compatibility	< 30 min, in general @ medium temperature up to 130 °C

Process connection

Sensor tube material	AISI 304 (1.4301)
Wetted parts material, process connection	AISI 316L (1.4404)
Wetted parts material, liner	PTFE
Wetted parts material, electrodes	AISI 316L (1.4404)
Wetted parts material, gasket	FKM

Process connection

Connection variants	ISO 2852 (Tri-Clamp) / DIN 32676-B BS 4825-3 (ASME BPE) / DIN 32676-C SMS 1145 male thread, COP DIN 11851 (dairy pipe connection) DIN EN 10357 series A (DIN 11850-2), weldable pipe end In order to maintain compliance with 3-A Sanitary Standards for DIN 11851 these connections must be fitted with a special gasket from either SKS Komponenten System (SKS) B.V. or Asepto Star k-flex gasket from Kieselmann GmbH.
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Surface roughness (in contact with medium)

Process connection	Ra ≤ 0.8 µm Ra ≤ 0.4 µm
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Ambient conditions

Operating temperature range	-20 ... 80 °C , with DFON touch screen -20 ... 85 °C , without DFON touch screen
Storage temperature range	-20 ... 60 °C
Altitude	-200 ... 4000 m
Degree of protection (EN 60529)	IP 65 IP 67
Humidity	0 ... 100 %
Insulation resistance	> 100 MΩ
Insulation voltage	500 V DC

Output signal

Digital output signal	1 x pulse / frequency / alarm 2 x pulse / frequency / alarm (optional)
Analog output (optional)	0...20 mA 4...20 mA
Voltage drop	1.2 V DC
Relays	2 relays included in the display

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Output signal

Load resistance	≤ 200 Ω, Vs = 10 V DC ≤ 1000 Ω, Vs = 30 V DC
Short circuit protection	No
Damping	0.2 ... 1000 s

Housing

Style	FlexHousing, Ø80 mm Bottom process connection
Overall size	Refer to section "Dimensional drawings"
Material	AISI 304 (1.4301)

Electrical connection

Cable gland	M16x1.5, plastic M16x1.5, stainless steel M20x1.5, plastic M20x1.5, stainless steel
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Power supply

Voltage supply range	18 ... 30 V DC
Power consumption	≤ 5 W
Power-up time	≤ 30 s , standard use ≤ 15 min , warm-up for calibration
Reverse polarity protection	Yes

Compliance and approvals

EMC	IEC 61326-1 EN 61326-1
Hygiene	3-A (28-06)

Operating conditions

Nominal diameter	Min. measuring span		Max. measuring span	
DN3	0 ... 10.3 l/h	0 ... 2.7 gal/h	0 ... 259 l/h	0 ... 68 gal/h
DN6	0 ... 41.4 l/h	0 ... 10.9 gal/h	0 ... 1037 l/h	0 ... 274 gal/h
DN10	0 ... 115.2 l/h	0 ... 30.4 gal/h	0 ... 2880 l/h	0 ... 761 gal/h
DN15	0 ... 259.2 l/h	0 ... 68.5 gal/h	0 ... 6480 l/h	0 ... 1712 gal/h
DN20	0 ... 460.8 l/h	0 ... 121.7 gal/h	0 ... 11520 l/h	0 ... 3043 gal/h
DN25	0 ... 0.7 m ³ /h	0 ... 184.9 gal/h	0 ... 18 m ³ /h	0 ... 4755 gal/h
DN32	0 ... 1.2 m ³ /h	0 ... 317 gal/h	0 ... 29 m ³ /h	0 ... 7661 gal/h
DN40	0 ... 1.9 m ³ /h	0 ... 501.9 gal/h	0 ... 46 m ³ /h	0 ... 12152 gal/h
DN50	0 ... 2.9 m ³ /h	0 ... 766.1 gal/h	0 ... 72 m ³ /h	0 ... 19020 gal/h
DN65	0 ... 4.9 m ³ /h	0 ... 1294.4 gal/h	0 ... 122 m ³ /h	0 ... 32229 gal/h
DN80	0 ... 7.5 m ³ /h	0 ... 1981.3 gal/h	0 ... 184 m ³ /h	0 ... 48608 gal/h
DN100	0 ... 11.7 m ³ /h	0 ... 3090.8 gal/h	0 ... 288 m ³ /h	0 ... 76082 gal/h

Note: gal is defined as US liq. gal.

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Display

General information

Panel type	FSTN Graphical LCD
Display range	-9999 ... 99999
Max. digit height	22 mm
Material	Polycarbonate

Ambient conditions

Optimal readability temperature range	-10 ... 70 °C
Operating temperature range	-20 ... 80 °C

Input signal

Input signal from transmitter	Digital, 2-way for communication between transmitter and display
Update time	≤ 1 s , max. 0.3 s , typ.

User configurable data

Error- / Warning-indication	Individually configurable display and backlight indication in white, green or red colour, steady or flashing light. Configurable limits over the range
Measuring unit	µS/cm mS/cm % °C °F m3/h m/s l/h cm/s Hz kHz
User defined measuring unit	8 × 20 pixel matrix

Relays

Contacts	2 x solid state relays
Max. load current	75 mA
Max. switching voltage	60 V

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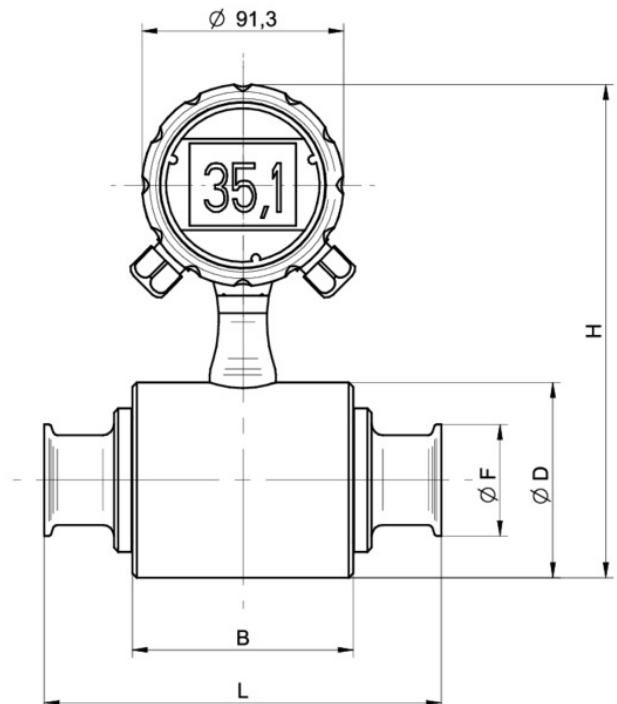
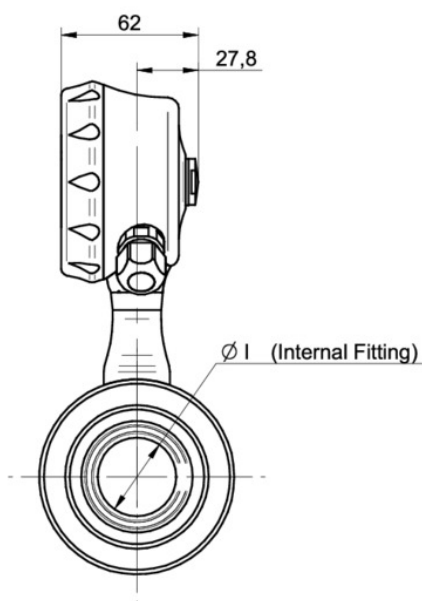
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Dimensional drawings (mm)

Nominal diameter	Process connection	I	F	D	H	B	L
DN3	ISO 2852 (Tri-Clamp)	12.7 mm	34.0 mm	76.0 mm	211.0 mm	77.0 mm	128.0 mm
DN6	ISO 2852 (Tri-Clamp)	12.7 mm	34.0 mm	76.0 mm	211.0 mm	77.0 mm	128.0 mm
DN10	ISO 2852 (Tri-Clamp)	12.7 mm	34.0 mm	76.0 mm	211.0 mm	77.0 mm	128.0 mm
DN15	ISO 2852 (Tri-Clamp)	17.2 mm	34.0 mm	76.0 mm	211.0 mm	77.0 mm	128.0 mm
DN20	ISO 2852 (Tri-Clamp)	21.3 mm	34.0 mm	76.0 mm	211.0 mm	77.0 mm	128.0 mm
DN25	ISO 2852 (Tri-Clamp)	22.6 mm	50.5 mm	76.0 mm	211.0 mm	100.0 mm	180.0 mm
DN32	ISO 2852 (Tri-Clamp)	35.6 mm	50.5 mm	89.0 mm	224.0 mm	100.0 mm	180.0 mm
DN40	ISO 2852 (Tri-Clamp)	35.6 mm	50.5 mm	89.0 mm	224.0 mm	100.0 mm	180.0 mm
DN50	ISO 2852 (Tri-Clamp)	48.6 mm	64.0 mm	114. mm	249.0 mm	100.0 mm	180.0 mm
DN65	ISO 2852 (Tri-Clamp)	60.3 mm	77.5 mm	140.0 mm	275.0 mm	100.0 mm	180.0 mm
DN80	ISO 2852 (Tri-Clamp)	72.9 mm	91.0 mm	140.0 mm	275.0 mm	100.0 mm	200.0 mm
DN100	ISO 2852 (Tri-Clamp)	97.6 mm	119.0 mm	168.0 mm	303.0 mm	100.0 mm	200.0 mm

Nominal diameter	Process connection	I	F	D	H	B	L
DN3	BS 4825-3	9.5 mm	25.4 mm	76.0 mm	211.0 mm	77.0 mm	128.0 mm
DN6	BS 4825-3	9.5 mm	25.4 mm	76.0 mm	211.0 mm	77.0 mm	128.0 mm
DN10	BS 4825-3	9.5 mm	25.4 mm	76.0 mm	211.0 mm	77.0 mm	128.0 mm
DN15	BS 4825-3	15.85 mm	25.4 mm	76.0 mm	211.0 mm	77.0 mm	128.0 mm
DN20	BS 4825-3	22.2 mm	50.5 mm	76.0 mm	211.0 mm	77.0 mm	128.0 mm
DN25	BS 4825-3	22.2 mm	50.5 mm	76.0 mm	211.0 mm	100.0 mm	180.0 mm
DN32	BS 4825-3	34.9 mm	50.5 mm	89.0 mm	224.0 mm	100.0 mm	180.0 mm
DN40	BS 4825-3	34.9 mm	50.5 mm	89.0 mm	224.0 mm	100.0 mm	180.0 mm
DN50	BS 4825-3	47.6 mm	64.0 mm	114.0 mm	249.0 mm	100.0 mm	180.0 mm
DN65	BS 4825-3	60.3 mm	77.5 mm	140.0 mm	275.0 mm	100.0 mm	180.0 mm
DN80	BS 4825-3	73.0 mm	91.0 mm	140.0 mm	275.0 mm	100.0 mm	200.0 mm
DN100	BS 4825-3	97.6 mm	119.0 mm	168.0 mm	303.0 mm	100.0 mm	200.0 mm



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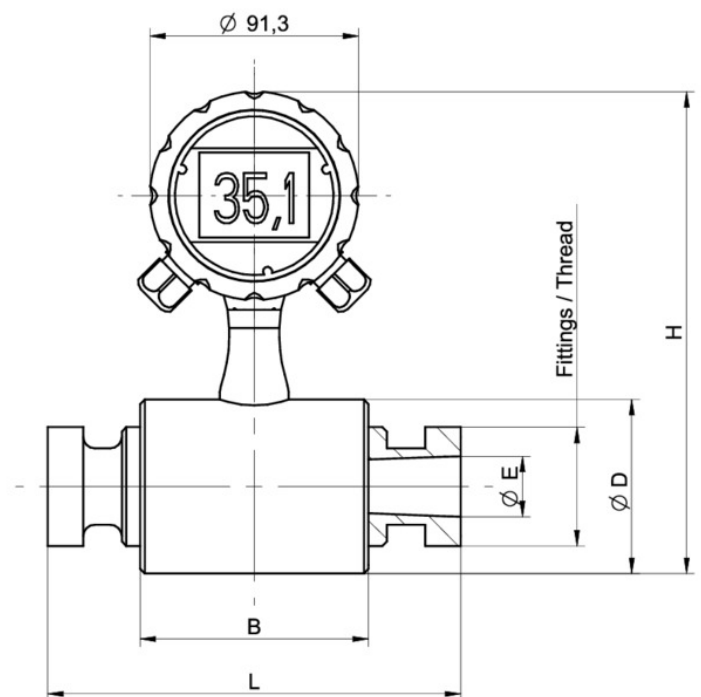
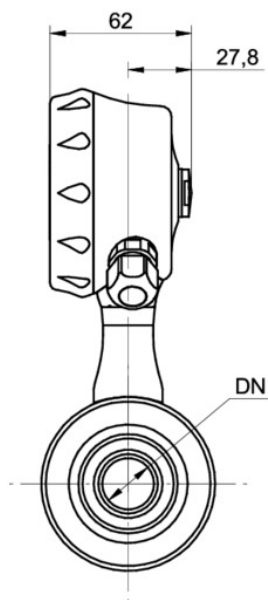
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Dimensional drawings (mm)

Nominal diameter	Process connection	Fitting	I	D	H	B	L
DN3	DIN 11851 (dairy pipe connection)	DN10	10.0 mm	76.0 mm	211.0 mm	77.0 mm	128.0 mm
DN6	DIN 11851 (dairy pipe connection)	DN10	10.0 mm	76.0 mm	211.0 mm	77.0 mm	128.0 mm
DN10	DIN 11851 (dairy pipe connection)	DN10	10.0 mm	76.0 mm	211.0 mm	77.0 mm	128.0 mm
DN15	DIN 11851 (dairy pipe connection)	DN15	16.0 mm	76.0 mm	211.0 mm	77.0 mm	128.0 mm
DN20	DIN 11851 (dairy pipe connection)	DN20	20.0 mm	76.0 mm	211.0 mm	77.0 mm	128.0 mm
DN25	DIN 11851 (dairy pipe connection)	DN25	26.0 mm	76.0 mm	211.0 mm	100.0 mm	180.0 mm
DN32	DIN 11851 (dairy pipe connection)	DN32	32.0 mm	89.0 mm	224.0 mm	100.0 mm	180.0 mm
DN40	DIN 11851 (dairy pipe connection)	DN40	38.0 mm	89.0 mm	224.0 mm	100.0 mm	180.0 mm
DN50	DIN 11851 (dairy pipe connection)	DN50	50.0 mm	114. mm	249.0 mm	100.0 mm	180.0 mm
DN65	DIN 11851 (dairy pipe connection)	DN65	66.0 mm	140.0 mm	275.0 mm	100.0 mm	180.0 mm
DN80	DIN 11851 (dairy pipe connection)	DN80	81.0 mm	140.0 mm	275.0 mm	100.0 mm	200.0 mm
DN100	DIN 11851 (dairy pipe connection)	DN100	100.0 mm	168.0 mm	303.0 mm	100.0 mm	200.0 mm

Nominal diameter	Process connection	Fitting	I	D	H	B	L
DN3	SMS 1145 male thread	DN25	22.6 mm	76.0 mm	211.0 mm	77.0 mm	128.0 mm
DN6	SMS 1145 male thread	DN25	22.6 mm	76.0 mm	211.0 mm	77.0 mm	128.0 mm
DN10	SMS 1145 male thread	DN25	22.6 mm	76.0 mm	211.0 mm	77.0 mm	128.0 mm
DN15	SMS 1145 male thread	DN25	22.6 mm	76.0 mm	211.0 mm	77.0 mm	128.0 mm
DN20	SMS 1145 male thread	DN25	22.6 mm	76.0 mm	211.0 mm	77.0 mm	128.0 mm
DN25	SMS 1145 male thread	DN25	22.6 mm	76.0 mm	211.0 mm	100.0 mm	180.0 mm
DN32	SMS 1145 male thread	DN38	36.8 mm	89.0 mm	224.0 mm	100.0 mm	180.0 mm
DN40	SMS 1145 male thread	DN38	36.8 mm	89.0 mm	224.0 mm	100.0 mm	180.0 mm
DN50	SMS 1145 male thread	DN51	49.3 mm	114.0 mm	249.0 mm	100.0 mm	180.0 mm
DN65	SMS 1145 male thread	DN63	58.3 mm	140.0 mm	275.0 mm	100.0 mm	180.0 mm
DN80	SMS 1145 male thread	DN76	70.7 mm	140.0 mm	275.0 mm	100.0 mm	200.0 mm
DN100	SMS 1145 male thread	DN104	95.7 mm	168.0 mm	303.0 mm	100.0 mm	200.0 mm



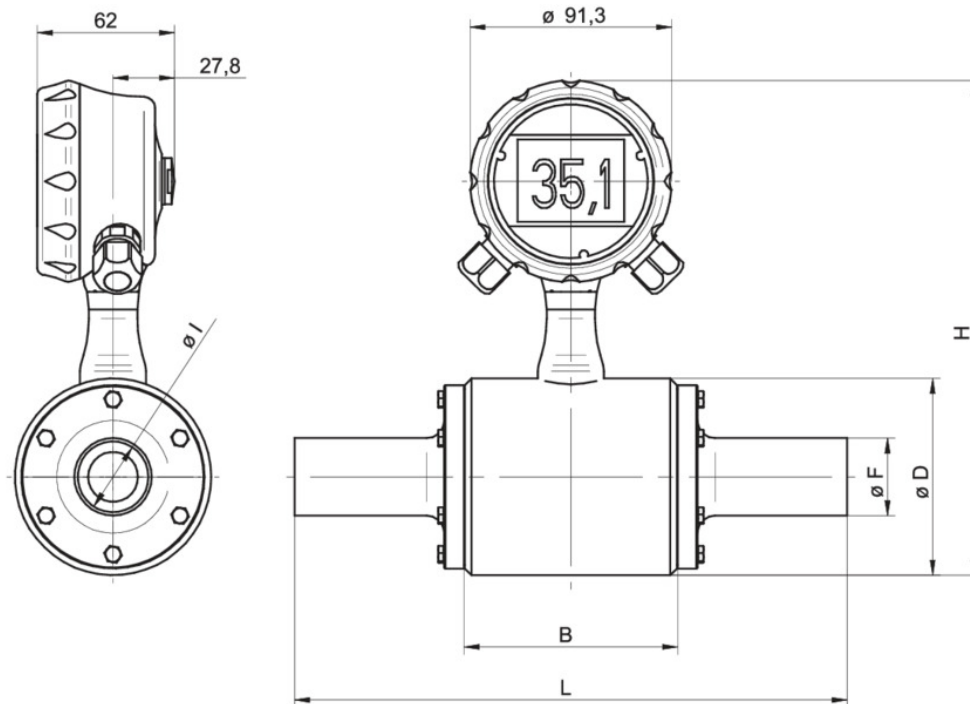
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Dimensional drawings (mm)

Nominal diameter	Process connection	I	F	D	H	B	L
DN25	DIN EN 10357 series A	26.0 mm	29.0 mm	88.9 mm	223.4 mm	96.0 mm	250.0 mm
DN40	DIN EN 10357 series A	38.0 mm	41.0 mm	108.0 mm	242.5 mm	96.0 mm	250.0 mm
DN50	DIN EN 10357 series A	50.0 mm	53.0 mm	129.0 mm	263.5 mm	96.0 mm	250.0 mm
DN65	DIN EN 10357 series A	66.0 mm	70.0 mm	139.7 mm	274.2 mm	96.0 mm	250.0 mm
DN80	DIN EN 10357 series A	81.0 mm	85.0 mm	156.0 mm	290.5 mm	96.0 mm	258.0 mm
DN100	DIN EN 10357 series A	100.0 mm	104.0 mm	168.3 mm	302.9 mm	96.0 mm	258.0 mm



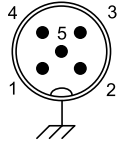
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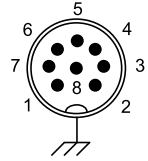
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Electrical connection

M12-A, 5-pin



M12-A, 8-pin



Left side connection



Right side connection

Left side connection (front view): M12-A, 5-pin

Function			Pin assignment
Vs +	Power supply +	10 ... 30 V DC	1
Vs -	Power supply -	10 ... 30 V DC	3
Iout +	Flowrate	4 ... 20 mA	2
Iout -	Flowrate	4 ... 20 mA	4
GND	Earth		5

Right side connection (front view): M12-A, 8-pin

Function (with display)			Pin assignment
Out 1 +	Digital output 1	Selectable	1
Out 2 +	Digital output 2	Selectable	8
In +	Digital input	Selectable	2
I/O -	Input/output common -	Selectable	7
R11	Relay 1		5
R12	Relay 1		6
R21	Relay 2		3
R22	Relay 2		4

Function (without display)			Pin assignment
Out 1 +	Digital output 1	Selectable	1
Out 2 +	Digital output 2	Selectable	8
In +	Digital input	Selectable	2
I/O -	Input/output common -	Selectable	7
		n.c.	5
		n.c.	6
		n.c.	3
		n.c.	4

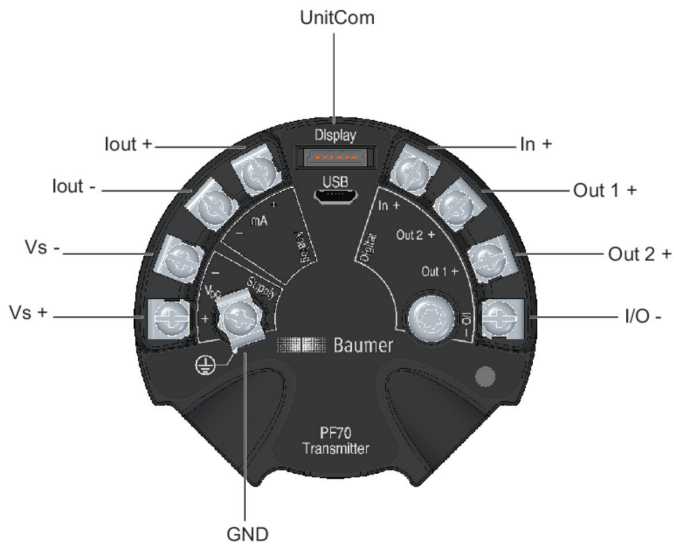
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Electrical connection

Terminal assignment transmitter



Terminal assignment DFON display



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Ordering information

Ordering key - Configuration possibilities see website

	PF75H	-	5	#	#	#	#	#	#	#	0	3	D	1	#	#	2	1	1	2	#	1	1	0	#	0
Product	PF75H																									
Housing																										
Stainless steel 1.4301 / AISI304			5																							
Bottom connection																										
Max. measurement error																										
±0.5 % o.r				4																						
±0.2 % o.r				5																						
Display																										
Without display				1																						
With display, with activated relays				4																						
Output signal analog																										
Without				1																						
4 ... 20 mA				2																						
Output signal digital																										
Without Pulse / frequency output				0																						
1 x Pulse / frequency output (programmable)				1																						
2 x Pulse / frequency output (programmable)				2																						
Interface																										
Without				1																						
HART®				2																						
Electrical connection																										
1 x M12-A, 5-pin											1															
2 x M16x1.5 cable gland											8															
2 x M20x1.5 cable gland											B															
1 x M12-A, 5-pin + 1 x M12-A, 8-pin											D															
Material of el. connection																										
Plastic											1															
Stainless steel, AISI 304 (1.4301)											3															
Cable length																										
Without											0															
Protection class																										
IP65, IP67												3														
Process temperature (conti.)																										
-20 ... 100 °C													D													
Max. process pressure																										
PN16														1												
Nominal diameter																										
DN3															A											
DN6															B											
DN10															C											
DN15															D											
DN20															E											
DN25															F											
DN32															G											
DN40															H											
DN50															I											
DN65															J											
DN80															K											
DN100															L											

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Ordering information

Ordering key - Configuration possibilities see website

PF75H																	-	5	#	#	#	#	#	#	0	3	D	1	#	#	2	1	1	2	#	1	1	0	#	0
Process connection																																								
DIN 11851 (dairy pipe connection)																									3															
ISO 2852 (Tri-Clamp)																									4															
BS 4825-3																									5															
SMS 1145 male thread																									6															
Sensor body and process connec																																								
AISI 316L																									2															
Liner material																																								
PTFE																									1															
Electrodes material																																								
AISI 316L																									1															
Number of electrodes																																								
Two electrodes																									2															
Surface finish																																								
Ra ≤ 0,8 µm																									A															
Ra ≤ 0,4 µm																									C															
Sealing-/ O-ring material (int																																								
FKM																									1															
Special approvals																																								
3-A																									1															
Measuring Instr. Directive																																								
Without																									0															
Calibration certificate																																								
2 point calibration certificat (standard)																									0															
3 point calibration certificat																									1															
5 point calibration certificat																									2															
10 point calibration certificate																									3															
Configuration / Parametrizatio																																								
Factory settings																																0								

- (1) The process connection DIN 11851 must be equipped with a special seal either from SKS Komponenten System (SKS) B.V. or Asepto Star k-flex seal from Kiesleemann GmbH in order to be hygienic
- (2) SMS 1145 can only be used for COP (Cleaning out of place)