DMD 331

Differential Pressure Transmitter for Liquids and Gases

Stainless Steel Sensor

accuracy according to IEC 60770:
0.5 % FSO

Differential pressure

from 0 ... 20 mbar up to 0 ... 16 bar

Output signals

2-wire: 4 ... 20 mA
3-wire: 0 ... 10 V

Special characteristics

- differential pressure wet / wet
- permissible static pressure -onesided- up to 30 times of differentialpressure range
- compact design
- mechanical robust and reliable at dynamic pressures as well as shock- and vibration

Optional versions

- IS-version
  Ex ia = intrinsically safe version
- different electrical and mechanical connections
- customer specific versions

The DMD 331 is a differential pressure transmitter for industrial applications and is based on a piezoresistive stainless steel sensor, which can be pressurized on both sides with fluids or gases compatible with SST 1.4404 (316L) and 1.4435 (316L).

The compact design allows an integration of the DMD 331 in machines and applications with limited space. The DMD 331 calculates the difference between the pressure on the positive and the negative side and converts it into a proportional electrical signal.

Preferred areas of use are

Plant and Machine Engineering

Energy Industry

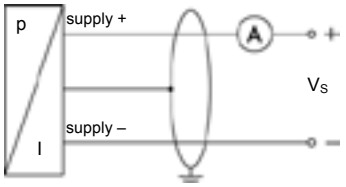
Preferred used for

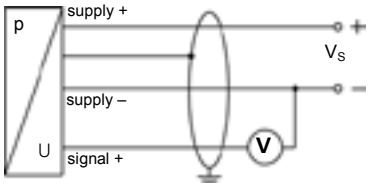
Water

Input pressure range							
Nominal pressure	[bar]	0.2	0.4	1	2.5	6	16
Differential pressure range	[bar]	0 ... 0.02 up to 0 ... 0.2	0 ... 0.04 up to 0 ... 0.4	0 ... 0.1 up to 0 ... 1	0 ... 0.25 up to 0 ... 2.5	0 ... 0.6 up to 0 ... 6	0 ... 1.6 up to 0 ... 16
Permissible static pressure, one-sided	[bar]	0.5	1	3	6	20	60

Output signal / Supply			
Standard	2-wire: 4 ... 20 mA / V_S = 12 ... 36 V_{DC}		
Option IS-version	2-wire: 4 ... 20 mA / V_S = 14 ... 28 V_{DC}		
Option 3-wire	3-wire: 0 ... 10 V / V_S = 14 ... 36 V_{DC}		
Performance			
Accuracy	IEC 60770 [1]: ≤ ± 0.5 % FSO		
Permissible load	current 2-wire: R_{max} = [(V_S – V_S min) / 0.02 A] Ω voltage 3-wire: R_{min} = 10 kΩ		
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ		
Long term stability	≤ ± 0.2 % FSO / year		
Response time	< 5 msec		
[1] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)			
Thermal effects [2] (Offset and Span) / Permissible temperatures			
Nominal pressure P_N [bar]	0.2	0.4	≥ 1.0
Tolerance band [% FSO]	≤ ± 2.5	≤ ± 2	≤ ± 1.5
TC, average [% FSO / 10 K]	± 0.4	± 0.3	± 0.2
in compensated range [°C]	0 ... 50		0 … 70
Permissible temperatures	medium: -25 ... 125 °C	electronics / environment: -25 ... 85 °C	storage: -40 ... 100 °C
[2] relating to nominal pressure range			
Electrical protection			
Short-circuit protection	permanent		
Reverse polarity protection	no damage, but also no function		
Electromagnetic compatibility	emission and immunity according to EN 61326		
Mechanical stability			
Vibration	10 g RMS (20 ... 2000 Hz)		
Shock	100 g / 11 msec		
Materials			
Pressure port	stainless steel 1.4404 (316L)		
Housing	aluminium, black anodized		
Seals (media wetted)	FKM / others on request		
Diaphragm	stainless steel 1.4435 (316L)		
Media wetted parts	pressure port, seals, diaphragm		
Miscellaneous			
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA		
Weight	approx. 250 g		
Operational life	> 100 x 10^6 pressure cycles		
Ingress protection	IP 65		
CE-conformity	EMC Directive: 2004/108/EC		
Explosion protection (onla for 4 … 20 mA / 2 wire)			
Approvals DX13A-DMD 331	**IBExU 08 ATEX 1125 X** zone 1: II 2G Ex ia IIC T4		
Safety technical maximum values	U_i = 28 V_{DC}, I_i = 93 mA, P_i = 660 mW, C_i ≤ 1 nF, L_i ≤ 10 µH, the supply connections have an inner capacity of max. 27 nF to the housing		
Permissible temperatures for environment	-20 ... 60 °C bei p_{atm} 0,8 bar up to 1,1 bar		
Pin configuration			
Electrical connection	ISO 4400		
Supply + Supply – Signal + (only 3-wire)	1 2 3		
Shield	ground pin		

Wiring diagrams	
2-wire-system (current)	3-wire-system (voltage)

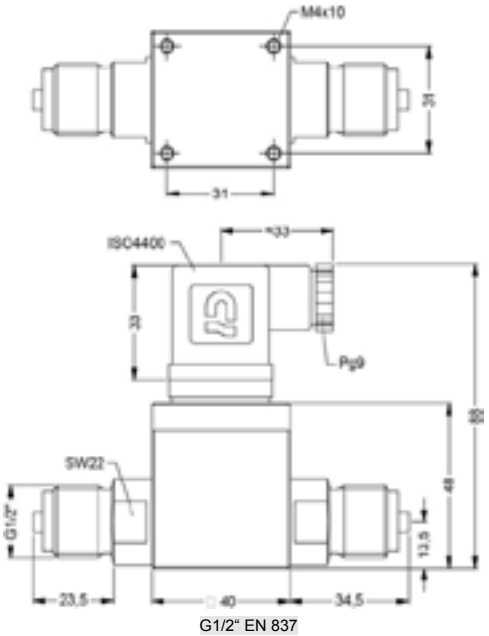




Electrical connection	
Standard	male and female plug ISO 4400 (IP 65)
Others	on request

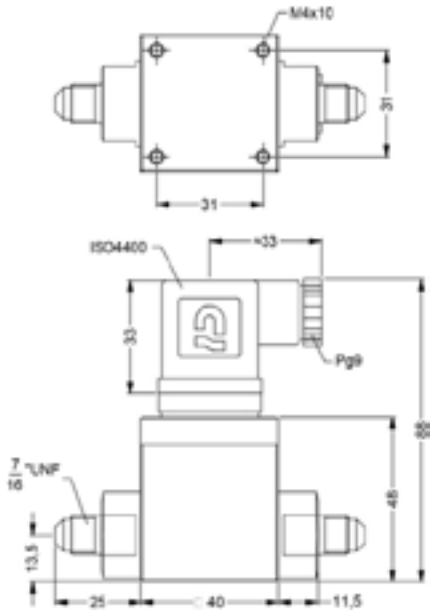
Mechanical connection (dimensions in mm)

standard

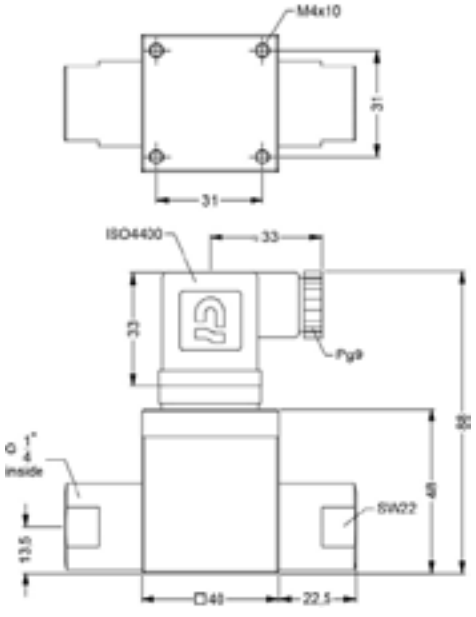


G1/2“ EN 837

option



7/16“ UNF DIN 3866



G1/4“ internal

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	Code	
Pressure		
differential pressure	7 3 0	
Nominal pressure range [bar]		
0.2	F	
0.4	A	
1.0	B	
2.5	C	
6.0	D	
16	E	
customer	9	consult

Differential pressure range [bar]	F	A	B	C	D	E	Code	
0.02	■						0 2 0 0	
0.04	■	■					0 4 0 0	
0.10	■	■	■				1 0 0 0	
0.25		■	■	■			2 5 0 0	
0.40		■	■	■			4 0 0 0	
0.60			■	■	■		6 0 0 0	
1.0			■	■	■		1 0 0 1	
2.5				■	■	■	2 5 0 1	
4.0					■	■	4 0 0 1	
6.0					■	■	6 0 0 1	
10						■	1 0 0 2	
16						■	1 6 0 2	
customer							9 9 9 9	consult

	Code	
Output		
4 … 20 mA / 2-wire	1	
intrinsic safety 4 … 20 mA / 2 wire	E	
0 … 10 V / 3-wire	3	
customer	9	consult
Accuracy		
0.5 %	5	
customer	9	consult
Electrical connection		
Male and female plug ISO 4400	1 0 0	
customer	9 9 9	consult
Mechanical connection		
G1/2" EN 837	2 0 0	
7/16" UNF DIN 3866	U 0 0	
G1/4" internal thread	J 0 0	
customer	9 9 9	consult
Seals		
FKM	1	
customer	9	consult
Special version		
standard	0 0 0	
customer	9 9 9	consult

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet.
Subject to change without notice.