



DMD 331

Differential Pressure Transmitter for Liquids and Gases

Stainless Steel Sensor

accuracy according to IEC 61298-2:
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 differential pressure range
- ▶ compact design
- ▶ mechanical robust and reliable at dynamic pressures as well as shock and vibration

Optional versions

- ▶ IS-version
Ex ia = intrinsically safe for gases and dust
- ▶ 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



DMD 331

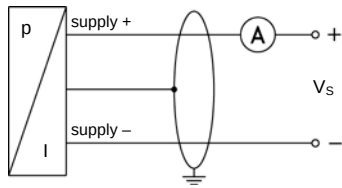
Differential Pressure Transmitter

Technical Data

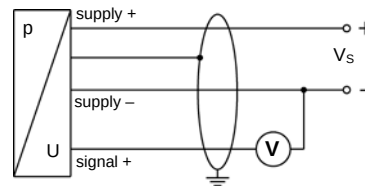
Input pressure range						
Nominal pressure [bar]	0.2	0.4	1	2.5	6	16
Differential pressure range [bar]						
TD 1 : 1	0 ... 0.2	0 ... 0.4	0 ... 1	0 ... 2.5	0 ... 6	0 ... 16
up to	up to	up to	up to	up to	up to	up to
TD 1 : 10	0 ... 0.02	0 ... 0.04	0 ... 0.1	0 ... 0.25	0 ... 0.6	0 ... 1.6
Permissible static 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 ¹	for ranges of max. input pressure p_N > 1 bar (codes C, D, E) ≤ ± 0.5 % FSO (differential pressure range with TD from 1:1 up to 1:5) ≤ ± 1 % FSO (differential pressure range with TD > 1:5 up to 1:10) for ranges of max. input pressure p_N ≤ 1 bar (codes A, B, F) ≤ ± 0.5 % FSO (differential pressure range with TD from 100 to 50 % from nominal pressure) ≤ ± 1 % FSO (differential pressure range with TD > 50 to 10 % from nominal pressure)					
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 at reference conditions					
Response time	< 5 msec					
¹ accuracy according to IEC 61298-2 – 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	20 g RMS / 10 ... 2000 Hz					
Shock	500 g / 11 msec half sine					
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 million load cycles					
Ingress protection	IP 65					
CE-conformity	EMC Directive: 2014/30/EU					
ATEX Directive	2014/34/EU					
Explosion protection (only for 4 ... 20 mA / 2 wire)						
Approvals	IBExU 08 ATEX 1125 X					
DX13A-DMD 331	zone 1: II 2 G Ex ia IIC T4 Gb zone 21: II 2 D Ex ia IIIC T85 °C Db					
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 / medium	-25 ... 60 °C					
Pin configuration						
Electrical connection	ISO 4400					
Supply +	1					
Supply –	2					
Signal + (only 3-wire)	3					
Shield	ground pin 					

Wiring diagrams

2-wire-system (current)

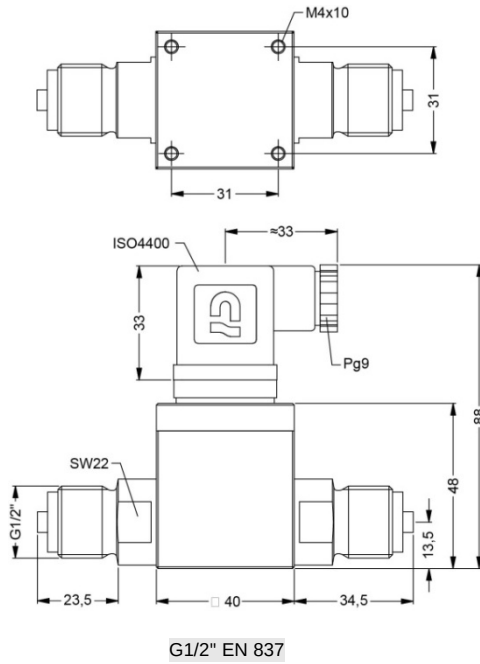


3-wire-system (voltage)

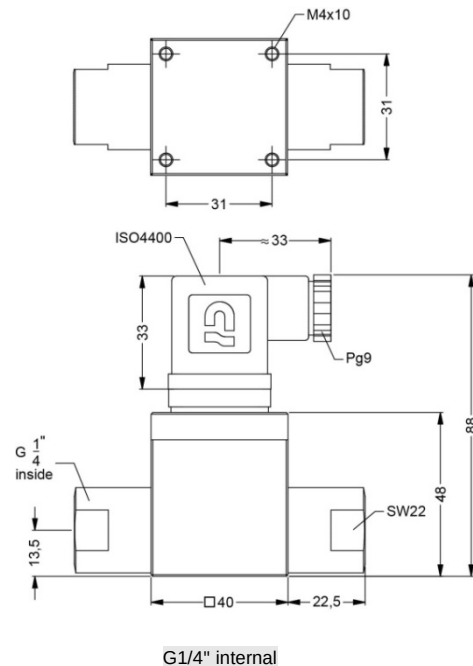
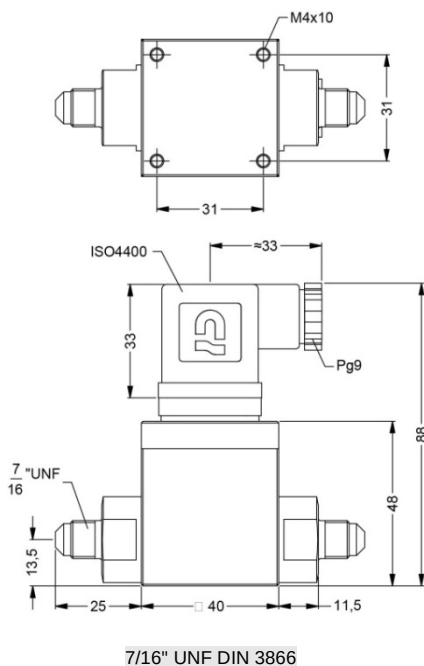


Mechanical connection (dimensions in mm)

standard



option





Ordering code DMD 331

DMD 331

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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												
		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
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																					
TD ≤ 1:5		0.5 % FSO																		5	
TD > 1:5 up to 1:10		1.0 % FSO																		8	
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	
Seal																					
FKM																				1	
customer																				9	
																				consult	
Special version																					
standard																				0 0 0	
customer																				9 9 9	
																				consult	