

# 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 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



Input pressure range						
Nominal pressure [bar]	0.2	0.4	1	2.5	6	16
Differential pressure range [bar]						
TD 1 : 1 up to	0 ... 0.2	0 ... 0.4	0 ... 1	0 ... 2.5	0 ... 6	0 ... 16
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 / $V_S = 12 \dots 36 V_{DC}$					
Option IS-version	2-wire: 4 ... 20 mA / $V_S = 14 \dots 28 V_{DC}$					
Option 3-wire	3-wire: 0 ... 10 V / $V_S = 14 \dots 36 V_{DC}$					
Performance						
Accuracy <sup>1</sup>	$\leq \pm 0,5 \% \text{ FSO}$ (differential pressure range with TD $\leq 1:5$ ) $\leq \pm 1 \% \text{ FSO}$ (differential pressure range with TD $> 1:5$ up to 1:10)					
Permissible load	current 2-wire: $R_{\max} = [(V_S - V_S \text{ min}) / 0.02 \text{ A}] \Omega$ voltage 3-wire: $R_{\min} = 10 \text{ k}\Omega$					
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / k $\Omega$					
Long term stability	$\leq \pm 0.2 \% \text{ FSO} / \text{year}$ at reference conditions					
Response time	< 5 msec					
<sup>1</sup> accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)						
Thermal effects <sup>2</sup> (Offset and Span) / Permissible temperatures						
Nominal pressure $P_N$ [bar]	0.2	0.4			$\geq 1.0$	
Tolerance band [% FSO]	$\leq \pm 2.5$	$\leq \pm 2$			$\leq \pm 1.5$	
TC, average [% FSO / 10 K]	$\pm 0.4$	$\pm 0.3$			$\pm 0.2$	
in compensated range [°C]	0 ... 50			0 ... 70		
Permissible temperatures	medium: -25 ... 125 °C		electronics / environment: -25 ... 85 °C		storage: -40 ... 100 °C	
<sup>2</sup> 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	$> 100 \times 10^6$ pressure cycles					
Ingress protection	IP 65					
CE-conformity	EMC Directive: 2014/30/EU					
ATEX Directive	2014/34/EU					
Explosion protection (onla for 4 ... 20 mA / 2 wire)						
Approvals DX13A-DMD 331	<b>IBExU 08 ATEX 1125 X</b> zone 1: II 2G Ex ia IIC T4 Gb zone 21: II 2D Ex ia IIIC T85°C Db					
Safety technical maximum values	$U_i = 28 V_{DC}$ , $I_i = 93 \text{ mA}$ , $P_i = 660 \text{ mW}$ , $C_i \leq 1 \text{ nF}$ , $L_i \leq 10 \text{ }\mu\text{H}$ , the supply connections have an inner capacity of max. 27 nF to the housing					
Permissible temperatures for environment	-25 ... 65 °C					
Pin configuration						
Electrical connection	ISO 4400					
Supply +	1					
Supply -	2					
Signal + (only 3-wire)	3					
Shield	ground pin					

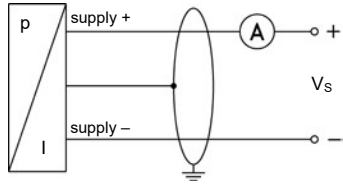
# DMD 331

Differential Pressure Transmitter

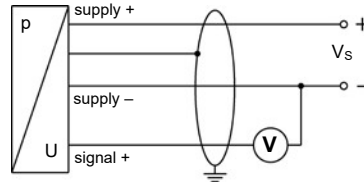
Technical Data

## Wiring diagrams

2-wire-system (current)

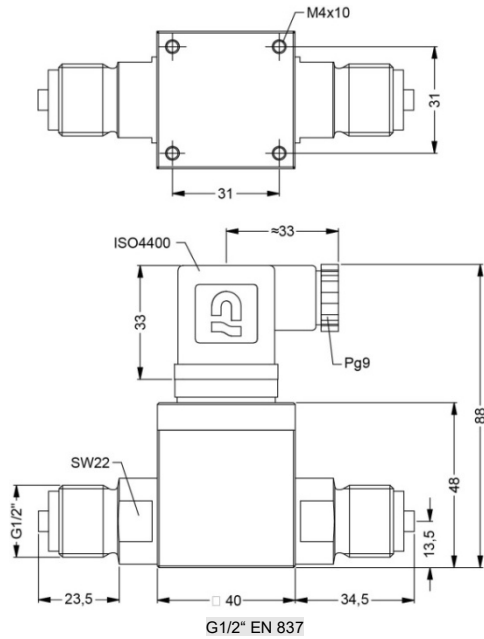


3-wire-system (voltage)

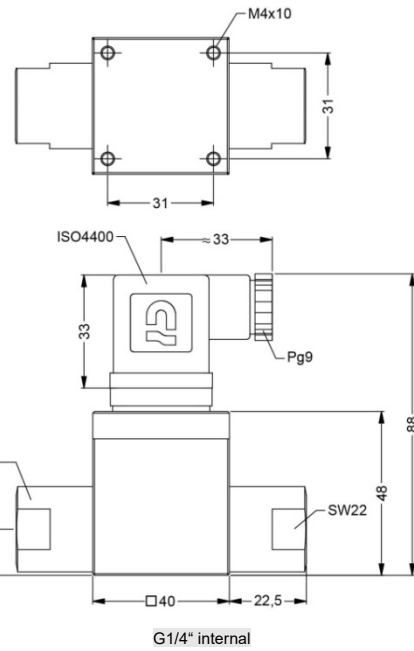
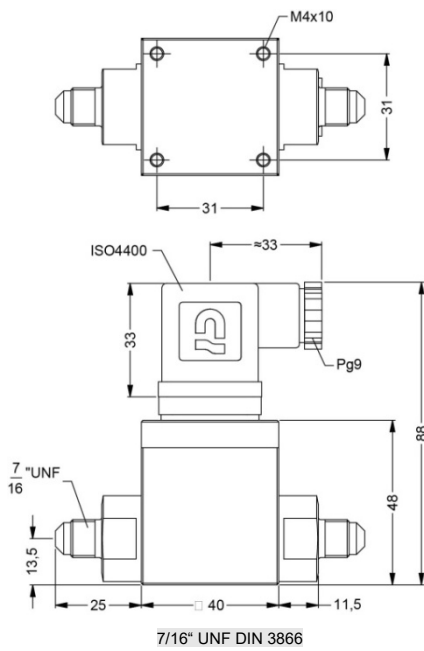


## Mechanical connection (dimensions in mm)

standard



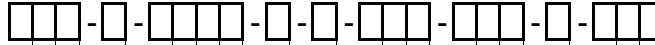
option



The specifications given in this document represent the state of engineering at the time of publishing. We reserve the right to make modifications to the specifications and materials.

# Ordering code DMD 331

DMD 331



<b>Pressure</b>											
differential pressure	7	3	0								
<b>Nominal pressure range [bar]</b>											
0.2				F							
0.4				A							
1.0				B							
2.5				C							
6.0				D							
16				E							
customer				9						consult	
<b>Differential pressure range [bar]</b>											
0.02									0	2	0
0.04									0	4	0
0.10									1	0	0
0.25									2	5	0
0.40									4	0	0
0.60									6	0	0
1.0									1	0	0
2.5									2	5	0
4.0									4	0	0
6.0									6	0	0
10									1	0	2
16									1	6	0
customer									9	9	9
<b>Output</b>											
4 ... 20 mA / 2-wire											1
intrinsic safety 4 ... 20 mA / 2 wire											E
0 ... 10 V / 3-wire											3
customer											9
<b>Accuracy</b>											
TD ≤ 1:5	0,5 %										5
TD > 1:5 bis 1:10	1,0 %										8
customer											9
<b>Electrical connection</b>											
Male and female plug ISO 4400											1
customer											9
<b>Mechanical connection</b>											
G1/2" EN 837											2
7/16" UNF DIN 3866											U
G1/4" internal thread											J
customer											9
<b>Seals</b>											
FKM											1
customer											9
<b>Special version</b>											
standard											0
customer											9

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