

# 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 version 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	0 ... 0.02	0 ... 0.04	0 ... 0.1	0 ... 0.25	0 ... 0.6	0 ... 1.6
	up to		up to	up to	up to	up to	up to
	TD 1 : 10	0 ... 0.2	0 ... 0.4	0 ... 1	0 ... 2.5	0 ... 6	0 ... 16
Permissible static pressure, one-sided [bar]		0.5	1	3	6	20	60
Output signal / Supply							
Standard	2-wire:	4 ... 20 mA / $V_S = 12 \dots 36 V_{DC}$					
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>	<b>For ranges of max. input pressure + PN &gt; 1 bar (codes C,D,E)</b> $\leq \pm 0,5\%$ FSO (differential pressure range with TD from 1:1 up to 1:5) $\leq \pm 1\%$ FSO (differential pressure range with TD > 1:5 up to 1:10) <b>For ranges of max. input pressure + PN &gt; 1 bar (codes A,B,F)</b> $\leq \pm 0,5\%$ FSO (differential pressure range with TD from 100 to 50 % from static pressure) $\leq \pm 1\%$ FSO (differential pressure range with TD > 50 to 10 % from static pressure)						
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	$\leq \pm 0.2\%$ FSO / year						
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 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 DX3A-DMD 331	<b>IBExU08ATEX1124 X</b> zone 1: II 2G Ex ia IIC T4 Gb, II 2D Ex ia IIIC T85 °C Db zone 0: II 1G Ex ia IIC T4 Ga, II 1D Ex ia IIIC T85 °C Da						
Safety technical maximum values	$U_i = 28 V_{DC}$ , $I_i = 93 \text{ mA}$ , $P_i = 660 \text{ mW}$ , $C_i \leq 1 \text{ nF}$ , $L_i \leq 10 \mu\text{H}$ , 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						

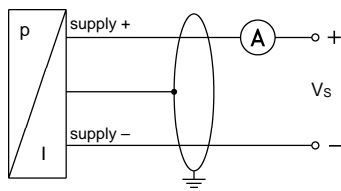
# DMD 331

Differential Pressure Transmitter

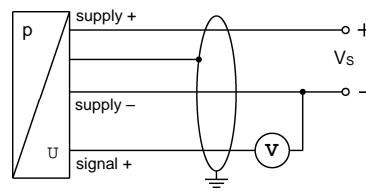
Technical Data

## Wiring diagrams

2-wire-system (current)



3-wire-system (voltage)

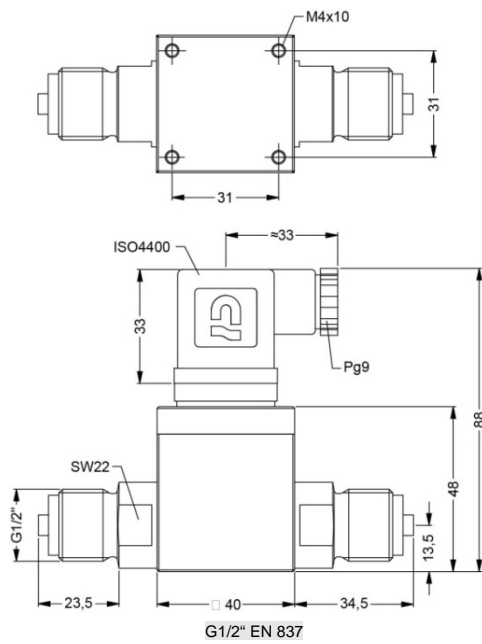


## Electrical connection

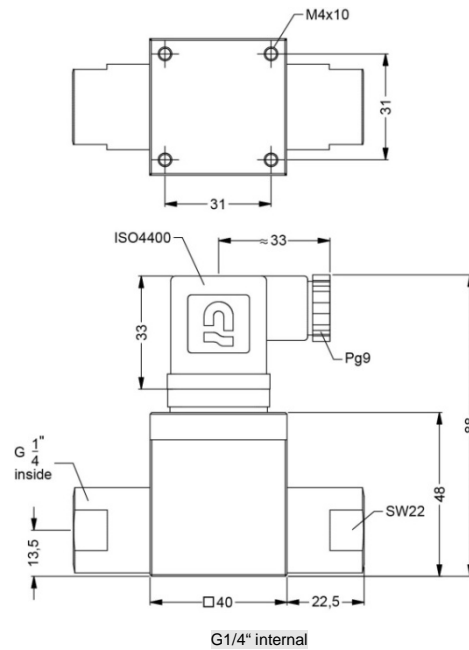
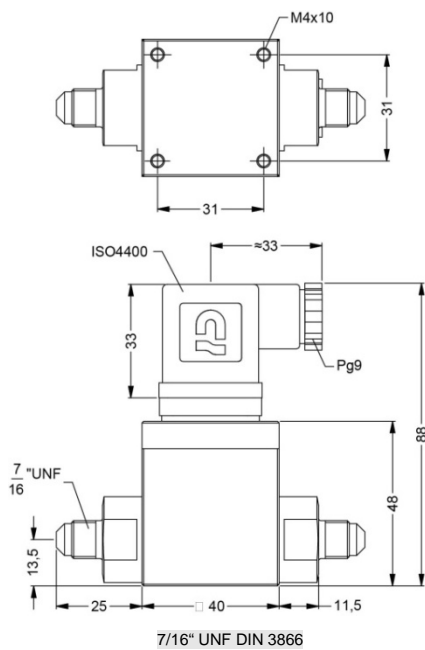
Standard	male and female plug ISO 4400 (IP 65)
Others	on request

## Mechanical connection (dimensions in mm)

standard



option



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