



DMK 331

Industrial Pressure Transmitter for Aggressive Media

- ▶ ceramic sensor
- ▶ accuracy:
0.25 % FSO BFSL
(0.5 % FSO IEC 60770)
- ▶ nominal pressure ranges
from 0 ... 0,4 bar
up to 0 ... 600 bar

The DMK 331 is a pressure transmitter for universal applications in the industry as well as for especially viscous, pasty or highly contaminated media.

Basic element is a mechanical and chemical robust ceramic sensor.

A variety of standard output signals as well as mechanical and electrical connections make the DMK 331 covering a wide field of applications. The customer has the possibility to use by highly contaminated media a semi-flush ceramic sensor with pressure port G ½". The version with PVDF pressure port is used for many aggressive media. The DMK 331 is suited for explosive area (zone 0).

Preferred areas of use are:

- ▶ medical technology
- ▶ environmental technology
- ▶ galvanic coating
- ▶ chemical and pharmaceutical industries
- ▶ oxygen applications

- ▶ small thermal effect
- ▶ good long term stability
- ▶ option Ex version:
(only for 4 ... 20 mA / 2-wire)
TÜV 03 ATEX 2006 X
- ▶ option: oxygen application
- ▶ customer specific versions:
 - special pressure ranges
 - variety of electrical and mechanical connections
 - other versions on request

Characteristics



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Technical Data

Input pressure range ¹																		
Nominal pressure gauge [bar]	-1...0	0.4 ²	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400	600
Nominal pressure abs. [bar]	-	-	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400	600
Permissible overpressure [bar]	3	1	3	3	7	7	12	12	25	50	50	120	120	250	500	500	600	750

Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V _S = 12 ... 36 V _{DC} Ex-protection: V _S = 14 ... 28 V _{DC}
Optional	3-wire: 0 ... 20 mA / V _S = 14 ... 36 V _{DC} 0 ... 10 V / V _S = 14 ... 36 V _{DC}

Performance	
Accuracy	IEC 60770 ³ : ≤ ± 0.5 % FSO BFSL: ≤ ± 0.25 % FSO
Permissible load	current 2-wire: R _{max} = [(V _S - V _{Smin}) / 0.02] Ω current 3-wire: R _{max} = 500 Ω voltage 3-wire: R _{min} = 10 kΩ
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
Response time	< 10 msec

Thermal effects	
Thermal error for offset and span in compensated range	≤ ± 0.2 % FSO / 10 K -25 ... 85 °C

Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326
Option Ex-protection only with 4 ... 20 mA / 2-wire DX13-DMK 331	stainless steel pressure port: zone 0 ⁴ : II 1 G Ex ia IIC T4 zone 20: II 1 D Ex tD A20 IP65 T 85°C plastic pressure port: zone 1: II 2 G Ex ia IIC T4 zone 21: II 2 D Ex tD A21 IP65 T 85°C safety technical maximum values: V _i = 28 V, I _i = 93 mA, P _i = 660 mW, C _i ≤ 1 nF, L _i ≤ 10 μH

Mechanical stability	
Vibration	10 g RMS (20 ... 2000 Hz)
Shock	100 g / 11 ms

Permissible temperatures	
Medium	-25 ... 135 °C
Electronics / environment	-25 ... 85 °C Ex-protection: application in zone 0: -20 ... 60 °C application in zone 1 or higher: -25 ... 70 °C
Storage	-40 ... 100 °C

¹ PVDF pressure port possible for nominal pressure ranges up to 60 bar

² not possible in combination with Ex-protection

³ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

⁴ approved for atmospheric pressure from 0.8 bar up to 1.1 bar

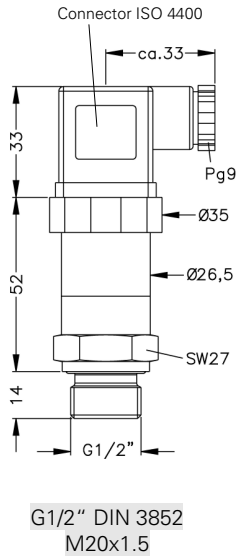
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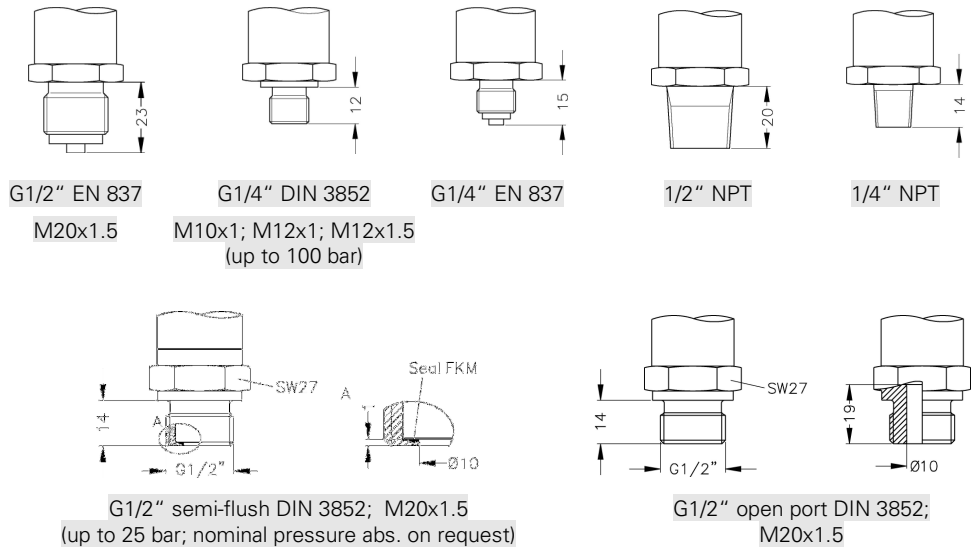
Technical Data

Mechanical connection (dimensions in mm)

Standard



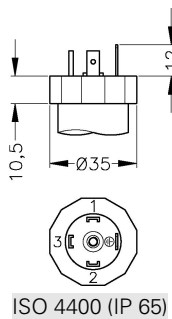
Optional



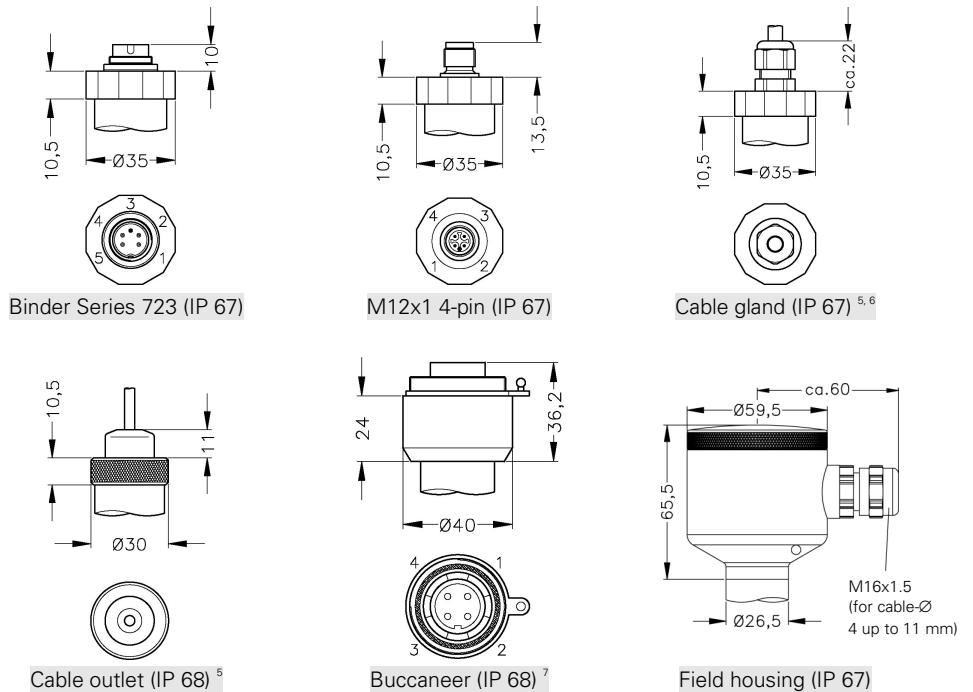
⇒ Ex-protection: total length increases by 10 mm!

Electrical connection (dimensions in mm)

Standard



Optional



⁵ different cable types and lengths available

⁶ standard: 2m PVC cable without ventilation tube, optionally cable with ventilation tube

⁷ for gauge pressure up to 40 bar cable with ventilation tube required

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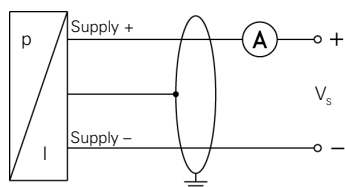
Materials	
Pressure port	standard: stainless steel 1.4571 (316 Ti) optional for G1/2" open port with nominal pressure range up to 60 bar: PVDF others on request
Housing	standard: stainless steel 1.4301 (304) field housing: stainless steel 1.4305 (303), cable gland: brass, nickel plated
Seals (media wetted)	$P_N < 100$ bar: FKM / $P_N \geq 100$ bar: NBR / others on request
Diaphragm	ceramic Al_2O_3 96 %
Media wetted parts	pressure port, seals, diaphragm

Miscellaneous	
Optionally SIL 2 application	according to IEC 61508 / IEC 61511
Optionally oxygen application	for $P_N \leq 50$ bar: o-ring in V747-75 (with BAM-approval); permissible maximum values are 40 bar / 130° C and 50 bar / 100° C for $P_N > 50$ bar: o-ring in FKM 90 (approved by the scientific coal research institute in Ostrava – CZ) up to 215 bar / 95 °C
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1 μ H/m
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA
Weight	approx. 140 g
Installation position	any
Operational life	$> 100 \times 10^6$ cycles

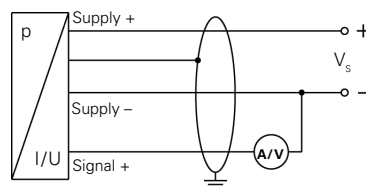
Pin configuration							
Electrical connection		ISO 4400	Binder 723 (5-pin)	M12x1 (4-pin)	Buccaneer (4-pin)	Field housing	cable colours (DIN 47100)
2-wire-system	Supply +	1	3	1	1	IN +	white
	Supply -	2	4	2	2	IN -	brown
	Ground	ground pin	5	4	4	≡	yellow / green (shield)
3-wire-system	Supply +	1	3	1	1	IN +	white
	Supply -	2	4	2	2	IN -	brown
	Signal +	3	1	3	3	OUT +	green
	Ground	ground pin	5	4	4	≡	yellow / green (shield)

Wiring diagrams

2-wire-system (current)



3-wire-system (current / voltage)



This data sheet contains product specification, properties are not guaranteed. Subject to change without notice.

