



DMK 331

Industrial Pressure Transmitter for Aggressive Media

- ▶ thickfilm ceramic sensor
- ▶ accuracy:
 - 0.25 % FSO BFSL
 - (0.5 % FSO IEC 60770)
- ▶ nominal pressure ranges from 0 ... 0.6 bar up to 0 ... 600 bar

The pressure transmitter DMK 331 is a supplement to our industrial pressure transmitters of DMP series.

It's available in the following mechanical versions:

- Standard: open pressure port G1/2" with recessed ceramic sensor
- Option: semi-flush ceramic sensor with pressure port G1/2" for pressure ranges 0 ... 0.6 to 0 ... 25 bar

Both versions are particularly suited for viscous, pasty, or highly contaminated media.

The version with PVDF pressure port is used with aggressive media stainless steel does not resist, for example in medical applications, water treatment, and chemical industry.

Preferred areas of use are:

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

- ▶ small thermal effect
- ▶ good long term stability
- ▶ option: oil and fat free for oxygen applications
- ▶ option Ex:
 - II 1 G EEx ia IIC T4 (stainless steel pressure port)
 - II 2 G EEx ia IIC T4 (plastic pressure port);
 - only for 4 ... 20 mA / 2-wire (TÜV 03 ATEX 2006 X)
- ▶ customer specific versions:
 - special pressure ranges
 - variety of electrical and mechanical connections
 - other versions on request

Characteristics



DMK 331
Industrial Pressure Transmitter

Input pressure range ¹

Nominal pressure gauge [bar]	-1...0	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	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 / $V_s = 12 \dots 36 V_{DC}$	Ex-protection:	$V_s = 14 \dots 28 V_{DC}$
Optional	3-wire:	0 ... 20 mA / $V_s = 14 \dots 36 V_{DC}$ 0 ... 10 V / $V_s = 14 \dots 36 V_{DC}$		

Performance

Accuracy ²	$\leq \pm 0.5 \% \text{ FSO}$	(BFSL: $\leq \pm 0.25 \% \text{ FSO}$)
Permissible load	current 2-wire:	$R_{max} = [(V_s - V_{smin}) / 0.02] \Omega$
	current 3-wire:	$R_{max} = 500 \Omega$
	voltage 3-wire:	$R_{min} = 10 \text{ k}\Omega$
Influence effects	supply:	0.05 % FSO / 10 V
	load:	0.05 % FSO / k Ω

Thermal effects

Thermal error for offset and span in compensated range	$\leq \pm 0.2 \% \text{ FSO} / 10 \text{ K}$
	-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 DX13-DMK 331	stainless steel pressure port: II 1 G EEx ia IIC T4 (only with 4 ... 20 mA / 2-wire) plastic pressure port: II 2 G EEx ia IIC T4 (only with 4 ... 20 mA / 2-wire) safety technical maximum values: $V_i = 28 \text{ V}$, $I_i = 93 \text{ mA}$, $P_i = 660 \text{ mW}$

Mechanical stability

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

Permissible temperatures

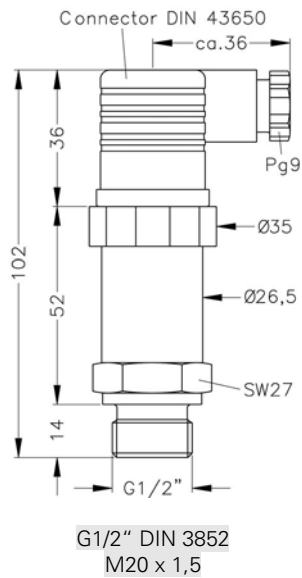
Medium	-25 ... 135 °C
Electronics / environment	-25 ... 85 °C
Storage	-40 ... 125 °C

¹ PVDF version only up to 60 bar

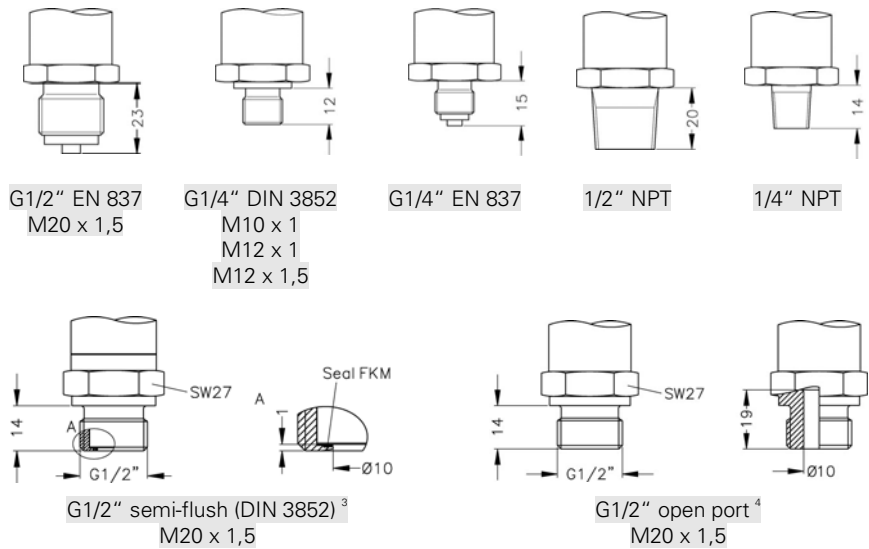
² accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

Mechanical connection

Standard



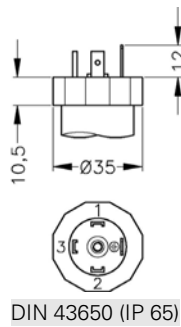
Optional



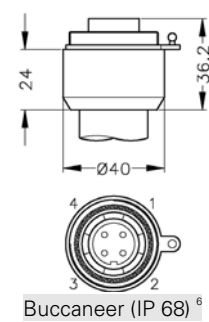
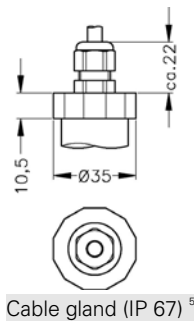
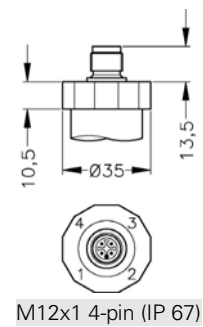
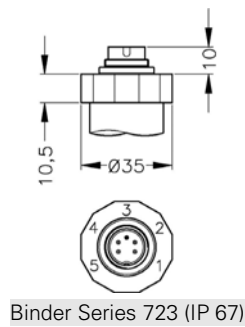
⇒ Ex-protection: total length increases by 18 mm!

Electrical connection

Standard



Optional



³ semi-flush diaphragm only up to 25 bar

⁴ open port only up to 40 bar

⁵ different cable types and lengths available, standard: 2 m PVC cable (without ventilation tube), optionally cable with ventilation tube

⁶ for gauge pressure up to 40 bar cable with ventilation tube required

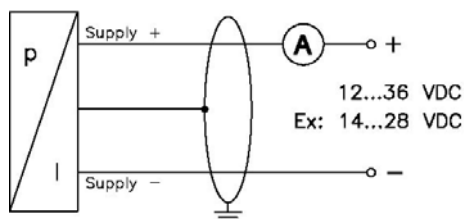
Materials	
Pressure port	standard: stainless steel 1.4571 (316 Ti) optional: PVDF ⁷ others on request
Housing	stainless steel 1.4301 (304)
Seals (media wetted)	P _N < 100 bar: FKM P _N ≥ 100 bar: NBR others on request
Diaphragm	ceramic Al ₂ O ₃ 96 %
Media wetted parts	pressure port, seals, diaphragm

Miscellaneous	
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA
Weight	approx. 140 g
Installation position	any
Operational life	> 100 x 10 ⁶ cycles

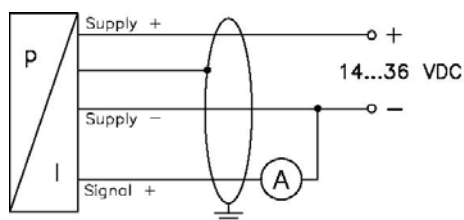
Pin configuration		DIN 43650	Binder 723 (5-pin)	M12x1 (4-pin)	Buccaneer (4-pin)	cable colours (DIN 47100)
2-wire-system	Supply +	1	3	1	1	white
	Supply -	2	4	2	2	brown
	Ground	ground pin	5	4	4	yellow / black
3-wire-system	Supply +	1	3	1	1	white
	Supply -	2	4	2	2	brown
	Signal +	3	1	3	3	green
	Ground	ground pin	5	4	4	yellow / black

Wiring diagrams

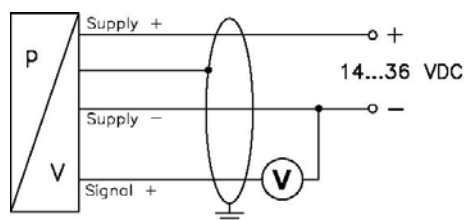
2-wire-system (current)



3-wire-system (current)



3-wire-system (voltage)



⁷ PVDF only up to 60 bar

Ordering code DMK 331

DMK 331

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Pressure																					
	gauge	2	5	0																	
	absolut	2	5	1																	
Input [bar]																					
	0,60	6	0	0	0																
	1,0	1	0	0	1																
	1,6	1	6	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																
	25	2	5	0	2																
	40	4	0	0	2																
	60	6	0	0	2																
	100	1	0	0	3																
	160	1	6	0	3																
	250	2	5	0	3																
	400	4	0	0	3																
	600	6	0	0	3																
	-1 ... 0	X	1	0	2																
	customer	X	X	X	X																
Output																					
	4 ... 20 mA / 2-wire																			1	
	0 ... 20 mA / 3-wire																			2	
	0 ... 10 V / 3-wire																			3	
	4 ... 20 mA / 2-wire with intrinsic safety: zone 0 (stainless steel version); zone 1 (plastic version)																			E	
	customer																			X	
Accuracy																					
	0,5 %																			5	
	customer																			X	
Electrical Connection																					
	Male and female plug DIN 43650																			1 0 0	
	Binder series 723 (5-pin)																			2 0 0	
	Cable gland incl. Cable ¹																			4 0 0	
	Buccaneer IP68 ²																			5 0 0	
	M12x1 (4-pin)																			M 0 0	
	customer																			X X X	
Mechanical Connection																					
	G1/2" DIN 3852																			1 0 0	
	G1/2" EN 837																			2 0 0	
	G1/4" DIN 3852																			3 0 0	
	G1/4" EN 837																			4 0 0	
	G1/2" DIN 3852 with ³ semi-flush sensor																			F 0 0	
	G1/2" DIN 3852 open pressure port ⁴																			H 0 0	
	customer																			X X X	
Seals																					
	for P _N < 100 bar																			FKM	1
	for P _N = 100 bar																			NBR	5
	customer																				X
Pressure port																					
	Stainless steel 1.4571 (316Ti)																				1
	PVDF ⁵																				B
	customer																				X
Diaphragm																					
	Ceramics Al ₂ O ₃ 96%																				2
	customer																				X
Special version																					
	standard																				0 0 0
	customer																				X X X

¹ different cable types and lengths deliverable, standard: 2 m PVC cable (without ventilation tube), optionally cable with ventilation tube
² for gauge pressure up to 40 bar cable with ventilation tube required
³ semi-flush diaphragm only up to 25 bar
⁴ open port only up to 40 bar
⁵ PVDF only with G1/2" DIN 3852 open pressure port (up to 40 bar)



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