



DMK 351 P

Pressure Transmitter with Flush Mounted Ceramic Diaphragm

- ▶ capacitive ceramic sensor
- ▶ option: diaphragm Al_2O_3 99.9 %
- ▶ output signal: 4 ... 20 mA / 2-wire
- ▶ accuracy:
0.175 % / 0.125 % FSO BFSL
(0.35 % / 0.25 % FSO IEC 60770)
- ▶ nominal pressure ranges
from 0 ... 40 mbar
up to 0 ... 20 bar

The DMK 351 P is a premium pressure transmitter for process measurement. By using a capacitive ceramic sensor, excellent characteristics for measuring are realised, also and especially with lower pressure ranges.

The capacitive ceramic, flush mounted sensor is distinguished through a high resistance to most of aggressive media. Higher media resistance can be reached with optional diaphragm Al_2O_3 99.9 %. The pressure port is made of stainless steel 1.4571. The sealing between sensor and pressure port is done with a FKM seal. Other elastomers are available on request.

Different pressure ports are available. For applications in the process industry several process connections are offered.

Preferred areas of use are:

- ▶ process engineering
- ▶ chemical industry

- ▶ capacitive ceramic sensor without filling oil, with higher resistance to aggressive media
- ▶ extreme high media resistance with diaphragm Al_2O_3 99.9 % (0.1 up to 1 bar)
- ▶ high accuracy
- ▶ small thermal effect
- ▶ good long term stability
- ▶ option Ex version (only for 4 ... 20 mA / 2-wire) IBExU 05 ATEX 1070 X

Characteristics

DMK 351 P
Process Pressure Transmitter



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Process Pressure Transmitter

Technical Data

Input pressure range ¹															
Nominal pressure gauge [bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	20
Nominal pressure abs. [bar]	on request					0.4	0.6	1	1.6	2.5	4	6	10	16	20
Permissible overpressure [bar]	2	2	4	4	6	6	8	8	15	25	25	35	35	60	60
Permissible vacuum for gauge pressure [bar]	-0.2		-0.3		-0.5			-1							

Output signal / Supply		
Standard	4 ... 20 mA / $V_s = 9 \dots 36 V_{DC}$	Ex-protection: $V_s = 12 \dots 28 V_{DC}$

Performance		
Accuracy	IEC 60770 ²	BFSL
	standard: $\leq \pm 0.35\%$ FSO option: $\leq \pm 0.25\%$ FSO	standard: $\leq \pm 0.175\%$ FSO option: $\leq \pm 0.125\%$ FSO
Permissible load	$R_{max} = [(V_s - V_{smin}) / 0,02] \Omega$	
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / k Ω	
Long term stability	$\leq \pm 0.1\%$ FSO / year	
Response time	< 200 msec	

Thermal effects	
Thermal error for offset and span in compensated range	$\leq \pm 0.1\%$ FSO / 10 K 0 ... 80 °C

Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity EN 61326
Option Ex-protection only with 4 ... 20 mA / 2-wire DX14-DMK 351P	plug version: zone 0 ³ : II 1 G EEx ia IIC T4 zone 20: II 1 D IP6X T=85°C cable version: zone 0 ³ : II 1 G EEx ia IIB T4 zone 20: II 1 D IP6X T=85°C safety technical maximum values: $U_i = 28 V$, $I_i = 93 mA$, $P_i = 660 mW$, $C_i = 27 nF$, $L_i = 5 \mu H$

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

Permissible temperatures		
Medium	-25 ... 125 °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 version with diaphragm Al₂O₃ 99,9% possible for pressure ranges from 0.1 bar up to 1 bar

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

³ approved for atmospheric pressure from 0.8 bar up to 1.1 bar

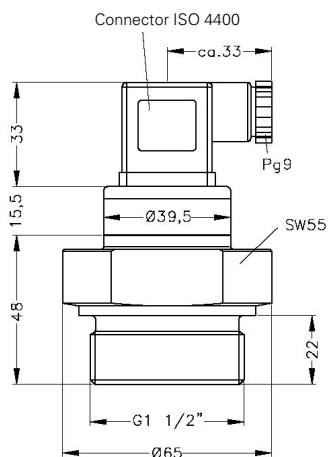
DMK 351 P

Process Pressure Transmitter

Technical Data

Mechanical connection (dimensions in mm)

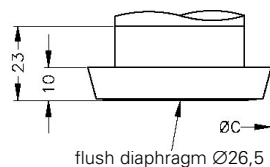
Standard



G1 1/2" flush

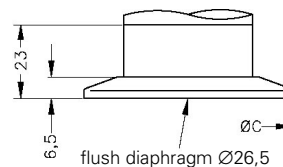
Optional

Dairy pipe (DIN 11851)



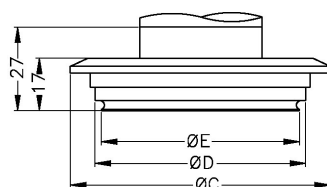
dimensions in mm		
size	DN 40	DN 50
C	56	68,5

Clamp (ISO 2852)



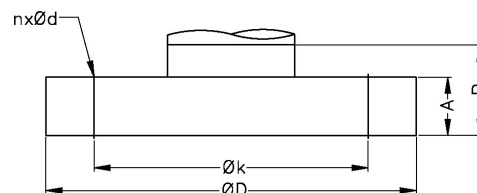
dimensions in mm		
size	1 1/2"	2"
C	50,5	64

Varivent®



dimensions in mm	
size	DN 40/50
C	84
D	68
E	64

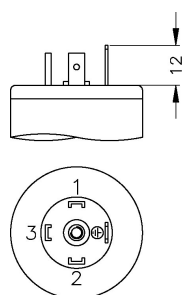
Flange⁴ (DIN 2501)



dimensions in mm			
size	DN25/PN40	DN50/PN40	DN80/PN16
D	115	165	200
k	85	125	160
A	18	20	20
B	28	30	30
n	4	4	8
d	14	18	18

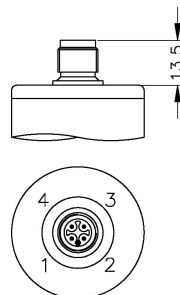
Electrical connection (dimensions in mm)

Standard

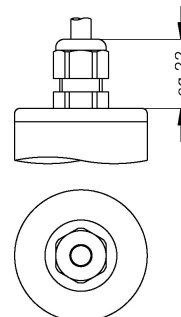


ISO 4400 (IP 65)

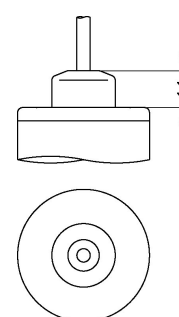
Optional



M12x1 4-pin (IP 67)



cable gland (IP 67)^{5,6}



cable outlet (IP 68)⁵

⁴ DN80/PN16 possible for nominal pressure ranges up to 16 bar

⁵ different cable types and lengths available

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

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Technical Data

Materials

Pressure port	stainless steel 1.4571 (316 Ti)
Housing	stainless steel 1.4571 (316 Ti)
Seals (media wetted)	FKM; others on request
Diaphragm	Standard: ceramics Al_2O_3 96 % Option: ceramics Al_2O_3 99.9 % (possible for pressure ranges from 0.1 bar up to 1 bar)
Media wetted parts	pressure port, seals, diaphragm

Miscellaneous

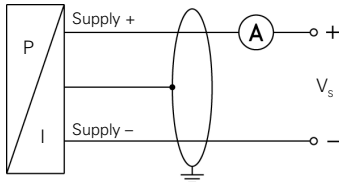
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1 μ H/m
Current consumption	max. 21 mA
Weight	min. 200 g
Installation position	any
Operational life	> 100 x 10 ⁶ cycles

Pin configuration

Electrical connection	ISO 4400	M12x1 (4-pin)	cable colours (DIN 47100)
Supply +	1	1	white
Supply -	2	2	brown
Ground	ground pin	4	yellow / green (shield)

Wiring diagrams

2-wire system (current)



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

Ordering code DMK 351P

DMK 351P

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Pressure																				
	gauge	2	9	5																
	absolute ¹	2	9	6																
Input		[mH ₂ O]	[bar]																	
		0,4	0,04	0	4	0	0													
		0,6	0,06	0	6	0	0													
		1,0	0,10	1	0	0	0													
		1,6	0,16	1	6	0	0													
		2,5	0,25	2	5	0	0													
		4,0	0,40	4	0	0	0													
		6,0	0,60	6	0	0	0													
		10	1,0	1	0	0	1													
		16	1,6	1	6	0	1													
		25	2,5	2	5	0	1													
		40	4,0	4	0	0	1													
		60	6,0	6	0	0	1													
		100	10	1	0	0	2													
		160	16	1	6	0	2													
		200	20	2	0	0	2													
	customer			9	9	9	9													on request
Output																				
	4 ... 20 mA / 2-wire							1												
	Intrinsic safety 4 ... 20 mA / 2-wire							E												
	customer							9												on request
Accuracy																				
	standard	0,35 %						3												
	option	0,25 %						2												
	customer							9												on request
Electrical connection																				
	Male and female plug ISO 4400							1	0	0										
	Cable gland incl. cable ^{2,3}							4	0	0										
	Cable outlet ²							T	R	0										
	M12x1 (4-pin)							M	0	0										
	customer							9	9	9										on request
Mechanical connection																				
	G 1 1/2" DIN flush (DIN 3852)							M	0	0										
	Clamp 1 1/2" (ISO 2852)							C	6	2										
	Clamp 2" (ISO 2852)							C	6	3										
	Dairy pipe DN 40 (DIN 11851) ⁴							M	7	5										
	Dairy pipe DN 50 (DIN 11851) ⁴							M	7	6										
	Varivent® DN 40/50							P	4	1										on request
	Flange DN 25 / PN 40 (DIN 2501)							F	2	0										on request
	Flange DN 50 / PN 40 (DIN 2501)							F	2	3										on request
	Flange DN 80 / PN 16 (DIN 2501) ⁵							F	1	4										on request
	customer							9	9	9										on request
Seals																				
	FKM																			
	customer																			on request
Pressure port																				
	Stainless steel 1.4571 (316Ti)																			
	customer																			on request
Diaphragm																				
	Ceramics Al ₂ O ₃ 96 %																			
	Ceramics Al ₂ O ₃ 99,9 % ⁶																			
	customer																			on request
Special version																				
	standard																			
	customer																			on request

¹ absolute pressure from 0,04 bar up to 0,25 bar on request
² different cable types and lengths deliverable
³ standard: 2 m PVC cable without ventilation tube, optionally cable with ventilation tube
⁴ cup nut for dairy pipe included and pre-assembled
⁵ DN80/PN16 possible for nominal pressure ranges up to 16 bar
⁶ option Al₂O₃ 99,9 % possible for nominal pressure range 0,1 up to 1 bar
 Varivent® is a brand name of GEA Tuchenhagen GmbH

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