

DMK 351P

Pressure Transmitter for the Process Industry

Ceramic Sensor

accuracy according to EN IEC 62828-2:
Standard: 0.35 % span
Option: 0.25 % span



Nominal pressure

from 0 ... 40 mbar up to 0 ... 20 bar

Output signal

2-wire: 4 ... 20 mA
3-wire: 0 ... 10 V
others on request

Special characteristics

- ▶ hygienic version
- ▶ different process connections (G1 1/2", dairy pipe, clamp, etc.)
- ▶ high overpressure capability



Optional versions

- ▶ IS-version (temperature class T4)
Ex ia = intrinsically safe for gases and dusts
- ▶ IS-version (temperature class T6)
- ▶ diaphragm 99.9 % Al₂O₃
- ▶ customer specific versions
e.g. special pressure ranges



The pressure transmitter DMK 351P has been designed for measuring small system pressure in the food industry and chemical industry.

The DMK 351P is based on an own-developed capacitive ceramic sensor element. It features high overpressure resistance and high resistance against most of aggressive media. A variety of different process and electrical connections and an intrinsically safe version complete the range of possibilities.

Preferred areas of use are

-  Food Industry
-  Chemical and Petrochemical Industry

Preferred used for

-  Paint and Varnish
-  Viscous and Pasty Media



Pressure ranges																
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
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35	45	45
Permissible vacuum *	[bar]	-0.2		-0.3		-0.5			-1							
*for 0 ... 1 bar abs. or -1 ... 0 bar gauge max.temperature 70°C																
Output signal / Supply																
Standard	2-wire:	4 ... 20 mA / $V_S = 9 \dots 32 V_{DC}$														
Option IS-protection	2-wire:	4 ... 20 mA / $V_S = 14 \dots 28 V_{DC}$														
Option 3-wire	3-wire:	0 ... 10 V / $V_S = 12.5 \dots 32 V_{DC}$														
Performance																
Accuracy ¹	standard:	$\leq \pm 0.35 \% \text{ span}$														
	option:	$\leq \pm 0.25 \% \text{ span}$														
Long term stability		$\leq \pm 0.1 \% \text{ span / year}$														
Influence effects	supply:	0.05 % span / 10 V														
	load:	0.05 % span / k Ω														
Permissible load	current 2-wire:	$R_{max} = [(V_S - V_{S min}) / 0.02 A] \Omega$														
	voltage 3-wire:	$R_{min} = 10 k\Omega$														
Turn-on time		700 msec														
Mean measuring rate		5 / sec														
Response time	mean response time:	$\leq 200 \text{ msec}$														
	max. response time:	380 msec														
¹ accuracy according to EN IEC 62828-2- limit point adjustment (non-linearity, hysteresis, repeatability)																
Thermal errors (offset and span) / -Permissible temperatures																
Thermal error		$\leq \pm 0.1 \% \text{ span / } 10 \text{ K}$ in compensated range -20 ... 80°C														
Permissible temperatures	medium:	-40 ... 125 °C														
	electronics / environment:	-40 ... 85 °C														
	storage:	-40 ... 100 °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														
Mechanical stability																
Vibration		10 g RMS (20 ... 2000 Hz) according to DIN EN 60068-2-6														
Shock		100 g / 1 msec according to DIN EN 60068-2-27														
Materials																
Pressure port		stainless steel 1.4404														
Housing standard		stainless steel 1.4404														
Option field housing		stainless steel 1.4435														
Seal (media wetted)		FKM -40 ... 125 °C														
		EPDM -40 ... 125 °C														
		others on request														
Diaphragm	standard:	ceramic Al ₂ O ₃ 96 %														
	option:	ceramic Al ₂ O ₃ 99.9 %														
Media wetted parts		pressure port, seals, diaphragm														
IS-protection (only for 4 ... 20 mA / 2-wire)																
Approval DX 14-DMK 351 P		IBExU05ATEX1069 X zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ia IIIC T110 °C Da														
Safety technical maximum values		$U_i = 28 \text{ V}, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C_i = 14 \text{ nF}, L_i = \text{negligible } \mu\text{H}, C_{gnd} = 27 \text{ nF}$														
Max. permissible temperature for environment	zone 0:	-20 ... 60 °C for p_{atm} 0.8 bar up to 1.1 bar														
	zone 1:	-25 ... 70 °C														
Connecting cables (by factory)	capacity:	signal line / shield also signal line / signal line: 220 pF/m														
	inductance:	signal line / shield also signal line / signal line: 1.5 $\mu\text{H}/\text{m}$														
Miscellaneous																
Current consumption		max. 21 mA														
Weight		min. 200 g														
Installation position		any														
Operational life		$> 100 \times 10^6$ loading cycles														
EMC-directive: 2014/30/EU		EMC-directive: 2014/30/EU														
ATEX Directive		2014/34/EU														

DMK 351P

Process Pressure Transmitter

Technical Data

Wiring diagram

2-wire-system (current)

3-wire-system (current / voltage)

Pin configuration

Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 (4-pin)	field housing	cable colour (DIN 47100)
Supply +	1	3	1	IN +	wh (white)
Supply -	2	4	2	IN -	bn (brown)
Signal + (only 3-wire)	3	1	3	OUT +	gn (green)
Shield	ground pin	5	4	⊥	ye/gn (yellow / green)

Electrical connections (dimensions in mm)

ISO 4400 (IP 65)

Binder series 723 (IP 67)

M12x1 4-pin (IP 67)

cable gland PG7 / cable length specify (IP 67)²

cable outlet, cable with ventilation tube (IP 68)³

⇒ universal stainless steel field housing 1.4404 with cable gland M20x1.5 (ordering code 880) and other versions on request

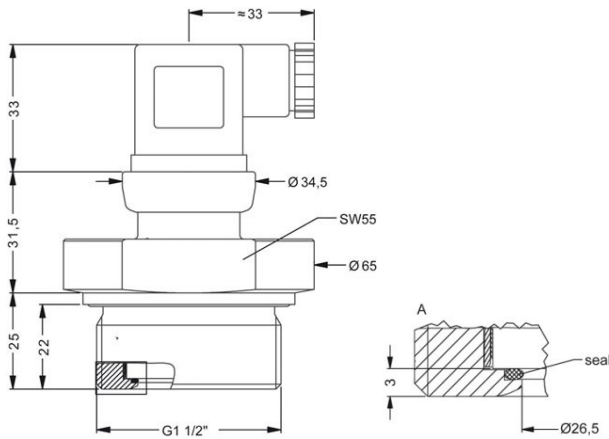
² standard: 2 m PVC-cable without ventilation tube (permissible temperature: -5 ... 70 °C)
³ different cable types and lengths available, permissible temperature depends on kind of cable

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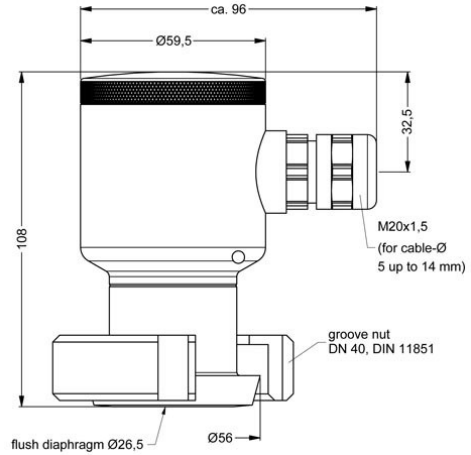
Process Pressure Transmitter

Technical Data

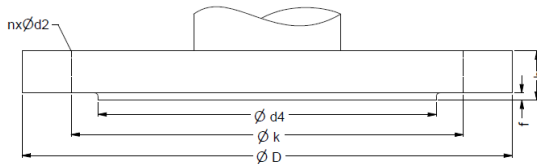
Dimensions (in mm)



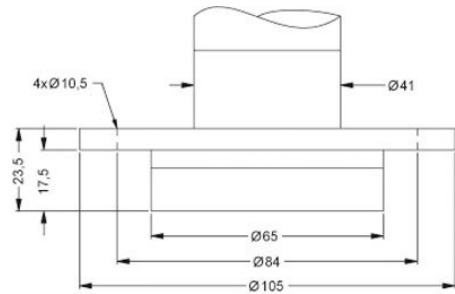
G1 1/2" EN 837



field housing
with dairy pipe (DIN 11851)

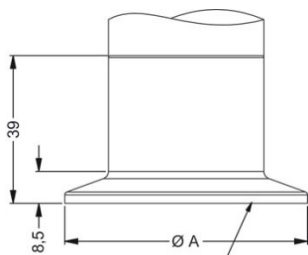


flange (DIN 2501)



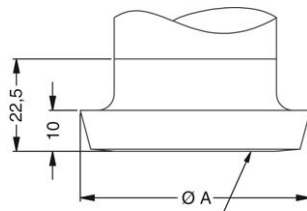
flange DRD⁴

dimensions in mm			
size	DN25	DN50	DN80
D	115	165	200
k	85	125	160
d4	68	102	138
b	18	20	20
f	2	3	3
n	4	4	8
d2	14	18	18
P _N [bar]	≤ 40	≤ 40	≤ 16



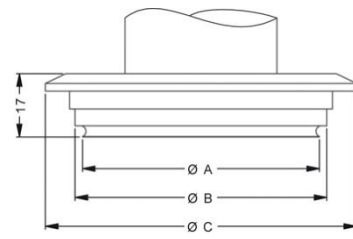
flush diaphragm Ø=26,5mm
Clamp (DIN 32676)

dimensions in mm		
size	DN32	DN50
A	50,5	64
P _N [bar]	≤ 16	≤ 16



flush diaphragm Ø=26,5mm
dairy pipe (DIN 11851)

dimensions in mm			
size	DN25	DN40	DN50
A	44	56	68,5



Varivent®

size (mm)	DN 40/50
A	64
B	68
C	84

⁴ mounting flange is included in the delivery (already pre-assembled)

This data sheet contains product specification. properties are not guaranteed. Subject to change with notice.

Ordering code DMK 351P

23.08.2024

DMK 351P

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Pressure			
Gauge	2 9 5		
Absolute ¹	2 9 6		
Input [bar]			
0 ... 0,04	0 4 0 0		
0 ... 0,06	0 6 0 0		
0 ... 0,1	1 0 0 0		
0 ... 0,16	1 6 0 0		
0 ... 0,25	2 5 0 0		
0 ... 0,4	4 0 0 0		
0 ... 0,6	6 0 0 0		
0 ... 1	1 0 0 1		
0 ... 1,6	1 6 0 1		
0 ... 2,5	2 5 0 1		
0 ... 4	4 0 0 1		
0 ... 6	6 0 0 1		
0 ... 10	1 0 0 2		
0 ... 16	1 6 0 2		
0 ... 20	2 0 0 2		
Customer	9 9 9 9		
Customer - underpressure	X X X X		
Output			
4...20 mA / 2-wire		1	
0...10 V / 3-wire		3	
Intrinsic safety 4 ... 20 mA / 2-wire		E	
Customer		9	
Accuracy			
1 % (underpressure)		8	
0,5 %		5	
0,35 % (standard)		3	
0,25 %		2	
1 % including Calibration Certificate		U	
0,5 % including Calibration Certificate		T	
0,35 % including Calibration Certificate		S	
0,25 % including Calibration Certificate		R	
Customer		9	
Electrical connection			
Connector DIN 43650 (ISO 4400) (IP 65)		1 0 0	
Connector Binder 723 5-pin (IP 67)		2 0 0	
Field housing stainless steel, cable gland M20 x 1,5 (IP 67)		8 8 0	
Connector DIN 43650 (ISO 4400) - potting compound inside (IP 6)		E 0 0	
Cable gland PG7 / cable length specify (IP 67)		4 0 0	
+ PVC cable / 1 m			
Cable outlet / cable length specification needed (IP 68) ²		T R 0	
PVC cable with air tube + 1 m			
Connector M12 x 1, 4-pin (IP 67)		M 0 0	
Connector M12 x 1, 4-pin (IP 67) - metal		M 1 0	
Customer		9 9 9	
Mechanical connection			
G 1 1/2" DIN flush (DIN 3852)		M 0 0	
Clamp DN 32 (DIN 32676)		C 6 2	
Clamp DN 50 (DIN 32676)		C 6 3	
Dairy pipe DN 40 (DIN 11851) ³		M 7 5	
Dairy pipe DN 50 (DIN 11851) ³		M 7 6	
Varivent® DN 40/50		P 4 1	
Flange DN 25 / PN 40 (DIN 2501)		F 2 0	
Flange DN 40 / PN 40 (DIN 2501)		F 2 2	
Flange DN 50 / PN 40 (DIN 2501)		F 2 3	
Flange DN 80 / PN 16 (DIN 2501)		F 1 4	



Customer	9	9	9						
Seals									
FKM	1								
EPDM	3								
Customer	9								
Pressure port									
Stainless steel 1.4404 (316L)	1								
Customer	9								
Diaphragm									
Ceramics Al ₂ O ₃ 96 %					2				
Ceramics Al ₂ O ₃ 99.9 %					C				
Customer					9				
Special version									
Standard							0	0	0
Customer							9	9	9

0,-...without additional charge

On request...in accordance with the producer

Surcharges for calibration are not subject to any discounts. Subject to change.

This document contains the specification for ordering the product; detailed technical parameters of the product and its possible variants are given in th
BD SENSORS reserves the right to change sensor specifications without further notice.

1 absolute pressure from 0.04 bar up to 0.25 bar on request

2 code TR0 = PVC cable, cable with ventilation tube available in different types and lengths; cable not included in the price

3 The cup nut has to be mounted by production of pressure transmitter with electrical connection field housing and mechanical connection dairy pipe.

The cup nut has to be ordered as separate position.

