



DMK 351P

Pressure Transmitter for the Process Industry

Ceramic Sensor

accuracy according to IEC 60770: Standard: 0.35 % FSO Option: 0.25 % FSO

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
- diaphragm ceramics Al₂O₃ 99.9 %
- different process connections (G1 1/2", diary pipe, Clamp, etc.)
- high overpressure capability

Optional versions

- IS-version Ex ia = intrinsically safe for gases and dusts
- 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 overpressure resistance and 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







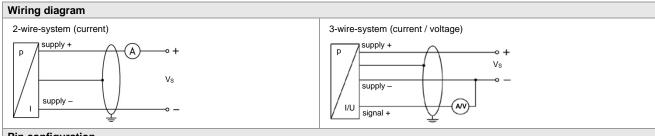




Process Pressure Transmitter

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 absolute 1	[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	-C	0.3	-0.5 -1										
¹ not in combination with output 0 10 V/3-wire																

Output signal / Supply								
Standard	2-wire: 4 20 mA / V _S = 9 32 V _{DC}							
Option IS-protection	2-wire: 4 20 mA / V _S = 14 28 V _{DC}							
Option 3-wire	3-wire: 0 10 V / V _S = 12.5 32 V _{DC}							
Performance								
Accuracy ²	standard: $\leq \pm 0.35 \%$ FSO							
Accuracy	standard. $\leq \pm 0.35 \% \text{ FSO}$ option for p _N ≥ 0.6 bar: $\leq \pm 0.25 \% \text{ FSO}$							
Long term stability	option for p _N ≥ 0.0 bar. ≤ ± 0.25 % f 300 ≤ ± 0.1 % FSO / year at reference conditions							
Influence effects	supply: 0.05 % FSO / 10 V							
Illiderice effects	load: $0.05 \% FSO / k\Omega$							
Permissible load	current 2-wire: $R_{\text{max}} = [(V_{\text{S}} - V_{\text{Smin}}) / 0.02 \text{ A}] \Omega$							
T chineciple lead	voltage 3-wire: $R_{min} = 10 \text{ k}\Omega$							
Turn-on time	700 msec							
Mean measuring rate	5 / sec							
Response time	mean response time: ≤ 200 msec							
Trooperioe unio	max. response time: 380 msec							
² accuracy according to IEC 60770 - lim	it point adjustment (non-linearity, hysteresis, repeatability)							
Thermal effect (offset and span)								
Tolerance band	≤±1% FSO							
	-20 80 °C							
In compensated range	-20 00 · O							
Permissible temperatures	40, 405.00							
Permissible temperatures	medium: -40 125 °C							
	electronics / environment: -40 85 °C storage: -40 100 °C							
Electrical protection	storage: -40 100 °C							
·								
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	20 g RMS / 10 2000 Hz according to DIN EN 60068-2-6							
Shock	500 g / 1 msec half sine according to DIN EN 60068-2-27							
Materials								
Pressure port	stainless steel 1.4404 (316L)							
Housing	stainless steel 1.4404 (316L)							
Option compact field housing	stainless steel 1.4301 (304); cable gland M12x1.5, brass, nickel plated (clamping range 2 8 mm)							
Seal (media wetted)	FKM							
, ,	EPDM							
	others on request							
Diaphragm	ceramic Al ₂ O ₃ 99.9 %							
Media wetted parts	pressure port, seals, diaphragm							
Explosion protection (only for 4	20 mA / 2-wire)							
Approval DX 14-DMK 351 P	IBExU 05 ATEX 1070 X							
	zone 0: II 1G Ex ia IIC T4 Ga							
	zone 20: II 1D Ex ia IIIC T110 °C Da							
Safety technical maximum values	$U_i = 28 \text{ V}, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C_i = 14 \text{ nF}, L_i \approx 0 \mu\text{H}, C_{qnd} = 27 \text{ nF}$							
Max. permissible temperature for	zone 0: -20 60 °C for p _{atm} 0.8 bar up to 1.1 bar							
environment	zone 1 and higher: -25 70 °C							
Connecting cables (by factory)	cable capacity: signal line / shield also signal line / signal line: 220 pF/m cable inductance: signal line / shield also signal line / signal line: 1.5 µH/m							
Miscellaneous	· · · · ·							
Current consumption	max. 21 mA							
Weight	min. 200 g							
Installation position	any 100 million load cycles							
Installation position	,							
Operational life	100 million load cycles							
·	,							



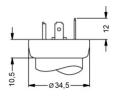
Pin configuration

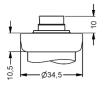
Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 (4-pin)	compact field housing	cable colours (IEC 60757)	
Supply +	1	3	1	IN +	WH (white)	
Supply –	2	4	2	IN –	BN (brown)	
Signal + (only 3-wire)	3	1	3	OUT +	GN (green)	
Shield	ground pin 😩	5	4	(GNYE (green-yellow)	

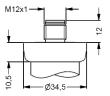
Electrical connections (dimensions in mm)

standard

options









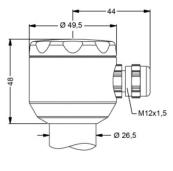


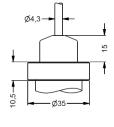


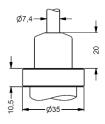
ISO 4400 (IP 65)

Binder series 723 5-pin (IP 67)

M12x1 4-pin (IP 67)







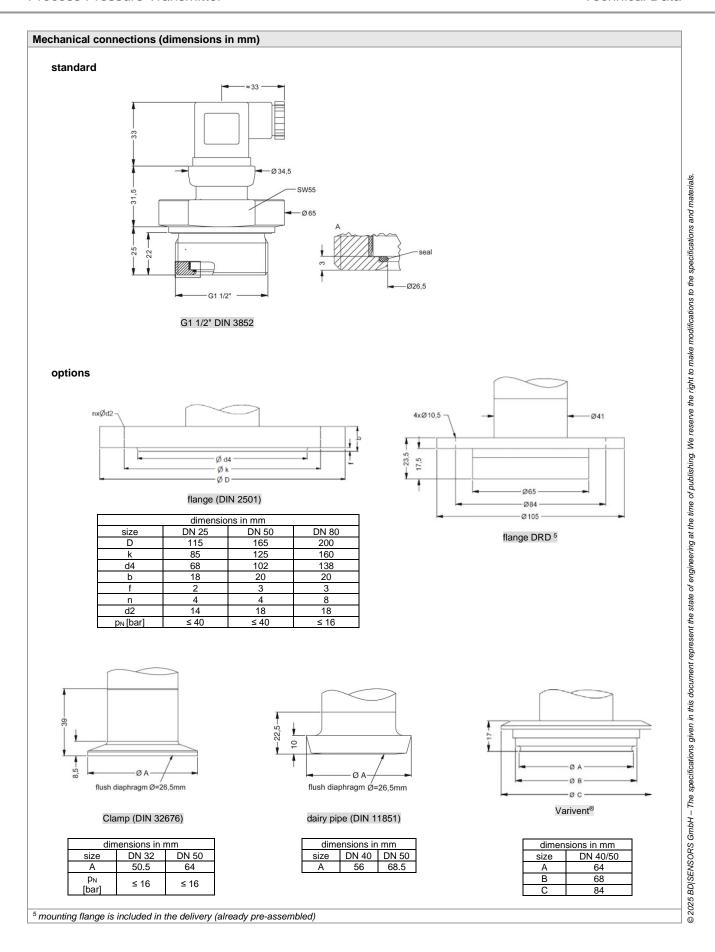
compact field housing (IP 67)

cable outlet with PVC-cable (IP 67) ³

cable outlet, cable with ventilation tube (IP 68) 4

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

 $^{^3}$ standard: 2 m PVC-cable without ventilation tube (permissible temperature: -5 \dots 70 °C) 4 different cable types and lengths available, permissible temperature depends on kind of cable



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Ordering code DMK 351P **DMK 351P** Pressure 2 9 5 2 9 6 gauge absolute 1 Input 0 4 0 0 0.4 0.04 0.6 0.06 0 6 0 0 1 0 0 0 1.0 0.10 0 0 6 1.6 0.16 2 5 0 0 4 0 0 0 2.5 0.25 0 0 0.40 4.0 0 0 0 0 0 6.0 0.60 6 0 1 10 1.0 1 1 6 2 5 0 16 1.6 2 5 0 4 0 0 25 2.5 40 40 1 6 0 0 1 1 0 0 2 1 6 0 2 2 0 0 2 9 9 9 9 60 6.0 and materials 100 10 160 16 200 20 customer consult make modifications to the specifications Output 4 ... 20 mA / 2-wire 0 ... 10 V / 3-wire consult intrinsic safety 4 ... 20 mA / 2-wire Ε customer 9 consult standard: 0.35 % FSO 3 option for $p_N \ge 0.6$ bar: customer 9 consult Electrical connection male and female plug ISO 4400 0 0 male plug Binder series 723 (5-pin) 0 0 right to M 1 0 T A 0 male plug M12x1 (4-pin) / metal cable outlet with PVC cable (IP67) 2 reserve the cable outlet, R 0 cable with ventilation tube (IP68) ³ compact field housing 5 8 0 stainless steel 1.4301 (304) We 9 9 9 customer consult Mechanical connection G 1 1/2" DIN flush (DIN 3852) Clamp DN 32 (DIN 32676) Clamp DN 50 (DIN 32676) dairy pipe DN 40 (DIN 11851) 4 dairy pipe DN 50 (DIN 11851) 4 Varivent® DN 40/50 document represent the state of engineering at the time of publishing. 0 0 6 2 3 6 3 M 7 5 M 7 6 P 4 consult flange DN 25 / PN 40 (DIN 2501) flange DN 50 / PN 40 (DIN 2501) flange DN 80 / PN 16 (DIN 2501) F F 2 0 consult 3 consult F 4 consult customer 9 9 9 consult FKM **EPDM** customer 9 consult Pressure port stainless steel 1.4404 (316L) 1 9 customer consult Diaphragm ceramics Al₂O₃ 99.9 % C © 2024 BD|SENSORS GmbH - The specifications given in this customer 9 consult Special version 0 0 9 9 standard 0 customer consult

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Varivent® is a brand name of GEA Tuchenhagen GmbH

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¹ absolute pressure from 0.04 bar up to 0.25 bar on request and not in combination with output 0 ... 10 V / 3-wire

 $^{^2}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C); others on request

³ code TR0 = PVC cable, cable with ventilation tube available in different types and lengths

⁴ 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.