BD SENSORS®
pressure measurement

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
- different process connections (G1 1/2", diary 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 % Al_2O_3
- 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

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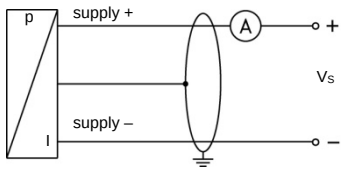
Pressure ranges																
Nominal pressure gauge	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	20
Nominal pressure abs.	[bar]	on request					0.4	0.6	1	1.6	2.5	4	6	10	16	20
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35	45	45
Permissible vacuum	[bar]	-0.2		-0.3		-0.5				-1						

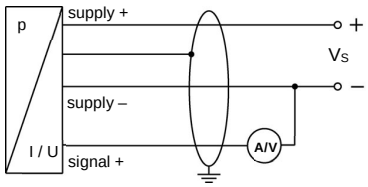
Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V_S = 9 ... 32 V_{DC}
Option IS-protection	2-wire: 4 ... 20 mA / V_S = 14 ... 28 V_{DC}
Option 3-wire	3-wire: 0 … 10 V / V_S = 12.5 ... 32 V_{DC}
Performance	
Accuracy [1]	standard: ≤ ± 0.35 % FSO option: ≤ ± 0.25 % FSO
Long term stability	≤ ± 0.1 % FSO / year
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
Permissible load	current 2-wire: $R_{max} = [(V_S – V_{S\,min}) / 0.02\ A]\ \Omega$ voltage 3-wire: R_{min} = 10 kΩ
Turn-on time	700 msec
Mean measuring rate	5 / sec
Response time	mean response time: ≤ 200 msec max. response time: 380 msec
[1] accuracy according to IEC 60770 - limit point adjustment (non-linearity, hysterisis, repeatability	
Thermal errors (offset and span) / -Permissible temperatures	
Thermal error	≤ ±0.1 % FSO / 10 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 compact field housing	 stainless steel 1.4404 stainless steel 1.4435
Seal (media wetted)	FKM -40 ... 125 °C EPDM -40 ... 125 °C others on request
Diaphragm	standard: ceramic Al_2O_3 96 % option: ceramic Al_2O_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 T85 °C Da
Safety technical maximum values	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, C_i = 27 nF, L_i = 5 µH, C_{gnd} = 27 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: 160 pF/m inductance: signal line / shield also signal line / signal line: 1 µH/m
Miscellaneous	
Current consumption	max. 21 mA
Weight	min. 200 g
Installation position	any
Operational life	> 100 x 10^6 loading cycles
EMC-directive: 2014/30/EU	EMC-directive: 2014/30/EU
ATEX Directive	2014/34/EU

Wiring diagram

2-wire-system (current)



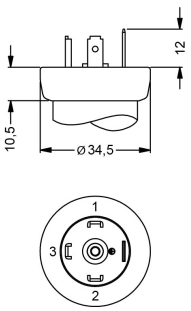
3-wire-system (current / voltage)



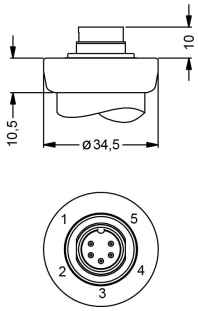
Pin configuration

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)

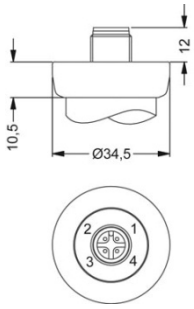
Electrical connections (dimensions in mm)



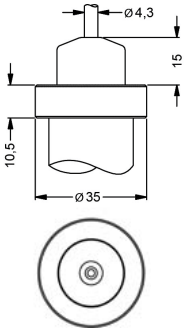
ISO 4400 (IP 65)



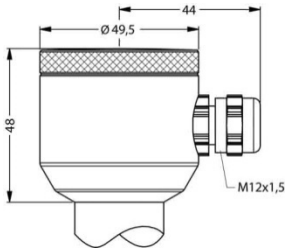
Binder series 723 (IP 67)



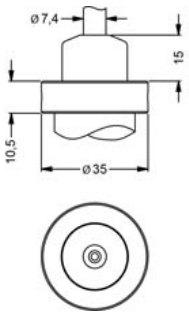
M12x1 4-pin (IP 67)



cable outlet with PVC-cable (IP 67) [2]



compact field housing (IP 67)

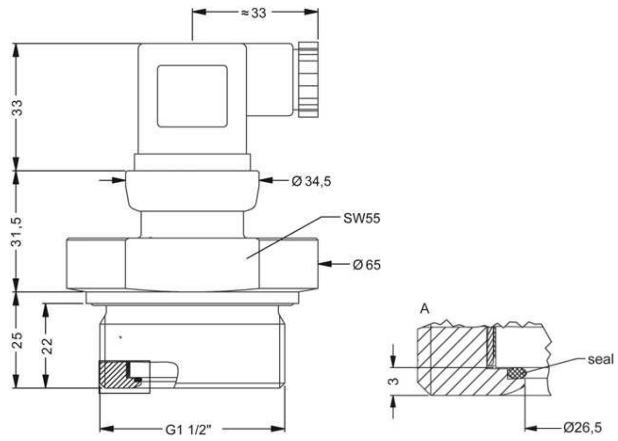


cable outlet, cable with ventilation tube (IP 68) [3]

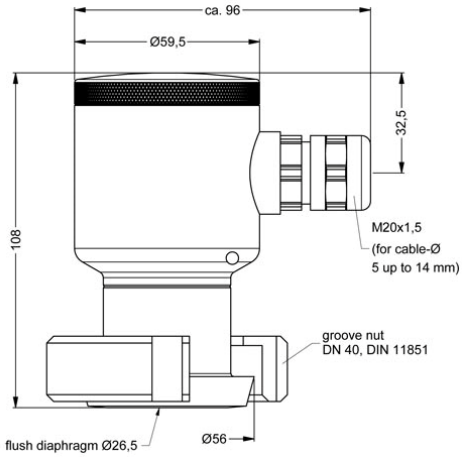
⇨universal stainless steel field housing 1.4404 with cable gland M20x1.5 (ordering code 880) and other versions on request

[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

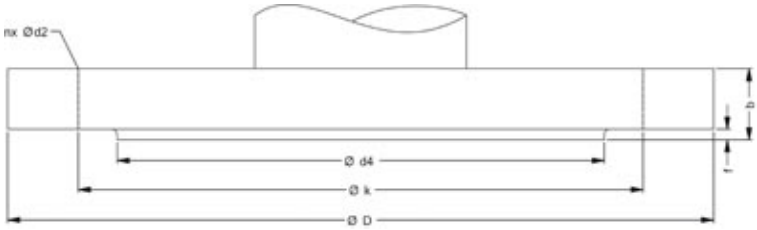
Dimensions (in mm)



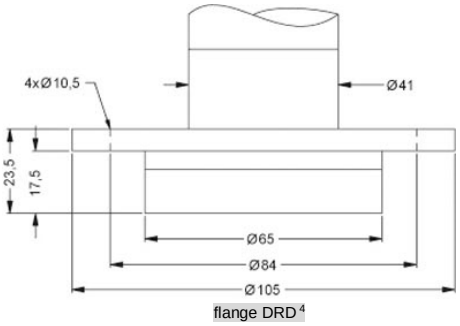
G1 1/2" EN 837



field housing
with dairy pipe (DIN 11851)

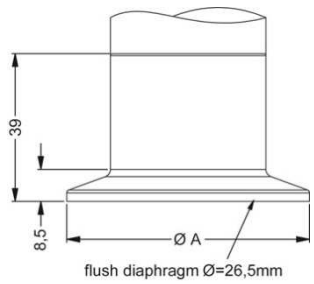


flange (DIN 2501)

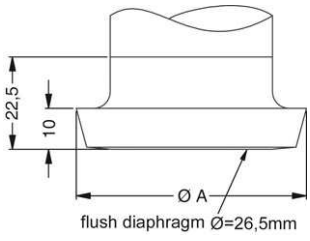


flange DRD[4]

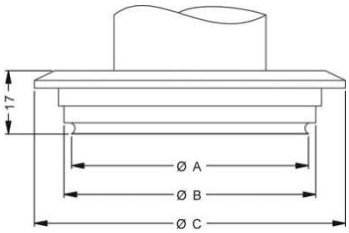
dimensions in mm			
size	DN25	DN50	DN80
D	115	165	200
k	85	125	160
d4	68	102	138
b	18	20	20
f	2	3	3
n	4	4	8
d2	14	18	18
P_N [bar]	≤ 40	≤ 40	≤ 16



Clamp (DIN 32676)



dairy pipe (DIN 11851)



Varivent®
P_N ≤ 10 bar

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

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

dimensions in mm		
size	P41	P63
A	64	91
B	68	96,5
C	84	113

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

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