

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
Ex ia = intrinsically safe for gases and dusts
- ▶ 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



DMK 351P

Process Pressure Transmitter

Technical Data

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 absolut	[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 / $V_S = 9 \dots 32 V_{DC}$														
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		$\leq \pm 0.35 \% \text{ FSO}$														
Option		$\leq \pm 0.25 \% \text{ FSO}$														
Long term stability		$\leq \pm 0.1 \% \text{ FSO} / \text{year}$ at reference conditions														
Influence effects		supply:		0.05 % FSO / 10 V												
		load:		0.05 % FSO / k Ω												
Permissible load		current 2-wire:		$R_{\max} = [(V_S - V_{S \min}) / 0.02 \text{ A}] \Omega$												
		voltage 3-wire:		$R_{\min} = 10 \text{ k}\Omega$												
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 IEC 60770 - limit point adjustment (non-linearity, hysteresis, repeatability)																
Thermal errors (offset and span) / -Permissible temperatures																
Thermal error		$\leq \pm 0.1 \% \text{ FSO} / 10 \text{ K}$ 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 (316L)														
Housing																
Standard		stainless steel 1.4404 (316L)														
compact field housing		stainless steel 1.4435 (316L)														
Seal (media wetted)		FKM EPDM 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		male (connector)-version: zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex iaD 20 T 85°C cable-version: zone 0: II 1G Ex ia IIB T4 Ga zone 20: II 1D Ex iaD 20 T 85°C														
Safety technical maximum values		$U_i = 28 \text{ V}$, $I_i = 93 \text{ mA}$, $P_i = 660 \text{ mW}$, $C_i = 27 \text{ nF}$, $L_i = 5 \mu\text{H}$														
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 $\mu\text{H}/\text{m}$												
Miscellaneous																
Current consumption		max. 21 mA														
Weight		min. 200 g														
Installation position		any														
Operational life		$> 100 \times 10^6$ loading cycles														
CE-conformity		EMC-directive: 2004/108/EC														

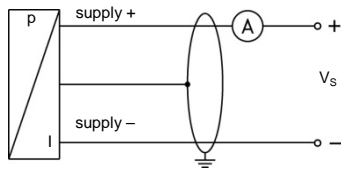
DMK 351P

Process Pressure Transmitter

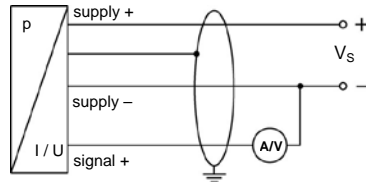
Technical Data

Wiring diagram

2-wire-system (current)



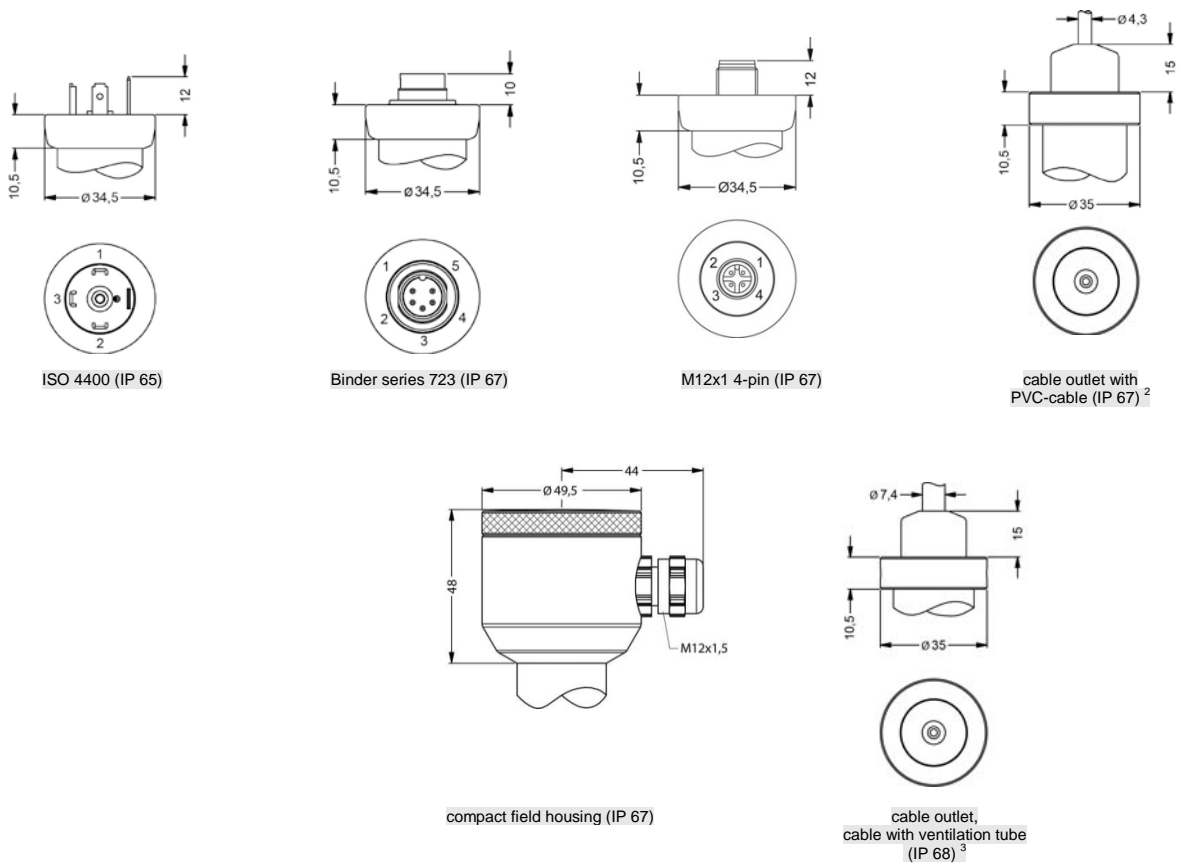
3-wire-system (current / voltage)



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)



⇒ 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)

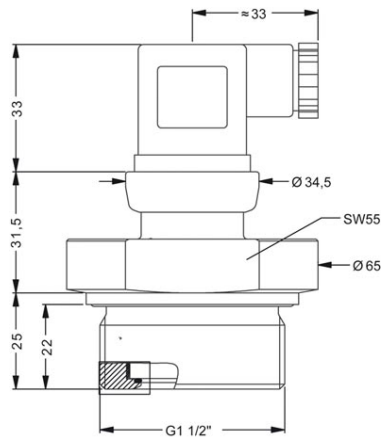
³ different cable types and lengths available, permissible temperature depends on kind of cable

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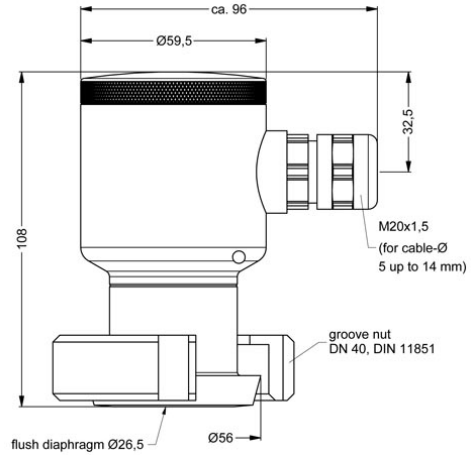
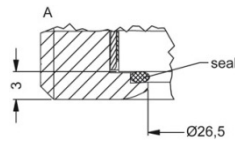
Process Pressure Transmitter

Technical Data

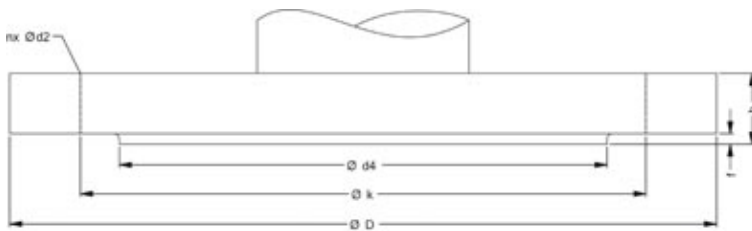
Dimensions (in mm)



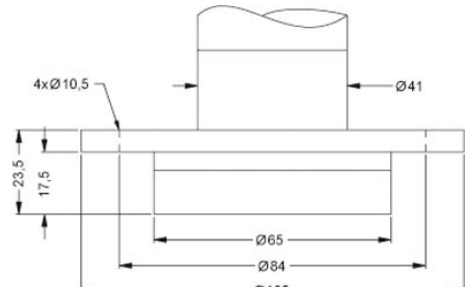
G1 1/2" EN 837



field housing
with dairy pipe (DIN 11851)

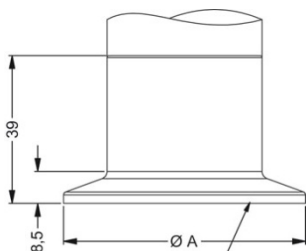


flange (DIN 2501)



flange DRD⁴

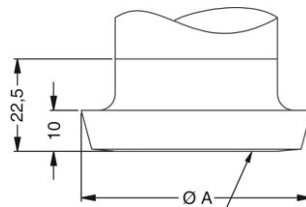
dimensions in mm			
size	DN25	DN50	DN80
D	115	165	200
k	85	125	160
d4	68	102	138
b	18	20	20
f	2	3	3
n	4	4	8
d2	14	18	18
P _N [bar]	≤ 40	≤ 40	≤ 16



flush diaphragm Ø=26,5mm

Clamp (DIN 32676)

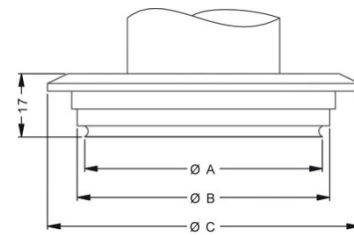
dimensions in mm		
size	DN32	DN50
A	50,5	64
P _N [bar]	≤ 16	≤ 16



flush diaphragm Ø=26,5mm

dairy pipe (DIN 11851)

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



Varivent

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)

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

Ordering code DMK 351P

DMK 351P



Pressure											
	gauge										
	absolute ¹	2	9	5							
		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					consult
Output											
	4 ... 20 mA / 2-wire						1				
	0 ... 10 V / 3-wire						3				consult
	Intrinsic safety 4 ... 20 mA / 2-wire						E				consult
	customer						9				consult
Accuracy											
	standard	0.35 %					3				
	option	0.25 %					2				
	customer						9				consult
Electrical connection											
	Male and female plug ISO 4400						1	0	0		
	Cable outlet with PVC cable ²						T	A	0		
	Binder series 723						2	0	0		
	Compact field housing						8	5	0		
	Cable outlet						T	R	0		
	Male plug M12x1 (4-pin) / metal						M	1	0		
	customer						9	9	9		consult
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		consult
	Flange DN 25 / PN 40 (DIN 2501)						F	2	0		consult
	Flange DN 50 / PN 40 (DIN 2501)						F	2	3		consult
	Flange DN 80 / PN 16 (DIN 2501)						F	1	4		consult
	customer						9	9	9		consult
Seals											
	FKM									1	
	EPDM									3	
	customer									9	consult
Pressure port											
	Stainless steel 1.4404 (316L)									1	
	customer									9	consult
Diaphragm											
	Ceramics Al ₂ O ₃ 96 %									2	
	Ceramics Al ₂ O ₃ 99.9 %									C	
	customer									9	consult
Special version											
	standard									0	0
	customer									9	9
											0
											9
											9
											consult

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

² standard: 2 m PVC cable without ventilation tube

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.

Varivent® is a brand name of GEA Tuchenhagen GmbH

