DRUCK & TEMPERATUR
LEITENBERGER GMBH

DMK 351P

Pressure Transmitter For The Process Industry

Ceramic Diaphragm

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

Pressure Transmitter

DMK 351P

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:

- ► hygienical 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 % Al_2O_3
- ► customer specific versions
  e.g. special pressure ranges

CE Ex

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 a 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 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 ... 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	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: $R_{max} = [(V_S - V_{S\,min}) / 0.02]$ Ω 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 / -Permissible temperatures	
Tolerance band	≤± 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: stainless steel 1.4404 compact field housing: 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	male (connector)-version: zone 0: II 1 G EEx ia IIC T4 zone 20: II 1 D EEx IP6X T=85°C cable-version: zone 0: II 1 G EEx ia IIB T4 zone 20: II 1 D EEX 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 µH
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
CE-conformity	EMC-directive: 2004/108/EC

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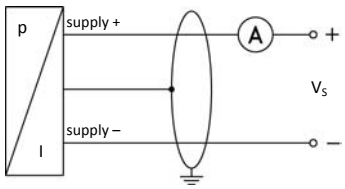
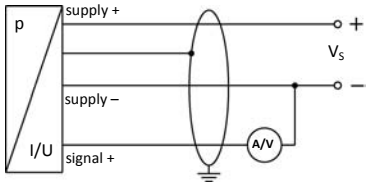
Wiring diagram

2-wire-system (current)



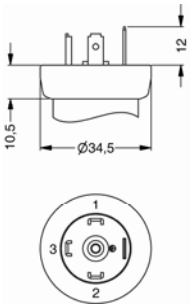
3-wire-system (current / voltage)



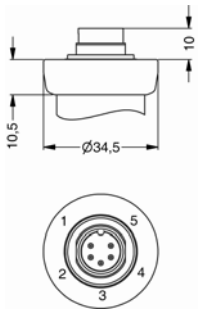
Pin configuration

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	⏚	gn/ye (yellow / green)

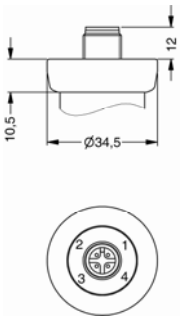
Electrical connections (dimensions in mm)



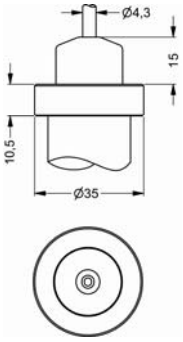
ISO 4400 (IP 65)



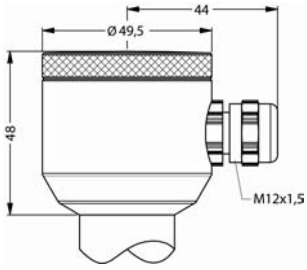
Binder series 723 (IP 67)



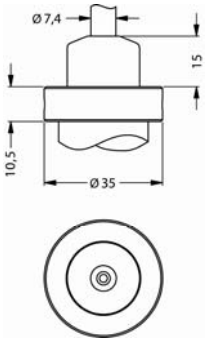
M12x1 4-pin (IP 67)



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*

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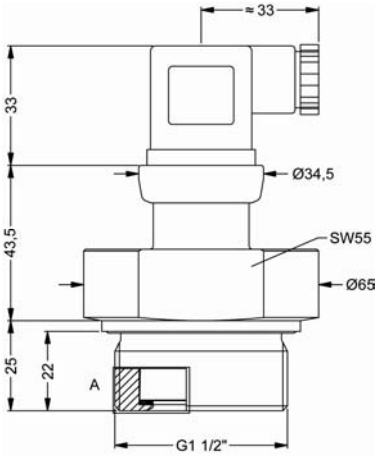
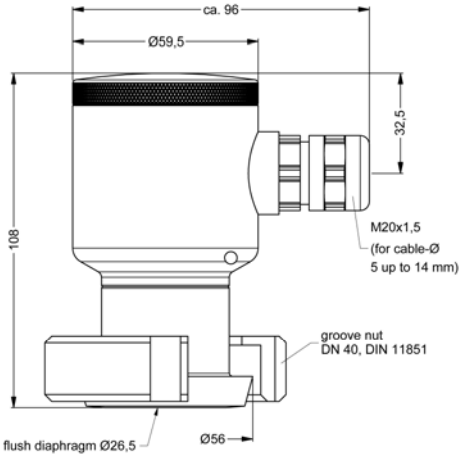
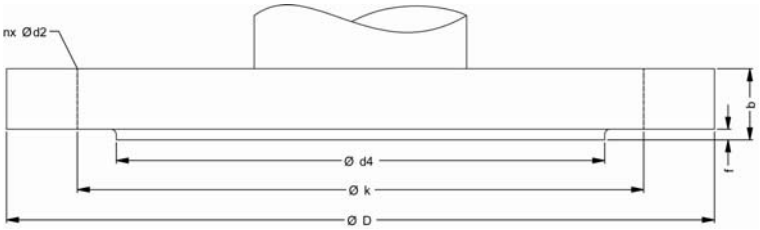
Dimensions (in mm)



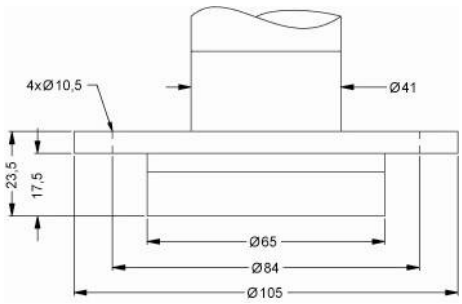
G1 1/2" EN 837
with field housing



field housing
with dairy pipe (DIN 11851)

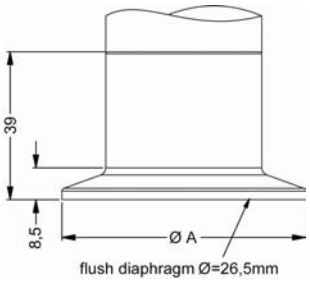


flange [3] (DIN 2501)



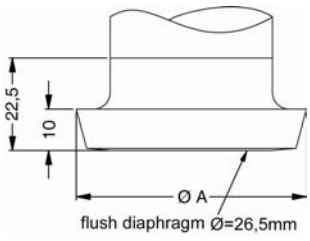
flange DRD [4]

dimensions in mm				
size	DN25/PN40	PN40/PN40	DN50/PN40	DN80/PN16
D	115	150	165	200
k	85	110	125	160
d4	68	88	102	138
b	18	18	20	20
f	2	3	3	3
n	4	4	4	8
d2	14	18	18	18



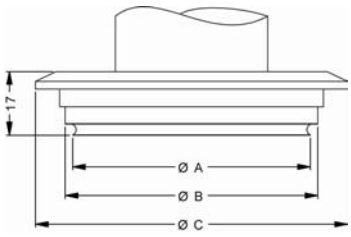
Clamp (ISO 2852)

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



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

[3] *DN80/PN16 possible for nominal pressure ranges $P_N \leq 16$ bar*
[4] *mounting flange is included in the delivery (already pre-assembled)*

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DMK 351P

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Messgröße			
relativ		2 9 5 □	
absolut [1]		2 9 6 □	
Eingang	**[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	
Sondermessbereiche		9 9 9 9	auf Anfrage
Ausgang			
4 ... 20 mA / 2-Leiter		1	
0 ... 10 V / 3-Leiter		3	
Ex-Schutz 4 ... 20 mA / 2-Leiter		E	
andere		9	auf Anfrage
Genauigkeit			
Standard	0,35 %	3	
Option	0,25 %	2	
andere		9	auf Anfrage
Elektrischer Anschluss			
Stecker und Kabeldose ISO 4400		1 0 0	
Kabelausgang mit PVC-Kabel [2]		T A 0	
Binder Serie 723		2 0 0	
Kompakt-Feldgehäuse		8 5 0	
Kabelausgang		T R 0	
Stecker M12x1 (4-polig) / Metall		M 1 0	
andere		9 9 9	auf Anfrage
Mechanischer Anschluss			
G 1 1/2" frontbündig (DIN 3852)		M 0 0	
Clamp 1 1/2" (ISO 2852)		C 6 2	
Clamp 2" (ISO 2852)		C 6 3	
Milchrohr DN 40 (DIN 11851) [3]		M 7 5	
Milchrohr DN 50 (DIN 11851) [3]		M 7 6	
Varivent® DN 40/50		P 4 1	auf Anfrage
Flansch DN 25 / PN 40 (DIN 2501)		F 2 0	auf Anfrage
Flansch DN 50 / PN 40 (DIN 2501)		F 2 3	auf Anfrage
Flansch DN 80 / PN 16 (DIN 2501) [4]		F 1 4	auf Anfrage
andere		9 9 9	auf Anfrage
Dichtung			
FKM		1	
EPDM		3	
andere		9	auf Anfrage
Druckanschluss			
Edelstahl 1.4404 (316L)		1	
andere		9	auf Anfrage
Trennmembrane			
Keramik Al_2O_3 96 %		2	
Keramik Al_2O_3 99,9 %		C	
andere		9	auf Anfrage
Sonderausführungen			
Standard		0 0 0	
andere		9 9 9	auf Anfrage

[1] Absolutdruck von 0,04 bar bis 0,25 bar auf Anfrage
[2] Standard: 2 m PVC-Kabel ohne Belüftungsschlauch
[3] Nutüberwurfmutter für Milchrohr ist im Lieferumfang enthalten (bereits vormontiert)
[4] DN80/PN16 möglich für Nenndruckbereich bis 16 bar

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