

DMK 351

Pressure Transmitter

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

Product characteristics

- ▶ high media resistance

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

The pressure transmitter DMK 351 has been specially designed for applications in plant and machine engineering as well as laboratory techniques and is suitable for measuring small system pressure and filling heights.

By using our own-developed capacitive sensor, optionally available as Al₂O₃ 99.9%, the DMK 351 offers a high overpressure resistance and a high temperature and media resistance. The pressure transmitter is available in an intrinsically safe version for a use in explosive environments.

Preferred areas of use are



Plant and machine engineering



Laboratory techniques

Preferred used for



Fuel and oil



Water



Pressure ranges																	
Nominal pressure ¹	[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	
Level	[mH ₂ O]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	200	
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							

¹ available in gauge and absolute; nominal pressure ranges absolute from 1 bar

Output signal / Supply

Standard	2-wire:	4 ... 20 mA / $V_s = 9 \dots 32 V_{DC}$
Option IS-version	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 ²	standard: $\leq \pm 0.35\%$ FSO option for $p_N \geq 0.6$ bar: $\leq \pm 0.25\%$ FSO	
Permissible load	current 2-wire: $R_{\max} = [(V_S - V_{Smin}) / 0.02 A] \Omega$ voltage 3-wire: $R_{\min} = 10 k\Omega$	
Influence effects	supply: 0.05% FSO / $10 V$ load: 0.05% FSO / $k\Omega$	
Long term stability	$\leq \pm 0.1\%$ FSO / year at reference conditions	
Turn-on time	700 msec	
Mean measuring rate	5/sec	
Response time	mean response time: < 200 msec	max. response time: 380 msec

² accuracy according to IEC 60770 - limit point adjustment (non-linearity, hysteresis, repeatability)

Thermal effects (offset and span)

Tolerance band	$\leq \pm 1 \% \text{ FSO}$
in compensated range	-20 ... 80 °C

Permissible temperatures

Medium ³	-40 ... 125 °C
Electronics / environment	-40 ... 85 °C
Storage	-40 ... 100 °C

³ for pressure port in PVDF or PP the medium temperature is -30 ... 60 °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	standard: stainless steel 1.4404 (316L)	option 4: PP, PVDF
Housing	standard: stainless steel 1.4404 (316L)	option 4: PP, PVDF
Option compact field housing	stainless steel 1.4301 (304); cable gland M12x1.5, brass, nickel plated (clamping range 2 ... 8 mm)	
Seal	standard: FKM	option: EPDM
Diaphragm	standard: ceramics Al ₂ O ₃ 96 %	option: ceramics Al ₂ O ₃ 99.9 %
Media wetted parts	pressure port, seals, diaphragm	

⁴ only with mech. connection G1/2" DIN 3852 open port, bore 12 mm, $p_N \leq 10$ bar and without explosion protection possible

Explosion protection (only for 4 ... 20 mA / 2-wire with stainless steel version)

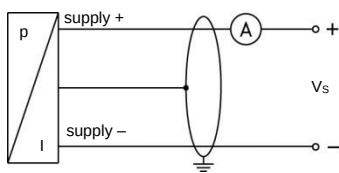
Approval DX 14-DMK 351	IBExU 05 ATEX 1070 X zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ia IIIC T110 °C Da option: II 1G Ex ia IIC T6 Ga	
Safety technical maximum values	U _i = 28 V _{DC} , I _i = 93 mA, P _i = 660 mW, C _i = 14 nF, L _i ≈ 0 µH, C _{gnd} = 27 nF	
Max. permissible temperature for environment	in zone 0: -20 ... 60 °C for p _{atm} 0.8 bar up to 1.1 bar in zone 1 and higher: -25 ... 70 °C for T6: -25 ... 60 °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

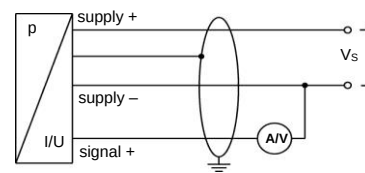
Installation position	any
Current consumption	signal output current: max. 21 mA signal output voltage: max. 5 mA
Weight	min. 200 g
Operational life	100 million load cycles
CE-conformity	EMC-directive: 2014/30/EU
ATEX Directive	2014/34/EU

Wiring diagram

2-wire-system (current)



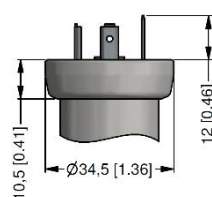
3-wire-system (current / voltage)



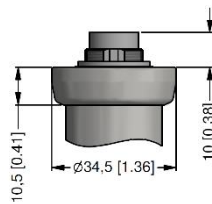
Pin configuration

Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	compact field housing	cable colours (IEC 60757)
Supply +	1	3	1	V _S +	WH (white)
Supply -	2	4	2	V _S -	BN (brown)
Signal + (only for 3-wire)	3	1	3	S+	GN (green)
Shield	ground pin	5	4	GND	GYNE (green-yellow)

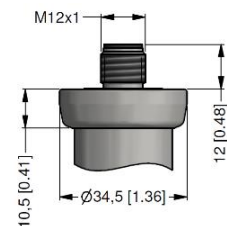
Electrical connections (dimensions mm / in)



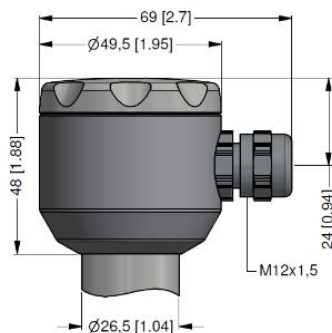
ISO 4400
(IP 65)



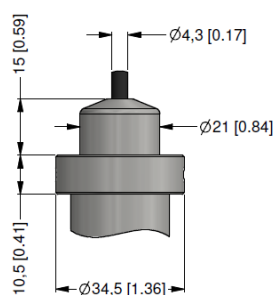
Binder series 723, 5-pin
(IP 67)



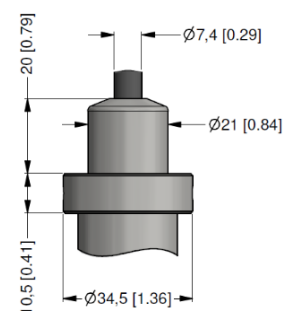
M12x1, 4-pin
(IP 67)



compact field housing
(IP 67)



cable outlet
with PVC-cable (IP 67) ⁵



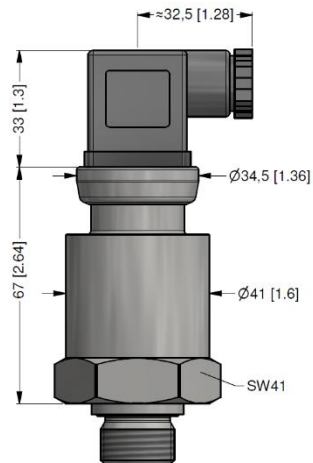
cable outlet, cable with
ventilation tube (IP 68) ⁶

⇒ universal field housing stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request

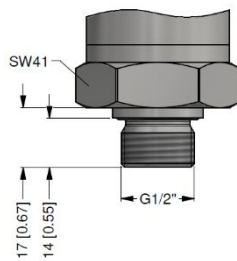
⁵ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)

⁶ different cable types and lengths available, permissible temperature depends on kind of cable

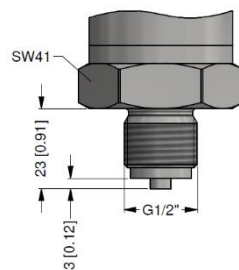
Dimensions (mm / in)



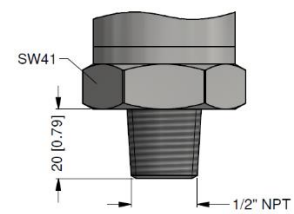
Mechanical connection (dimensions mm / in)



G1/2" DIN 3852

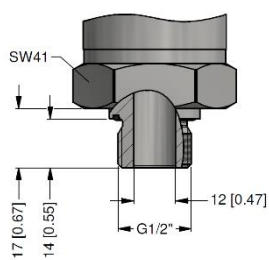


G1/2" EN 837

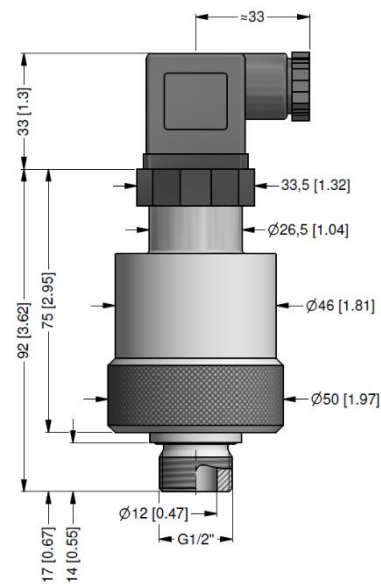


1/2" NPT

G1/2" DIN 3852 open port, bore 12 mm:



housing and pressure port in stainless steel



housing and pressure port in PP / PVDF
for $p_N \leq 10$ bar, without explosion protection

Ordering code DMK 351

DMK 351

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[illegible]¹ nominal pressure ranges absolute from 1 bar

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 PP / PVDF possible only with G1/2" DIN 3852 open pressure port, $p_N \leq 10$ bar and without explosion protection; permissible medium temperature: -30 ... 60 °C