

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



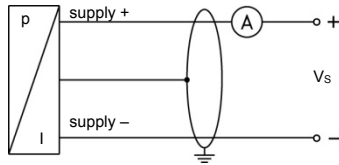
Pressure ranges																
Nominal pressure ¹	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	20
Level	[mH ₂ O]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	200
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35	45	45
Permissible vacuum	[bar]	-0.2		-0.3		-0.5			-1							

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

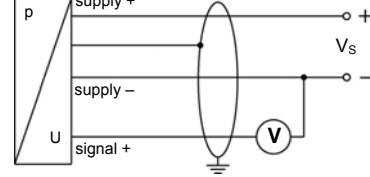
Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V _S = 9 ... 32 V _{DC}
Option IS-protection	2-wire: 4 ... 20 mA / V _S = 14 ... 28 V _{DC}
Option 3-wire	3-wire: 0 ... 10 V / V _S = 12.5 ... 32 V _{DC}
Performance	
Accuracy ²	standard: ≤ ± 0.35 % FSO option for P _N ≥ 0.6 bar: ≤ ± 0.25 % FSO
Permissible load	current 2-wire R _{max} = [(V _S - V _{Smin}) / 0.02 A] Ω voltage 3-wire: R _{min} = 10 kΩ
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
Long term stability	≤ ± 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 errors (Offset and Span)	
Tolerance band	≤ ± 0.1 % FSO / 10 K in compensated range: -20 ... 80 °C
Permissible temperatures	
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	standard: stainless steel 1.4404 (316L) option ³ : PP, PVDF
Housing	standard: stainless steel 1.4404 (316L) option ³ : PP, PVDF
Option compact field housing	stainless steel 1.4305 (303) with cable gland brass, nickel plated others on request
Seal (media wetted)	FKM EPDM
Diaphragm	standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 %
Media wetted parts	pressure port, seals, diaphragm
³ only with mech. connection G1/2" DIN 3852 open port, bore 12 mm, P _N ≤ 10 bar, min. permissible temperature -30 °C and without IS-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 option: II 1G Ex ia IIC T6 Ga zone 20: II 1D Ex ia IIIC T85 °C Da
Safety technical maximum values	U _i = 28 V _{DC} , 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	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)	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	
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)



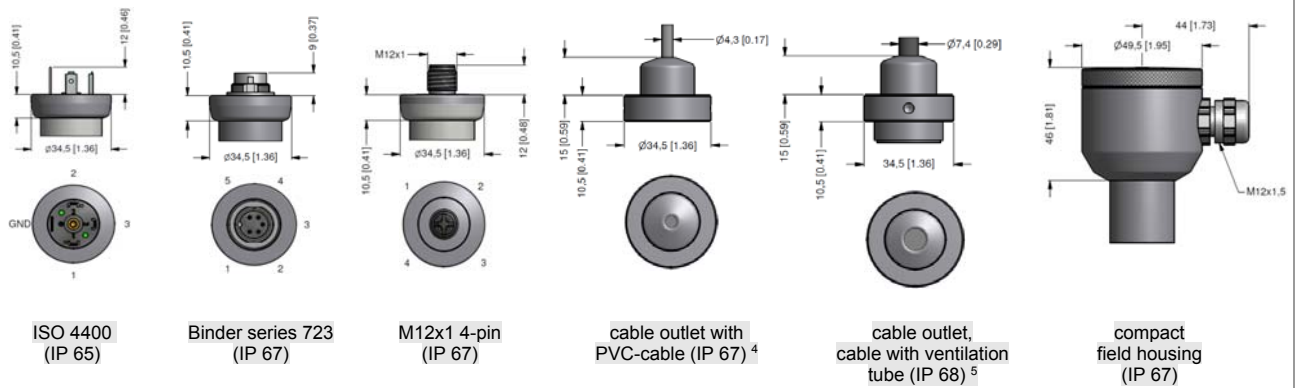
3-wire-system (current / voltage)



Pin configuration

Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 (4-pin)	field housing	cable colour (IEC 60757)
Supply +	1	3	1	IN +	wh (white)
Supply -	2	4	2	IN -	bn (brown)
Signal +	3	1	3	OUT +	gn (green)
Shield	ground contact	5	4		gyne (green-yellow)

Electrical connections (dimensions mm / in)



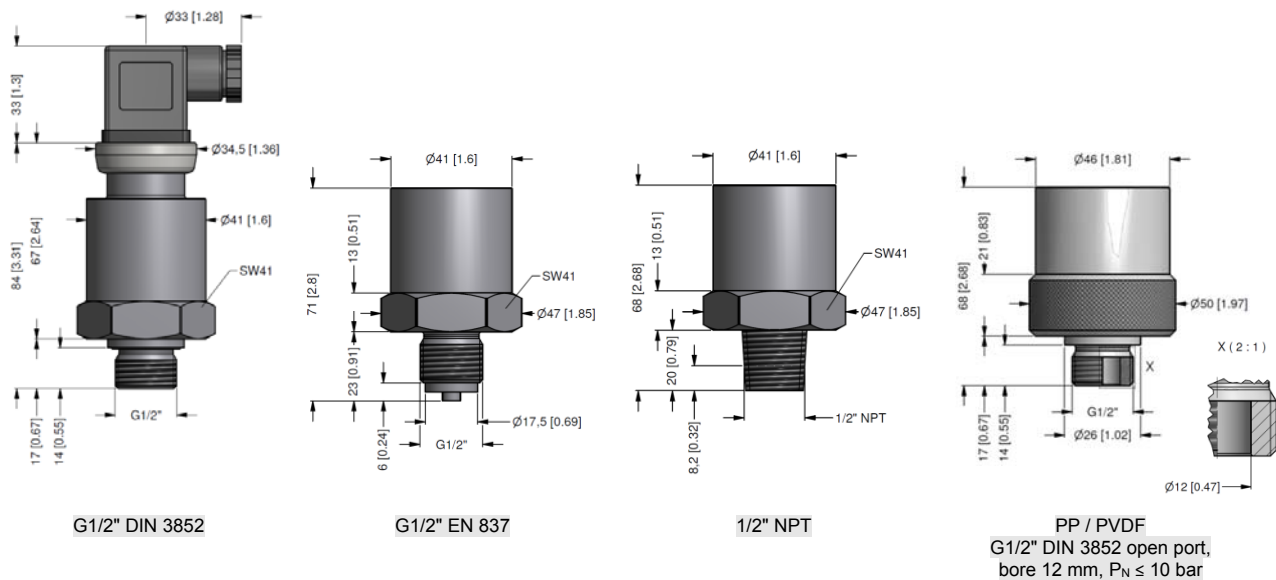
⁴ standard: 2 m PVC-cable without ventilation tube (permissible temperature: -5 ... 70°C), optional cable with ventilation tube

⁵ different cable types and lengths available, permissible temperature depends on kind of cable

Dimensions (mm / in)

standard

options



Ordering code DMK 351

DMK 351

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Pressure																						
	in bar, gauge		2	9	0																	
	in bar, absolute ¹		2	9	1																	
	in bar, sealed gauge ¹																				consult	
	in mH ₂ O, gauge		2	9	2																	
	in mH ₂ O, absolute ¹		2	9	3																consult	
	in mH ₂ O, sealed gauge ¹																				consult	
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												
	Intrinsic safety T4; 4 ... 20 mA / 2-wire									E												
	Intrinsic safety T6; 4 ... 20 mA / 2-wire									E6												
	customer									9											consult	
Accuracy																						
	standard	0.35 %								3												
	option for P _N ≥ 0.6 bar:	0.25 %								2												
	customer									9											consult	
Electrical connection																						
	Male and female plug ISO 4400									1	0	0										
	Male plug Binder series 723 (5-pin)									2	0	0										
	Cable outlet with PVC cable ²									T	A	0										
	Cable outlet with cable									T	R	0										
	Male plug M12x1 (4-pin) / metal									M	1	0										
	compact field housing									8	5	0										
	stainless steel 1.4305									8	5	0										
	customer									9	9	9									consult	
Mechanical connection																						
	G1/2" DIN 3852									1	0	0										
	G1/2" EN 837									2	0	0										
	1/2" NPT									N	0	0										
	G1/2" DIN 3852 open pressure port									H	0	0										
	customer									9	9	9									consult	
Seals																						
	FKM											1										
	EPDM											3										
	customer											9									consult	
Pressure port																						
	Stainless steel 1.4404 (316L)												1									
	PP ³												E									
	PVDF ³												B									
	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	0
	customer																			9	9	9

¹ nominal pressure ranges absolute and sealed gauge from 1 bar

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

³ PP / PVDF possible only with G1/2" DIN 3852 open pressure port, P_N ≤ 10 bar, min. permissible temperature -30 °C and without explosion protection

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