DMK 351

Pressure Transmitter

Ceramic Sensor

accuracy according to IEC 60770:
standard: 0.35 % FSO
option: 0.25 % FSO

DMK 351 Pressure Transmitter

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
  Ex ia = intrinsically safe for gases and dusts
- diaphragm 99.9 % Al_2O_3
- customer specific versions

CE Ex

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 Al_2O_3 99.9 %, the DMK 351 offers a high overpressure resistance and a high temperature and media resistance.

An intrinsically safe version completes the range of possibilities.

Preferred areas of use are

- Plant and Machine Engineering
- Laboratory Techniques

Preferred used for

- Fuel and Oil
- Water

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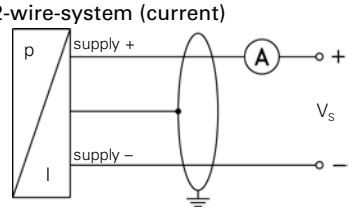
Pressure ranges																
Nominal pressure	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	20
Level	[mH_2O]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	200
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35	45	45
Low pressure	[bar]	-0.2		-0.3		-0.5				-1						

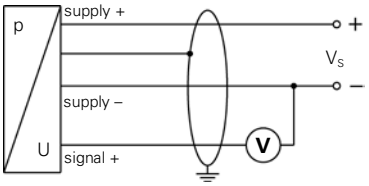
Output signal / Supply		
Standard	2-wire: 4 ... 20 mA / V_S = 9 ... 32 V_{DC}	
Option IS-protection	2-wire : 4 ... 20 mA / V_S = 14 ... 28 V_{DC} Option 3-wire: 0 ... 10 V / V_S = 12.5 ... 32 V_{DC}	
Performance		
Accuracy [1]	standard: ≤ ± 0.35 % FSO option for P_N ≥ 0.6 bar: ≤ ± 0.25 % FSO	
Permissible load	current 2-wire $R_{max}=[(V_S - V_{Smin}) / 0.02]$ Ω	voltage 3-wire: R_{min} = 10 k Ω
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ	
Long term stability	≤ ± 0.1 % FSO / year	
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)		
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	stainless steel 1.4404 (316L)	
Housing	stainless steel 1.4404 (316L)	
Option compact field housing	stainless steel 1.4305 (303) with cable gland brass, nickel plated	others on request
Seal (media wetted)	FKM: -40 ... 125 °C EPDM: -40 ... 125 °C	
Diaphragm	standard: ceramics Al_2O_3 96 % option: ceramics 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	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	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	
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: 160 pF/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 x 10^6 loading cycles	
CE-conformity	EMC-directive: 2004/108/EC	
ATEX Directive	94/9/EC	

Wiring diagram

2-wire-system (current)



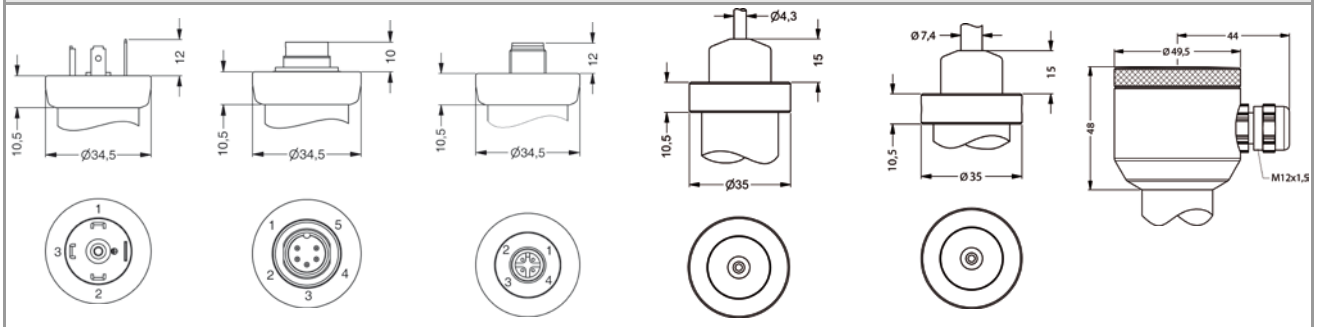
3-wire-system (current / voltage)



Pin configuration

Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 (4-pin)	field housing	cable colours (DIN 47100
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	⏚	gn/ye (green / yellow)

Electrical connections (dimensions in mm)

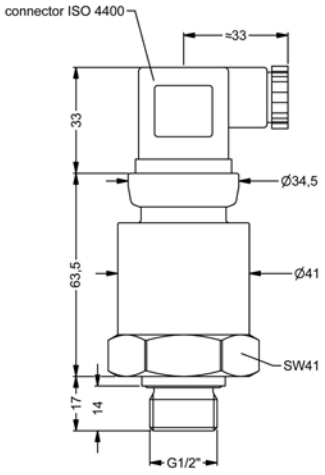


ISO 4400 (IP 65) | Binder series 723 (IP 67) | M12x1 4-pin (IP 67) | cable outlet with PVC-cable (IP 67) [2] | cable outlet, cable with ventilation tube (IP 68) [3] | compact field housing (IP 67)

[2] standard: 2 m PVC-cable without ventilation tube (permissible temperature: -5 ... 70°C), optional cable with ventilation tube
[3] different cable types and lengths available, permissible temperature depends on kind of cable

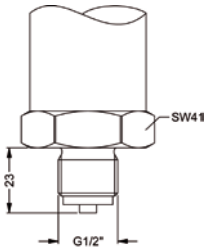
Dimensions (in mm)

standard

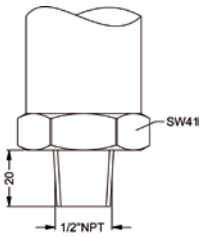


G1/2" DIN 3852

option



G1/2" EN 837



1/2" NPT

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Ordering code DMK 351

DMK 351 □□□-□□□□-□-□-□□□-□□□-□-□-□-□□□

Pressure			
in bar, gauge		290	
in bar, absolute		291	
in bar, sealed gauge			consult
in mH_2O, gauge		292	
in mH_2O, absolute		293	consult
in mH_2O, sealed gauge			consult
Input	[mH_2O]	[bar]	
	0.4	0.04	0400
	0.6	0.06	0600
	1.0	0.10	1000
	1.6	0.16	1600
	2.5	0.25	2500
	4.0	0.40	4000
	6.0	0.60	6000
	10	1.0	1001
	16	1.6	1601
	25	2.5	2501
	40	4.0	4001
	60	6.0	6001
	100	10	1002
	160	16	1602
	200	20	2002
		customer	9999 consult
Output			
4 ... 20 mA / 2-wire			1
0 ... 10 V / 3-wire			3
Intrinsic safety 4 ... 20 mA / 2-wire			E
customer			9 consult
Accuracy			
standard		0.35 %	3
option für $P_N \geq 0.6$ bar:		0.25 %	2
		customer	9 consult
Electrical connection			
Male and female plug ISO 4400			100
Male plug Binder series 723 (5-pin)			200
Cable outlet with PVC cable [1]			TA0
Cable outlet with cable			TR0
Male plug M12x1 (4-pin) / metal			M10
compact field housing stainless steel 1.4305			850
customer			999 consult
Mechanical connection			
G1/2" DIN 3852			100
G1/2" EN 837			200
1/2" NPT			N00
customer			999 consult
Seals			
FKM			1
EPDM			3
customer			9 consult
Pressure port			
Stainless steel 1.4404 (316L)			1
customer			9 consult
Diaphragm			
Ceramics Al_2O_3 96%			2
Ceramics Al_2O_3 99.9 %			C
customer			9 consult
Special version			
standard			000
customer			999 consult

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

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