

DMK 351

Pressure Transmitter

Ceramic Sensor

accuracy according to IEC 61298-2:
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
others on request

Product characteristics

- ▶ high media resistance
- ▶ diaphragm ceramics Al_2O_3 99.9 %

Optional versions

- ▶ IS-version (temperature class T4)
Ex ia = intrinsically safe for
gases and dusts
- ▶ IS-version (temperature class T6)
- ▶ 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 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



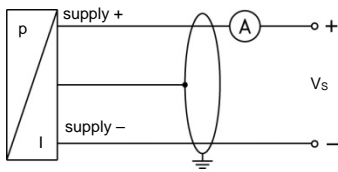
Water



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 ... 32 V _{DC}															
Option IS-version		2-wire: 4 ... 20 mA / V _S = 14 ... 28 V _{DC}															
Performance																	
Accuracy ²		standard: ≤ ± 0.35 % FSO option for p _N ≥ 0.6 bar: ≤ ± 0.25 % FSO															
Permissible load		R _{max} = [(V _S – V _{Smin}) / 0.02 A] Ω															
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 61298-2 - limit point adjustment (non-linearity, hysteresis, repeatability)																	
Thermal effects (offset and span)																	
Tolerance band		≤ ± 1 % 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 the operation medium temperature is -30 ... 60 °C and in PP-HT 0 ... 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		20 g RMS / 10 ... 2000 Hz										according to DIN EN 60068-2-6					
Shock		500 g / 1 msec half sine										according to DIN EN 60068-2-27					
Materials																	
Pressure port / housing		standard: option for G1/2" open port:										stainless steel 1.4404 (316L) PVDF (p _{max} = 20 bar @ t _{max} = 60 °C) PP-HT (p _{max} = 10 bar @ t _{max} = 60 °C)					
Option compact field housing ⁴		stainless steel 1.4301 (304); cable gland M12x1.5, brass, nickel plated (clamping range 2 ... 8 mm)															
Seal		standard: FKM										option: EPDM					
Diaphragm		ceramics Al ₂ O ₃ 99.9 %															
Media wetted parts		pressure port, seals, diaphragm															
⁴ not possible in combination with pressure port of PVDF or PP-HT																	
Explosion protection (only for 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: cable inductance:										signal line / shield also signal line / signal line: 220 pF/m signal line / shield also signal line / signal line: 1.5 μH/m					
Miscellaneous																	
Installation position		any															
Current consumption		max. 21 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

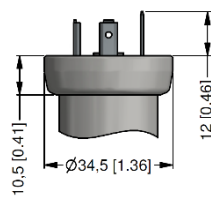
2-wire-system (current)



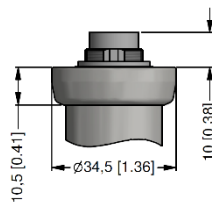
Pin configuration

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)
Shield	ground pin	5	4	GND	GNYE (green-yellow)

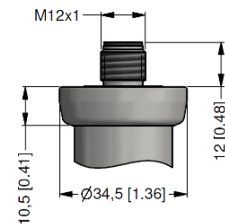
Electrical connections (dimensions mm / in)



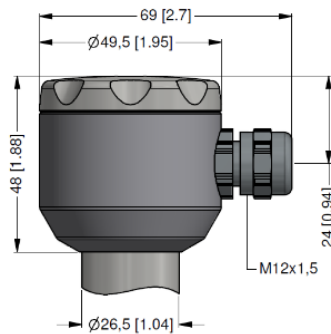
ISO 4400
(IP 65)



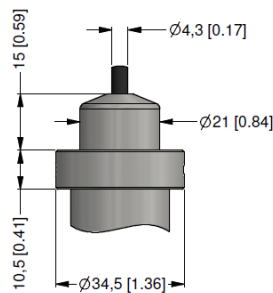
Binder series 723, 5-pin
(IP 67)



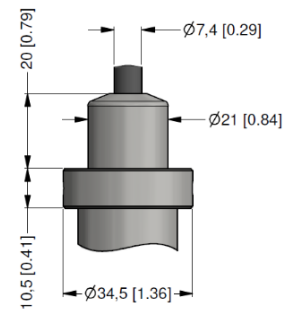
M12x1, 4-pin
(IP 67)



compact field housing
(IP 67) ⁴



cable outlet
with PVC-cable (IP 67) ⁵



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

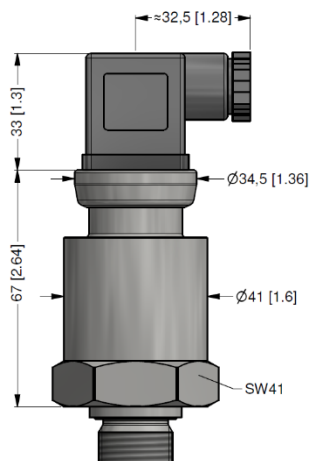
⇒ universal field housing stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request

⁴ not possible in combination with pressure port of PVDF or PP-HT

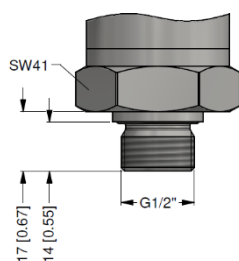
⁵ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)

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

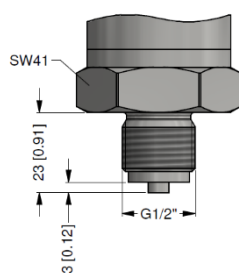
Dimensions (mm / in)



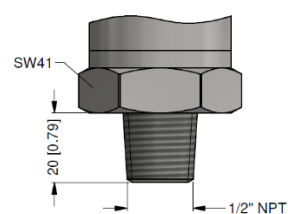
Mechanical connection (dimensions mm / in)



G1/2" DIN 3852

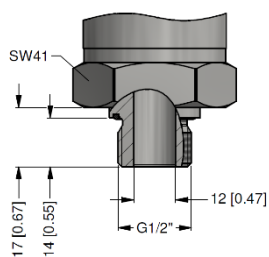


G1/2" EN 837

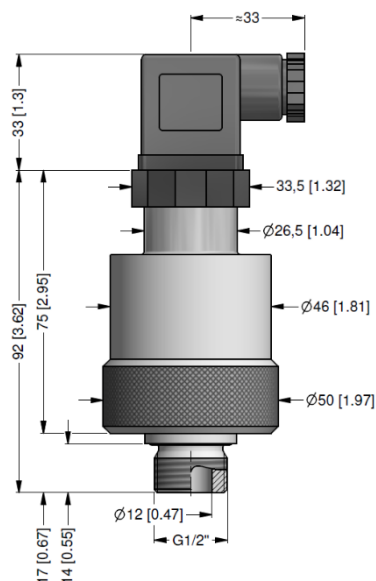


1/2" NPT

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



housing and pressure port in stainless steel



housing and pressure port in PP-HT / PVDF ⁷

⁷ not possible in combination with compact field housing

Ordering code DMK 351

DMK 351

□□□-□□□□-□-□-□□□-□□□-□-□-□-□□□

Pressure									
	in bar, gauge	2	9	0					
	in bar, absolute ¹	2	9	1					
	in mH ₂ O, gauge	2	9	2					
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			
	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 % FSO					3			
option for p _N ≥ 0.6 bar:	0.25 % FSO					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	
	male plug M12x1 (4-pin) / metal					M	1	0	
	cable outlet with PVC cable (IP67) ²					T	A	0	
	cable outlet,					T	R	0	
	cable with ventilation tube (IP68) ³								
	compact field housing					8	5	0	
	stainless steel 1.4301 (304) ⁴								
	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
Seal									
	FKM					1			
	EPDM					3			
	customer					9			consult
Pressure port									
	stainless steel 1.4404 (316L)					1			
	PP-HT ^{5, 6}					R			
	PVDF ^{5, 6}					B			
	customer					9			consult
Diaphragm									
	ceramics Al ₂ O ₃ 99.9 %					C			
	customer					9			consult
Special version									
	standard					0	0	0	
	customer					9	9	9	consult

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 not possible in combination with pressure port of PVDF or PP-HT

⁵ not possible in combination with compact field housing

⁶ PP-HT / PVDF possible only with G1/2" DIN 3852 open pressure port. For PVDF the operation medium temperature is -30 ... 60 °C and for PP-HT 0 ... 60 °C