

# DMK 351

## Pressure Transmitter

Ceramic Sensor

accuracy according to EN IEC 62828-2:  
standard: 0.35 % span  
option: 0.25 % span



### 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 % Al<sub>2</sub>O<sub>3</sub>
- ▶ 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 Al<sub>2</sub>O<sub>3</sub> 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



<b>Pressure ranges</b>																
Nominal pressure <sup>1</sup>	[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 <sub>2</sub> 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
Low pressure	[bar]	-0.2		-0.3		-0.5						-1				
<sup>1</sup> available in gauge and absolute; nominal pressure ranges absolute from 1 bar																
<b>Output signal / Supply</b>																
Standard	2-wire:	4 ... 20 mA / V <sub>S</sub> = 9 ... 32 V <sub>DC</sub>														
Option IS-protection	2-wire :	4 ... 20 mA / V <sub>S</sub> = 14 ... 28 V <sub>DC</sub>														
	Option 3-wire:	0 ... 10 V / V <sub>S</sub> = 12.5 ... 32 V <sub>DC</sub>														
<b>Performance</b>																
Accuracy <sup>1</sup>	standard:	≤ ± 0.35 % span														
	option for P <sub>N</sub> ≥ 0.6 bar:	≤ ± 0.25 % span														
Permissible load	current 2-wire R <sub>max</sub> = [(V <sub>S</sub> - V <sub>Smin</sub> ) / 0.02 A] Ω	voltage 3-wire: R <sub>min</sub> = 10 kΩ														
Influence effects	supply:	0.05 % span / 10 V														
	load:	0.05 % span / kΩ														
Long term stability	≤ ± 0.1 % span / 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			
<sup>1</sup> accuracy according to EN IEC 62828-2- limit point adjustment (non-linearity, hysteresis, repeatability)																
<b>Thermal errors (Offset and Span)</b>																
Tolerance band	≤ ± 0.1 % span / 10 K in compensated range: -20 ... 80 °C															
<b>Permissible temperatures</b>																
Permissible temperatures	medium*:	-40 ... 125 °C														
	electronics / environment:	-40 ... 85 °C														
	storage:	-40 ... 100 °C														
<i>*for pressure port in PVDF the medium temperature is -30 ... 60 °C</i>																
<b>Electrical protection</b>																
Short-circuit protection	permanent															
Reverse polarity protection	no damage, but also no function															
Electromagnetic compatibility	emission and immunity according to EN 61326															
<b>Mechanical stability</b>																
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					
<b>Materials</b>																
Pressure port	standard:	stainless steel 1.4404 (316L)														
	option <sup>3</sup> :	PP, PVDF														
Housing	standard:	stainless steel 1.4404 (316L)														
	option <sup>3</sup> :	PP, PVDF														
Option field housing	stainless steel 1.4305 (304); cable gland M16x 1.5, brass, nickel plated (clamping range 2...8 mm)															
Seal (media wetted)	FKM EPDM															
Diaphragm	standard:	ceramics Al <sub>2</sub> O <sub>3</sub> 96 %														
	option:	ceramics Al <sub>2</sub> O <sub>3</sub> 99.9 %														
Media wetted parts	pressure port, seals, diaphragm															
<sup>3</sup> only with mech. connection G1/2" DIN 3852 open port, bore 12 mm, P <sub>N</sub> ≤ 10 bar, min. permissible temperature -30 °C and without IS-protection possible																
<b>IS-protection (only for 4 ... 20 mA / 2-wire)</b>																
Approval DX4-DMK 351	<b>IBExU05ATEX1069 X</b>															
	zone 0:	II 1G Ex ia IIC T4 Ga										option: II 1G Ex ia IIC T6 Ga				
	zone 20:	II 1D Ex IIIC T110°C Da														
Safety technical maximum values	U <sub>i</sub> = 28 V <sub>DC</sub> , I <sub>i</sub> = 93 mA, P <sub>i</sub> = 660 mW, C <sub>i</sub> = 14 nF, L <sub>i</sub> negligible, C <sub>gnd</sub> = 27 nF															
Max. permissible temperature for environment	in zone 0:	-20 ... 60 °C for p <sub>atm</sub> 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															
<b>Miscellaneous</b>																
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 <sup>6</sup> loading 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**

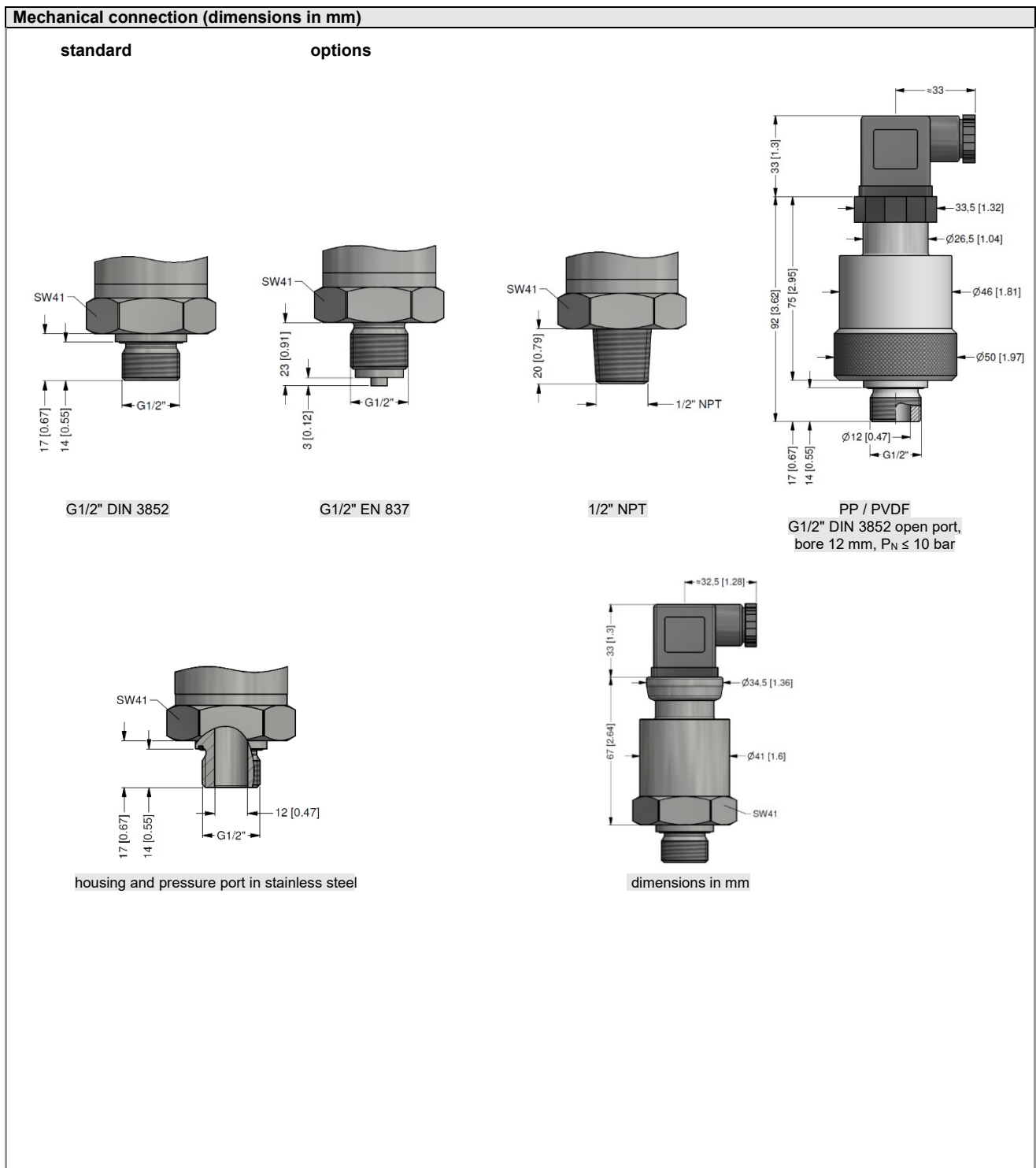
Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 (4-pin)	field housing	cable colours (DIN 47100)
Supply +	1	3	1	Vs +	wh (white)
Supply -	2	4	2	Vs -	bn (brown)
Signal + (only for 3-wire)	3	1	3	S +	gn (green)
Shield	ground contact (⊕)	5	4	GND	ye/gn (yellow / green)

**Electrical connections (dimensions in mm)**

**standard**

**options**

<sup>4</sup> standard: 2 m PVC-cable without ventilation tube (permissible temperature: -5 ... 70°C), optional cable with ventilation tube  
<sup>5</sup> different cable types and lengths available, permissible temperature depends on kind of cable



This data sheet contains product specification. Properties are not guaranteed. Subject to change with notice.

## Ordering code DMK 351

23.08.2024

DMK 351

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Pressure																					
Gauge			2	9	0																
Absolute <sup>1</sup>			2	9	1																
Measured value in m H <sub>2</sub> O			2	9	2																
Input																					
	[mH <sub>2</sub> O]	[bar]																			
	0 ... 0,4	0 ... 0,04	0	4	0	0															
	0 ... 0,6	0 ... 0,06	0	6	0	0															
	0 ... 1	0 ... 0,1	1	0	0	0															
	0 ... 1,6	0 ... 0,16	1	6	0	0															
	0 ... 2,5	0 ... 0,25	2	5	0	0															
	0 ... 4	0 ... 0,4	4	0	0	0															
	0 ... 6	0 ... 0,6	6	0	0	0															
	0 ... 10	0 ... 1	1	0	0	1															
	0 ... 16	0 ... 1,6	1	6	0	1															
	0 ... 25	0 ... 2,5	2	5	0	1															
	0 ... 40	0 ... 4	4	0	0	1															
	0 ... 60	0 ... 6	6	0	0	1															
	0 ... 100	0 ... 10	1	0	0	2															
	0 ... 160	0 ... 16	1	6	0	2															
	0 ... 200	0 ... 20	2	0	0	2															
Customer			9	9	9	9															
Customer - special range underpressure			X	X	X	X															
Output																					
4 ... 20 mA / 2-wire							1														
0 ... 10 V / 3-wire							3														
Intrinsic safety 4 ... 20 mA / 2-wire							E														
Customer							9														
Accuracy																					
1 % (underpressure)							8														
0,5 %							5														
0,35 % (standard)							3														
0,25 % (P <sub>N</sub> ≥ 0,6 bar)							2														
1 % including Calibration Certificate							U														
0,5 % including Calibration Certificate							T														
0,35 % including Calibration Certificate							S														
0,25 % including Calibration Certificate (P <sub>N</sub> ≥ 0,6 bar)							R														
Customer							9														
Electrical connection																					
Connector DIN 43650 (ISO 4400) (IP 65)							1	0	0												
Connector Binder 723 5-pin (IP 67)							2	0	0												
Cable gland PG7 / cable length specify (IP 67)							4	0	0												
+ PVC cable / 1 m																					
Connector Buccaneer (IP 68)							5	0	0												
Field housing stainless steel, cable gland M16 x 1,5 (IP 67)							8	0	0												
Field housing stainless steel, cable gland M20 x 1,5 (IP 67)							8	8	0												
Connector DIN 43650 (ISO 4400) - potting compound inside (IP 67)							E	0	0												
Cable outlet / cable length specification needed (IP 68) <sup>2</sup>							T	R	0												
+ PVC cable / 1 m																					
Connector M12 x 1, 4-pin (IP 67)							M	0	0												
Connector M12 x 1, 4-pin (IP 67) - metal							M	1	0												
Customer							9	9	9												
Mechanical connection																					
G1/2" DIN 3852							1	0	0												
G 1/2" EN 837							2	0	0												
G 1/4" DIN 3852							3	0	0												
M 20 x 1,5 EN 837							8	0	0												
1/2" NPT							N	0	0												
G 1/2" DIN 3852 open port (P <sub>N</sub> ≤ 10 bar)							H	0	0												
Customer							9	9	9												
Seals																					
Viton (FKM)										1											
EPDM (P <sub>N</sub> < 160 bar)										3											
Customer										9											



<b>Pressure port</b>			
Stainless steel 1.4404 (316 L)	1		
PP (only mech.con. H00) <sup>3</sup>	E		
PVDF (only mech.con. H00) <sup>3</sup>	B		
Customer	9		
<b>Diaphragm</b>			
Ceramic Al <sub>2</sub> O <sub>3</sub> 96 %	2		
Ceramics Al <sub>2</sub> O <sub>3</sub> 99,9 %	C		
Customer	9		
<b>Special version</b>			
Standard		0	0
Customer		9	9

0,-...without additional charge

On request...in accordance with the producer

Surcharges for calibration are not subject to any discounts. Subject to change.

This document contains the specification for ordering the product; detailed technical parameters of the product and its possible variants are given in the data sheet.

BD SENSORS reserves the right to change sensor specifications without further notice.

1 nominal pressure ranges absolute from 1 bar

2 code TR0 = PVC cable, cable with ventilation tube available in different types and lengths; cable not included in the price

3 PP / PVDF possible only with G1/2" DIN 3852 open pressure port, P<sub>N</sub> ≤ 10 bar and without explosion protection; permissible medium temperature: -30 ... 60 °C

