

# IMK 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  
Ex ia = intrinsically safe for gases and dusts
- ▶ 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



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 <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				

Output signal / Supply	
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>

Performance	
Accuracy <sup>1</sup>	standard: ≤ ± 0.35 % FSO option for P <sub>N</sub> ≥ 0.6 bar: ≤ ± 0.25 % FSO
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 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

<sup>1</sup> 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

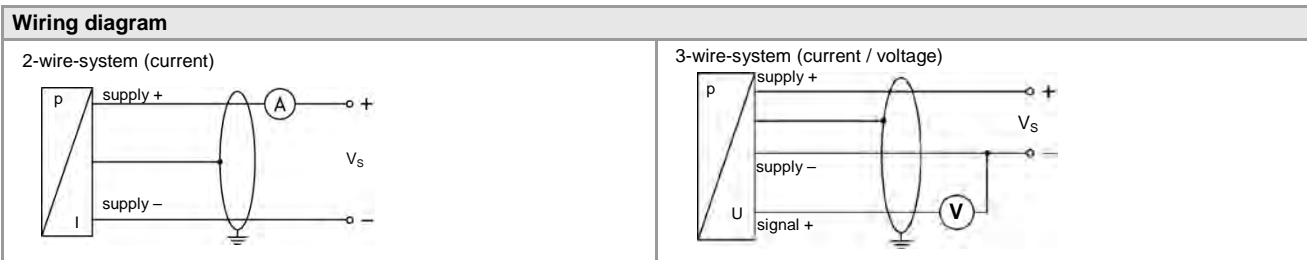
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326

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	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 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

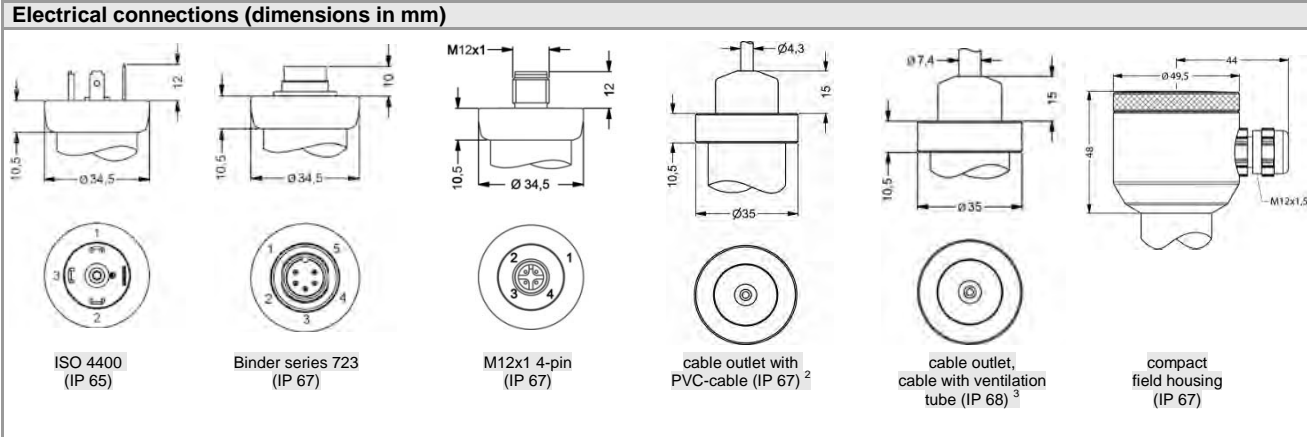
IS-protection (only for 4 ... 20 mA / 2-wire)	
Approval DX 14-DMK 351	IBExU 05 ATEX 1070 X Male (connector)-version: zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex iaD 20 T 85°C cable-version: zone 0: II 1G Ex ia IIB T4 Ga zone 20: II 1D Ex iaD 20 T 85°C
Safety technical maximum values	U <sub>i</sub> = 28 V <sub>DC</sub> , I <sub>i</sub> = 93 mA, P <sub>i</sub> = 660 mW, C <sub>i</sub> ≤ 27 nF, L <sub>i</sub> ≤ 5 μH
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
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 x 10 <sup>6</sup> loading cycles
CE-conformity	EMC-directive: 2004/108/EC
ATEX Directive	94/9/EC

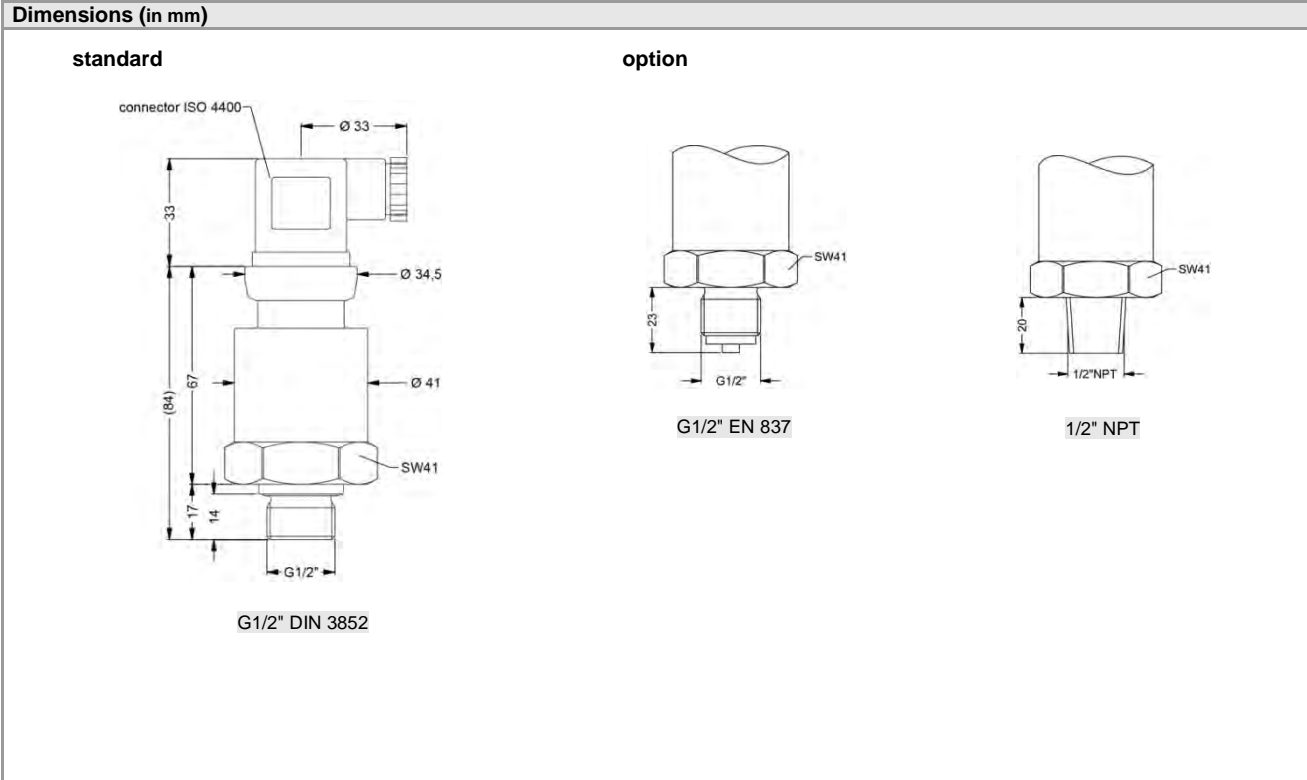


**Pin configuration**

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	⊥	ye/gn (yellow / green)



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



## Ordering code IMK 351

IMK 351

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Pressure															
	in bar, gauge	2	9	0											
	in bar, absolute	2	9	1											
	in bar, sealed gauge														consult
	in mH <sub>2</sub> O, gauge	2	9	2											
	in mH <sub>2</sub> O, absolute	2	9	3											consult
	in mH <sub>2</sub> O, sealed gauge														consult
Input		[mH <sub>2</sub> 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 4 ... 20 mA / 2-wire							E							
	customer							9							consult
Accuracy															
	standard	0.35 %						3							
	option für P <sub>N</sub> ≥ 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 <sup>1</sup>							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							9	9	9					consult
	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					
	customer							9	9	9					consult
Seals															
	FKM							1							
	EPDM							3							
	customer							9							consult
Pressure port															
	Stainless steel 1.4404 (316L)							1							
	customer							9							consult
Diaphragm															
	Ceramics Al <sub>2</sub> O <sub>3</sub> 96%												2		
	Ceramics Al <sub>2</sub> O <sub>3</sub> 99.9 %												C		
	customer												9		consult
Special version															
	standard												0	0	0
	customer												9	9	9

<sup>1</sup> standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C), optionally cable with ventilation tube