

# DMK 387

## Pressure Transmitter

Ceramic sensor

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



### Nominal pressure

from 0 ... 100 mbar up to 0 ... 60 bar

### Output signal

2-wire: 4 ... 20 mA

3-wire and others on request

### Product characteristics

- ▶ diaphragm  
ceramics 99.9 % Al<sub>2</sub>O<sub>3</sub>
- ▶ high long-term stability





### Optional versions

- ▶ IS-version  
Ex ia = intrinsically safe for  
gases and dust
- ▶ different kinds of inch threads

The pressure transmitter DMK 387 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, available in Al<sub>2</sub>O<sub>3</sub> 99.9%, the DMK 387 offers a high overpressure resistance and a high temperature and media resistance. The pressure transmitter is available in an intrinsically safe version for usage in explosive environments.

### Preferred areas of use

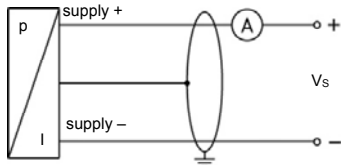
-  Plant and machine engineering
-  Laboratory techniques
-  Fuel and oil
-  Water



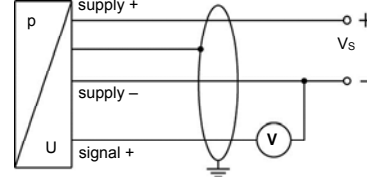
Input pressure range																
Nominal pressure gauge	[bar]	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60
Level	[mH <sub>2</sub> O]	1	1.6	2.5	4	6	10	16	25	40	50	100	160	250	400	600
Overpressure	[bar]	3	4	5	5	5	7	7	12	12	20	20	20	40	70	70
Burst pressure ≥	[bar]	4	6	8	8	7	9	9	18	18	25	30	30	45	80	80
Permissible vacuum	[bar]	-0.2	-0.3	-0.5								-1				
Output signal / Supply																
Standard	2-wire: 4 ... 20 mA / V <sub>S</sub> = 12 ... 36 V <sub>DC</sub>															
Option IS-version	2-wire: 4 ... 20 mA / V <sub>S</sub> = 14 ... 28 V <sub>DC</sub>															
On request	3-wire: 0 ... 10 V / V <sub>S</sub> = 14 ... 36 V <sub>DC</sub>															
Performance																
Accuracy <sup>1</sup>	standard: ≤ ± 0.35 % FSO option: ≤ ± 0.25 % FSO others on request															
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 % FSO / 10 V load: 0.05 % FSO / kΩ															
Long term stability	≤ ± 0.1 % FSO / year															
Turn-on time	450 msec															
Mean response time	≤ 70 msec															
Measuring rate	80 Hz															
<sup>1</sup> accuracy according to IEC 60770 - limit point adjustment (non-linearity, hysteresis, repeatability)																
Thermal errors (Offset and Span)																
Tolerance band	1.0 % FSO for nominal pressure in compensated range -20 ... 80 °C															
Permissible temperatures																
Permissible temperatures	medium: -40 ... 85 °C electronics / environment: -40 ... 85 °C storage: -40 ... 85 °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 (25 ... 2000 Hz) according to DIN EN 60068-2-6															
Materials																
Pressure port	standard: stainless steel 1.4404 (316 L) option: PVDF <sup>2</sup> , PP-HT <sup>2</sup> others on request															
Housing	stainless steel 1.4404 (316 L) others on request															
Option compact field housing	stainless steel 1.4301 (304); cable gland M12x1.5, brass, nickel plated (clamping range 2 ... 8 mm)															
Seals (O-rings)	FKM, EPDM, FFKM others on request															
Diaphragm	ceramics Al <sub>2</sub> O <sub>3</sub> 99.9 % others on request															
Media wetted parts	pressure port, seals, diaphragm															
<sup>2</sup> only for mechanical port G3/4", min. operation temperature for PVDF or PP-HT -30°C																
Explosion protection (only for 4 ... 20 mA / 2-wire)																
Approval DX14B-DMK 387	IBExU 15 ATEX 1066 X / IECEx IBE 18.0019X pressure port: stainless steel zone 0: II 1G Ex ia IIC T4 Ga pressure port: PVDF or PP-HT zone 1: II 2G Ex ia IIC T4 Gb for all pressure ports zone 20: II 1D Ex ia IIIC T135 °C Da															
Safety technical maximum values	U <sub>i</sub> = 28 V, I <sub>i</sub> = 93 mA, P <sub>i</sub> = 660 mW, C <sub>i</sub> = 14 nF, L <sub>i</sub> = 0 μH, the supply connections have an inner capacity of max. 27 nF to the housing															
Permissible temperatures for environment	in zone 0: -20 ... 60 °C with p <sub>atm</sub> 0.8 bar up to 1.1 bar in zone 1 or higher: -25 ... 65 °C															
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1 μH/m															
Miscellaneous																
Current consumption	max. 22 mA															
Weight	approx. 180 g															
Operational life	100 million load cycles															
CE-conformity	EMC Directive: 2014/30/EU															
ATEX Directive	2014/34/EU															

### Wiring diagrams

#### 2-wire-system (current)



#### 3-wire-system (voltage)

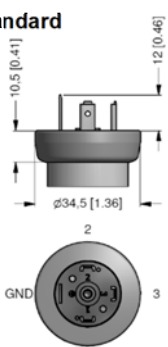


### Pin configuration

Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	compact field housing	cable colours (IEC 60757)
supply +	1	3	1	IN +	WH (white)
supply -	2	4	2	IN -	BN (brown)
signal + (only 3-wire)	3	1	3	OUT +	GN (green)
Shield	ground pin	5	4		GYNE (green-yellow)

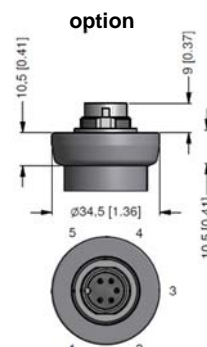
### Electrical connections (dimensions mm / in)

#### standard

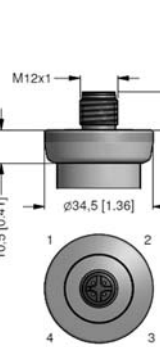


ISO 4400 (IP 65)

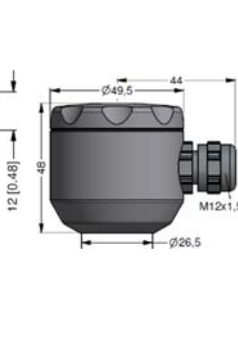
#### option



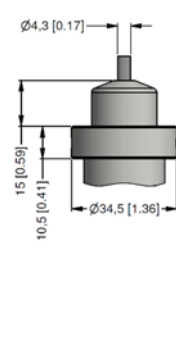
Binder Series 723 5-pin (IP 67)



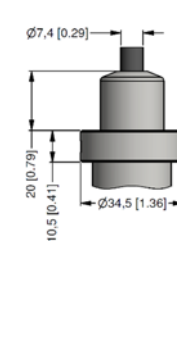
M12x1 4-pin (IP 67)



compact field housing (IP 67)



cable outlet with PVC-cable (IP 67)<sup>3</sup>



cable outlet, cable with ventilation tube (IP 68)<sup>4</sup>

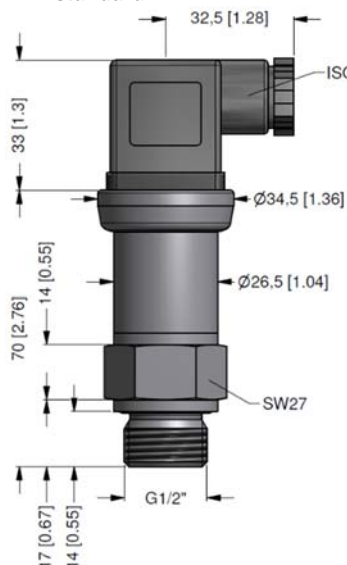
⇒ universal field housing stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request

<sup>3</sup> standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)

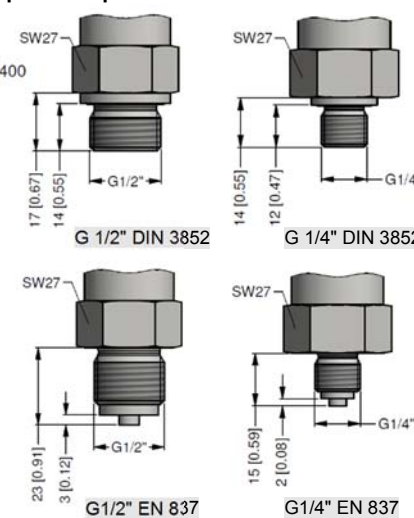
<sup>4</sup> different cable types and lengths available, permissible temperature depends on kind of cable

### Mechanical connections (dimensions mm / in)

#### standard



#### pressure ports



<sup>5</sup> not in combination with field housing, stainless steel version

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## Ordering code DMK 387

**DMK 387**



<b>Pressure</b>									
gauge in bar		2	8	5					
gauge in mH <sub>2</sub> O		2	8	6					
<b>Input</b>									
	[mH <sub>2</sub> O]	[bar]							
	1.0	0.1	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			
	250	25	2	5	0	2			
	400	40	4	0	0	2			
	600	60	6	0	0	2			
	customer		9	9	9	9			consult
<b>Output</b>									
	4 ... 20 mA / 2-wire				1				
	0 ... 10 V / 3-wire				3				consult
	intrinsic safety 4 ... 20 mA / 2-wire				E				
	customer				9				consult
<b>Accuracy</b>									
standard	0.35 % FSO				3				
option	0.25 % FSO				2				
	customer				9				consult
<b>Electrical connection</b>									
	male and female plug ISO 4400				1	0	0		
	male plug Binder series 723 (5-pin)				2	0	0		
	cable outlet with PVC cable (IP67) <sup>1</sup>				T	A	0		
	cable outlet,								
	cable with ventilation tube (IP68) <sup>2</sup>				T	R	0		
	male plug M12x1 (4-pin) / metal				M	1	0		
	compact field housing				8	5	0		
	stainless steel 1.4301 (304)								
	customer				9	9	9		consult
<b>Mechanical connection</b>									
	G1/2" DIN 3852				1	0	0		
	G1/2" EN 837				2	0	0		
	G1/4" DIN 3852				3	0	0		
	G1/4" EN 837				4	0	0		
	G3/4" with flush sensor <sup>4</sup>				K	0	0		
	customer				9	9	9		consult
<b>Seal</b>									
	FKM				1				
	EPDM				3				
	FFKM				7				
	customer				9				consult
<b>Pressure port</b>									
	stainless steel 1.4404 (316L)						1		
	PVDF <sup>5</sup>						B		
	PP-HT <sup>5</sup>						R		
	customer						9		consult
<b>Diaphragm</b>									
	ceramics Al <sub>2</sub> O <sub>3</sub> 99,9%							C	
	customer							9	consult
<b>Special version</b>									
	standard						0	0	0
	customer						9	9	9
									consult

<sup>1</sup> standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C); others on request

<sup>2</sup> code TR0 = PVC cable, cable with ventilation tube available in different types and lengths

<sup>3</sup> metric threads and others on request

<sup>4</sup> not in combination with field housing

<sup>5</sup> only for mechanical connection G3/4", minimum permissible temperature for PVDF or PP-HT is -30 °C