



# **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
- pressure port in PVDF or PP-HT for aggressive media

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



Water



Aggressive media











Pressure Transmitter

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	60	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				

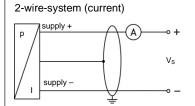
Termiosible vacadin [par]	0.2   0.0   0.0		·						
Output signal / Supply									
Standard	2-wire: 4 20 mA / V <sub>S</sub> = 14 36	S V <sub>DC</sub>							
Option IS-version	2-wire: 4 20 mA / V <sub>S</sub> = 14 28 V <sub>DC</sub>								
On request	3-wire: 0 10 V / V <sub>S</sub> = 14 36 V <sub>DC</sub>								
Performance									
Accuracy 1	standard: ≤ ± 0.35 % FSO								
	option: ≤ ± 0.25 % FSO		others on request						
Permissible load	current 2-wire: $R_{max} = [(V_S - V_{S min})]$	/ 0.02 A] Ω							
	voltage 3-wire: $R_{min} = 10 \text{ k}\Omega$								
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 effects (offset and span)									
Tolerance band	≤±1% FSO								
in compensated range	in compensated range -20 80 °C								
Permissible temperatures									
Medium <sup>2</sup>	-40 125 °C								
Electronics / environment	-40 85 °C								
Storage	-40 85 °C								
<sup>2</sup> for pressure port in PVDF or PP-HT the operation medium temperature is -30 60 °C									
Electrical protection									
Short-circuit protection	· · · · · · · · · · · · · · · · · · ·								
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 / housing		pressure port	housing						
	standard:	stainless steel 1.4404 (316 L)	stainless steel 1.4404 (316 L						
	options for G3/4" flush:	PVDF	PVDF						
	·	PP-HT	PP-HT						
Option compact field housing	stainless steel 1.4301 (304)								
	cable gland M12x1.5, brass, nickel p	lated (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								
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: Il 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	$U_i$ = 28 V, $I_i$ = 93 mA, $P_i$ = 660 mW, $C_i$ = 14 nF, $L_i$ = 0 $\mu$ H, the supply connections have an inner capacity of max. 27 nF to the housing								
Permissible temperatures for in zone 0: -20 60 °C with p <sub>atm</sub> 0.8 bar up to 1.1 bar									
environment in zone 1 or higher: -25 65 °C									
Connecting cables cable capacitance: signal line/shield also signal line/signal line: 160 pF/m									
(by factory)	cable inductance: signal line/shiel	d also signal line/signal line: 1 μl	1/ma						

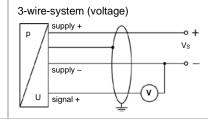


**Pressure Transmitter** 

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				

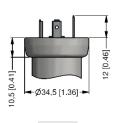
#### Wiring diagrams



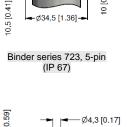


Pin configuration									
Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	compact field housing					
	3 GND	3 4 5	3 2	<b>V</b> <sub>S+</sub> <b>V</b> <sub>S-</sub> <b>S+ GND</b>	cable colours (IEC 60757)				
supply +	1	3	1	V <sub>S</sub> +	WH (white)				
supply –	2	4	2	V <sub>S</sub> -	BN (brown)				
signal + (only 3-wire)	3	1	3	S+	GN (green)				
Shield	ground pin 😩	5	4	GND	GNYE (green-yellow)				

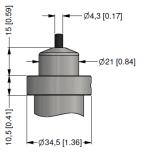
### Electrical connections (dimensions mm / in)

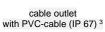






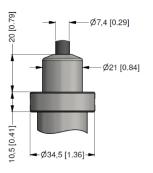
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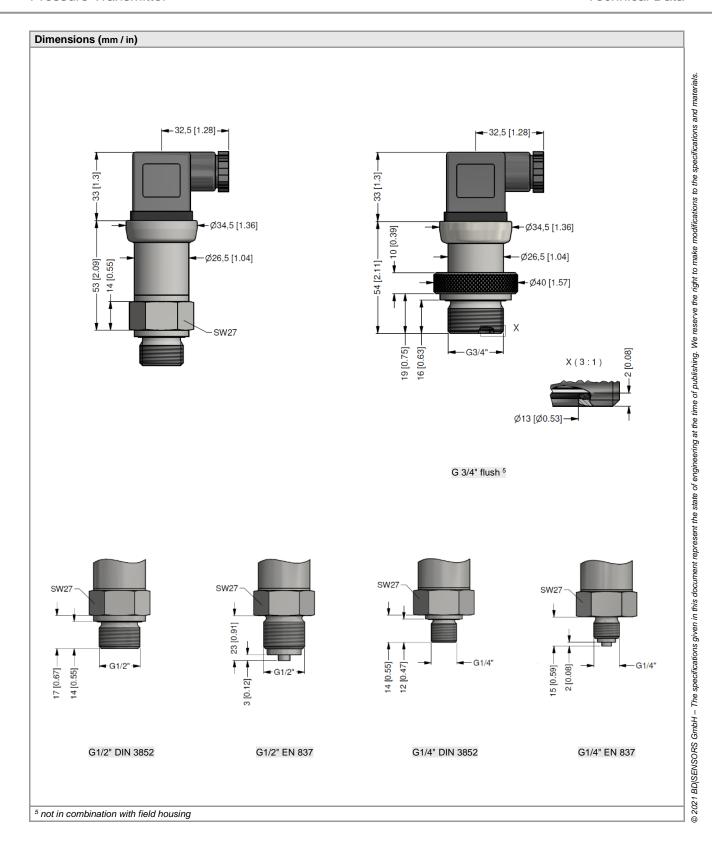
M12x1, 4-pin (IP 67)



cable outlet, cable with ventilation tube (IP 68) 4

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

<sup>&</sup>lt;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



DMK387\_E\_251121



#### Ordering code DMK 387 **DMK 387** Pressure gauge in bar 2 8 5 2 8 6 gauge in mH<sub>2</sub>O Input 0 0 0 6 0 0 1.0 0.1 0.16 1.6 5 0 0 0 0.25 2.5 2 40 0 40 0 0 0 0 0 1 0 1 0 1 0 0 6 6.0 0.60 6 10 1.0 16 1.6 5 25 2.5 2 4 40 4.0 0 0 1 0 0 2 6 0 2 5 0 2 0 0 2 0 0 2 9 9 9 60 6.0 6 100 10 160 16 250 25 2 400 40 600 60 6 customer consult Output 4 ... 20 mA / 2-wire 0 ... 10 V / 3-wire consult intrinsic safety 4 ... 20 mA / 2-wire customer 9 consult standard 0.35 % FSO 3 0.25 % FSO option customer consult Electrical connection male and female plug ISO 4400 0 0 male plug Binder series 723 (5-pin) 0 0 2 cable outlet with PVC cable (IP67) A 0 Т cable outlet, R 0 cable with ventilation tube (IP68) <sup>2</sup> 1 0 male plug M12x1 (4-pin) / metal compact field housing 5 0 8 stainless steel 1.4301 (304) 9 9 9 customer consult Mechanical connection 0 0 0 0 0 0 0 0 0 0 9 9 G1/2" DIN 3852 1 G1/2" EN 837 2 G1/4" DIN 3852 3 G1/4" EN 837 4 G3/4" with flush sensor 4 customer consult FKM 1 **EPDM FFKM** customer consult stainless steel 1.4404 (316L) PVDF <sup>5</sup> 1 В PP-HT <sup>5</sup> R customer 9 consult Diaphragm ceramics Al<sub>2</sub>O<sub>3</sub> 99,9 % C 9 customer consult © 2020 BD|SENSORS GmbH - The specifications given in this Special version 0 0 0 9 9 9 standard customer consult

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

<sup>&</sup>lt;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>&</sup>lt;sup>5</sup> only for mechanical connection G3/4"; for pressure port in PVDF or PP-HT the operation medium temperature is -30 ... 60 °C