



# DMK 387

## Pressure Transmitter

Ceramic sensor

accuracy according to IEC 61298-2:  
standard: 0.35 % FSO  
option: 0.25 % FSO

### Nominal pressure

from 0 ... 100 mbar up to 0 ... 40 bar

### Output signal

2-wire: 4 ... 20 mA  
3-wire and others on request

### Product characteristics

- ▶ diaphragm  
ceramics 99.9 %  $\text{Al}_2\text{O}_3$
- ▶ 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  $\text{Al}_2\text{O}_3$  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



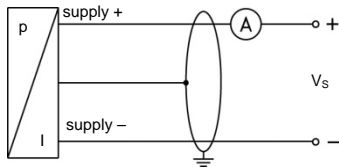
Input pressure range															
Nominal pressure gauge	[bar]	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40
Level	[mH <sub>2</sub> O]	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400
Overpressure	[bar]	3	4	5	5	5	7	7	12	12	20	20	20	40	70
Burst pressure ≥	[bar]	4	6	8	8	8	9	9	18	18	25	30	30	45	80
Permissible vacuum	[bar]	-0.2	-0.3	-0.5				-1							
Output signal / Supply															
Standard	2-wire: 4 ... 20 mA / V <sub>S</sub> = 14 ... 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>S min</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 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 <sup>2</sup>	-40 ... 125 °C														
Electronics / environment	-40 ... 85 °C														
Storage	-40 ... 85 °C														
<sup>2</sup> 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														
Materials															
Pressure port / housing	standard: options for G3/4" flush:	pressure port				housing									
		stainless steel 1.4404 (316 L) PVDF (p <sub>max</sub> = 20 bar) PP-HT (p <sub>max</sub> = 10 bar)				stainless steel 1.4404 (316 L) PVDF PP-HT									
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														
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

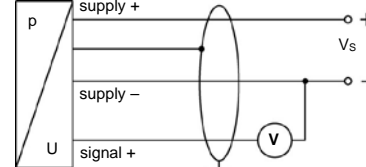
Current consumption	max. 22 mA
Weight	approx. 180 g
Operational life	100 million load cycles
CE-conformity	EMC Directive: 2014/30/EU
ATEX Directive	2014/34/EU

## Wiring diagrams

2-wire-system (current)



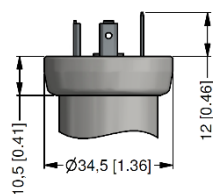
3-wire-system (voltage)



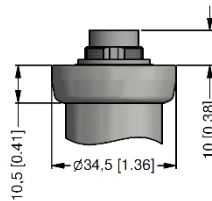
## Pin configuration

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

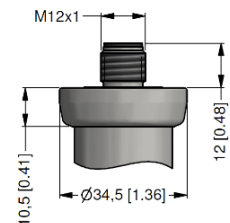
## Electrical connections (dimensions mm / in)



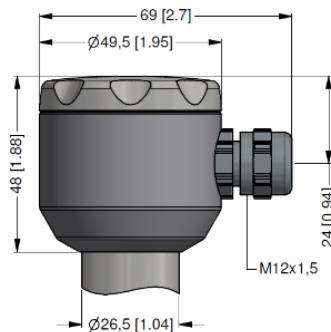
ISO 4400  
(IP 65)



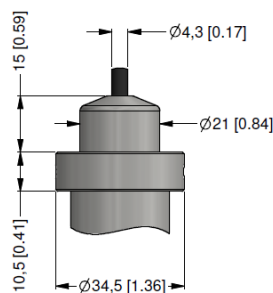
Binder series 723, 5-pin  
(IP 67)



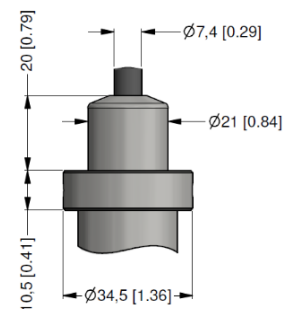
M12x1, 4-pin  
(IP 67)



compact field housing  
(IP 67)



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



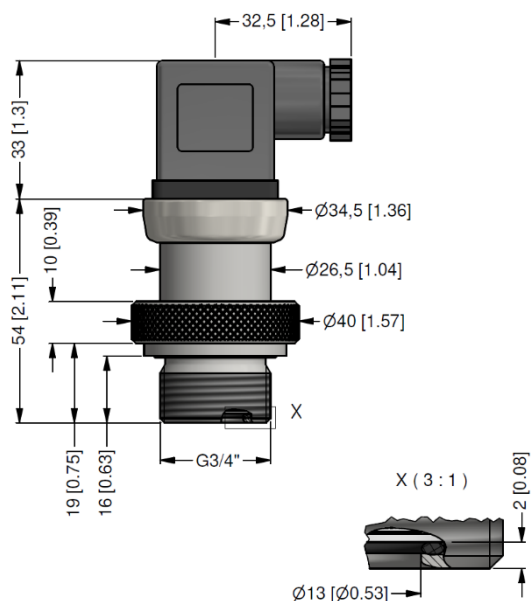
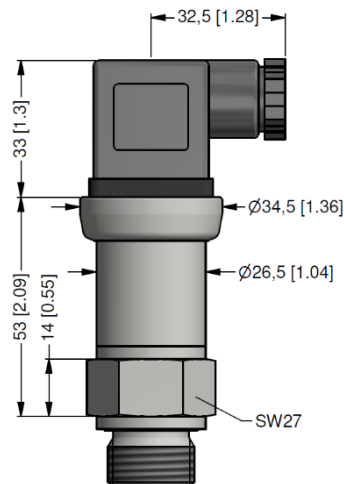
cable outlet, cable with  
ventilation tube (IP 68) <sup>4</sup>

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

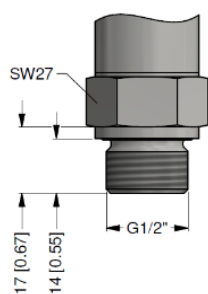
<sup>3</sup> standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)

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

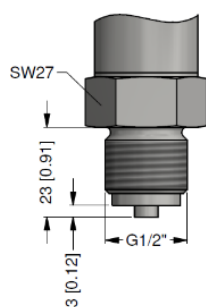
## Dimensions (mm / in)



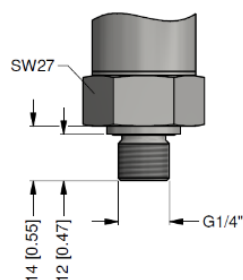
G 3/4" flush<sup>5</sup>



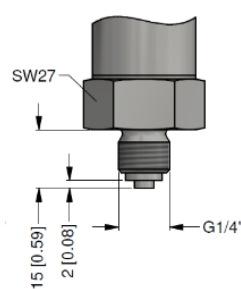
G1/2" DIN 3852



G1/2" EN 837



G1/4" DIN 3852



G1/4" EN 837

<sup>5</sup> not in combination with field housing

## Ordering code DMK 387

DMK 387

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Pressure									
gauge in bar		2	8	5					
gauge in mH <sub>2</sub> O		2	8	6					
Input									
	[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			
customer			9	9	9	9			consult
Output									
4 ... 20 mA / 2-wire					1				
0 ... 10 V / 3-wire					3				consult
intrinsic safety 4 ... 20 mA / 2-wire					E				
customer					9				consult
Accuracy									
standard		0.35 % FSO			3				
option		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		
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									
stainless steel 1.4301 (304)					8	5	0		
customer					9	9	9		consult
Mechanical connection									
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
Seal									
FKM					1				
EPDM					3				
FFKM					7				
customer					9				consult
Pressure port									
stainless steel 1.4404 (316L)					1				
PVDF (p <sub>max</sub> = 20 bar) <sup>5</sup>					B				
PP-HT (p <sub>max</sub> = 10 bar) <sup>5</sup>					R				
customer					9				consult
Diaphragm									
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	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"; for pressure port in PVDF the operation medium temperature is -30 ... 60 °C and in PP-HT 0 ... 60 °C