



DMK 331P

Industrial Pressure Transmitter

Pressure Ports With Flush Welded Stainless Steel Diaphragm

accuracy according to IEC 60770:
0.5 % FSO

Industrial
Pressure Transmitter

DMK 331P

Nominal pressure:

from 0 ... 60 bar
up to 0 ... 400 bar

Output signals:

2-wire: 4 ... 20 mA
3-wire: 0 ... 20 mA / 0 ... 10 V
others on request

Special characteristics:

- ▶ suited for viscous and pasty media

Optional versions:

- ▶ IS-version
Ex ia = intrinsically safe for gases and dusts
- ▶ SIL 2
according to IEC 61508 / IEC 61511
- ▶ food compatible oil filling with FDA approval
- ▶ cooling element for media temperatures up to 300 °C
- ▶ customer specific versions



The pressure transmitter **DMK 331P** is suitable for measuring the pressure of viscous and pasty media, where a totally flush pressure port is required.

As on all industrial pressure transmitters made by DRUCK & TEMPERATUR Leitenberger GmbH, you may choose between various electrical and mechanical connections also on **DMK 331P**.

Preferred areas of use are:



Plant and Machine Engineering



Food Industry

Preferred used for:



Viscous and Pasty Media

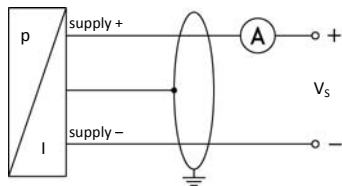
Input pressure range						
Nominal pressure gauge / abs.	[bar]	60	100	160	250	400
Overpressure	[bar]	100	200	400	400	600
Burst pressure \geq	[bar]	120	250	500	500	650
Output signal / Supply						
Standard	2-wire:	4 ... 20 mA / $V_s = 8 \dots 32 V_{DC}$				
Option IS-protection	2-wire:	4 ... 20 mA / $V_s = 10 \dots 28 V_{DC}$				
Options 3-wire	3-wire:	0 ... 20 mA / $V_s = 14 \dots 30 V_{DC}$ 0 ... 10 V / $V_s = 14 \dots 30 V_{DC}$				
Performance						
Accuracy ¹	$\leq \pm 0.5 \% \text{ FSO}$					
Permissible load	current 2-wire:	$R_{\max} = [(V_s - V_{s \text{ min}}) / 0.02 \text{ A}] \Omega$				
	current 3-wire:	$R_{\max} = 500 \Omega$				
	voltage 3-wire:	$R_{\min} = 10 \text{ k}\Omega$				
Influence effects	supply:	0.05 % FSO / 10 V				
	load:	0.05 % FSO / k Ω				
Long term stability	$\leq \pm 0.3 \% \text{ FSO} / \text{year}$ at reference conditions					
Response time	2-wire:	$\leq 10 \text{ msec}$				
	3-wire:	$\leq 3 \text{ msec}$				
¹ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)						
Thermal effects (Offset and Span) ² / Permissible temperatures						
Thermal error	$\leq \pm 0.2 \% \text{ FSO} / 10 \text{ K}$					
in compensated range	-20 ... 85 °C					
Permissible temperatures ³	medium:	-40 ... 125 °C for filling fluid silicon oil -10 ... 125 °C for filling fluid food compatible oil				
	electronics / environment:	-40 ... 85 °C				
	storage:	-40 ... 100 °C				
Permissible temperature medium for cooling element 300 °C	filling fluid silicon oil	overpressure:	-40 ... 300 °C	vacuum:	-40 ... 150 °C	
	filling fluid food compatible oil	overpressure:	-10 ... 250 °C	vacuum:	-10 ... 150 °C	
² an optional cooling element can influence thermal effects for offset and span depending on installation position and filling conditions.						
³ max. temperature of the medium for overpressure > 0 bar: 150 °C for 60 minutes with a max. environmental temperature of 50 °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 (25 ... 2000 Hz)		according to DIN EN 60068-2-6			
Shock	500 g / 1 msec		according to DIN EN 60068-2-27			
Filling fluids						
Standard	silicon oil					
Options	food compatible oil (with FDA approval) (Mobil DTE FM 32; Category Code: H1; NSF Registration No.: 130662) others on request					
Materials						
Pressure port	stainless steel 1.4404 (316 L)					
Housing	stainless steel 1.4404 (316 L)					
Option compact field housing	stainless steel 1.4305 (303) with cable gland brass, nickel plated				others on request	
Seals (media wetted)	standard:	FKM (recommended for medium temperatures $\leq 200 \text{ }^\circ\text{C}$)				
	option:	FFKM (recommended for medium temperatures $> 200 \text{ }^\circ\text{C}$)				
	others on request					
Diaphragm	stainless steel 1.4435 (316 L)					
Media wetted parts	pressure port, seals, diaphragm					
Explosion protection (only for 4 ... 20 mA / 2-wire)						
Approval DX 19 - DMK 331P	IBExU 10 ATEX 1068 X zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ta IIIC T 85 °C, IP6x in preparation					
Safety technical maximum values	$U_i = 28 \text{ V}$, $I_i = 93 \text{ mA}$, $P_i = 660 \text{ mW}$, $C_i \approx 0 \text{ nF}$, $L_i \approx 0 \text{ }\mu\text{H}$					
Permissible temperatures for environment	in zone 0:	-20 ... 60 °C with p_{atm} 0.8 bar up to 1.1 bar				
	in zone 1 or higher:	-20 ... 70 °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 $\mu\text{H}/\text{m}$				

Miscellaneous	
Option SIL 2	according to IEC 61508 / IEC 61511
Current consumption	signal output current: max. 25 mA signal output voltage: max. 5 mA
Weight	min. 200 g (depending on process connection)
Installation position	any (standard calibration in a vertical position with the pressure port connection down)
Operational life	> 100 x 10 ⁶ pressure cycles
CE-conformity	EMC Directive: 2004/108/EC Pressure Equipment Directive: 97/23/EC (module A) ⁴

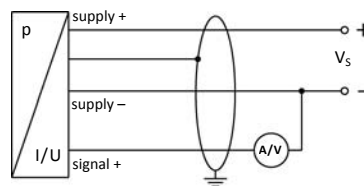
⁴This directive is only valid for devices with maximum permissible overpressure > 200 bar

Wiring diagrams

2-wire-system (current)



3-wire-system (current / voltage)

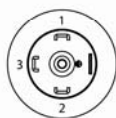
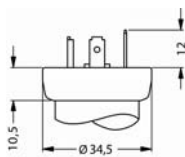


Pin configuration

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

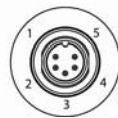
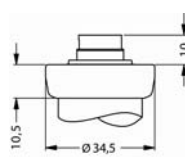
Electrical connection (dimensions in mm)

standard

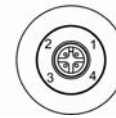
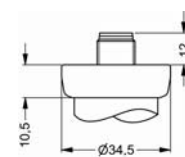


ISO 4400 (IP 65)

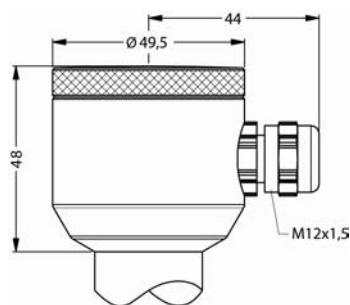
option



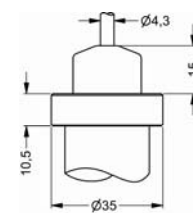
Binder Series 723 5-pin (IP 67)



M12x1 4-pin (IP 67)



compact field housing (IP 67)



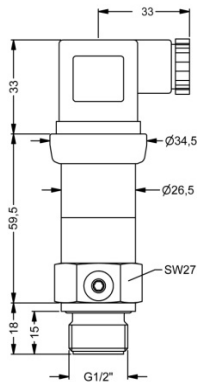
cable outlet with PVC cable (IP 67)⁵

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

⁵ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C)

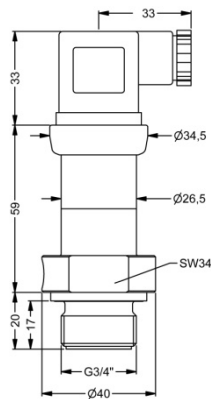
Mechanical connection (dimensions in mm)

standard

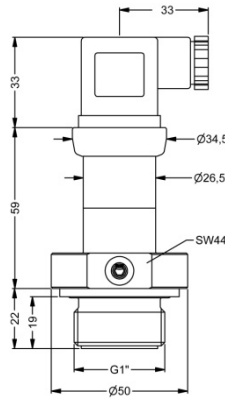


G1/2" flush
with ISO 4400

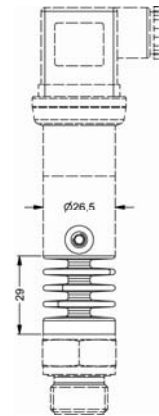
option



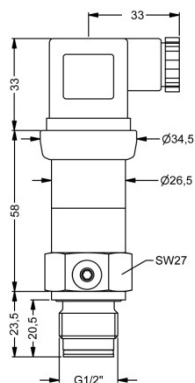
G3/4" flush
with ISO 4400



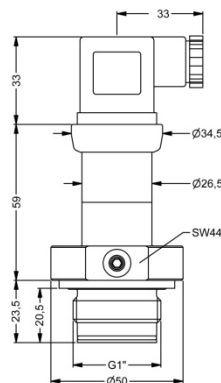
G1" flush
with ISO 4400



cooling element
300 °C⁶



G1/2" flush
with radial o-ring



G1" flush
with radial o-ring

- ⇒ SIL- and SIL-Ex version: total length increases by 26.5 mm!
- ⇒ metric threads and other versions on request

⁶ possible for nominal pressure ranges $P_N \leq 160$ bar



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Messgröße																														
	relativ	5	0	5																										
	absolut	5	0	6																										
Eingang																														
	[bar]																													
	60	6	0	0	2																									
	100	1	0	0	3																									
	160	1	6	0	3																									
	250	2	5	0	3																									
	400	4	0	0	3																									
	Sondermessbereiche	9	9	9	9															auf Anfrage										
Ausgang																														
	4 ... 20 mA / 2-Leiter																		1											
	0 ... 20 mA / 3-Leiter																		2											
	0 ... 10 V / 3-Leiter																		3											
	Ex-Schutz 4 ... 20 mA / 2-Leiter																		E											
	SIL2 4 ... 20 mA / 2-Leiter																		1S											
	SIL2 mit Ex-Schutz 4 ... 20 mA / 2-Leiter																		ES											
	andere																		9									auf Anfrage		
Genauigkeit																														
	0,5 %																		5											
	andere																		9										auf Anfrage	
Elektrischer Anschluss																														
	Stecker und Kabeldose ISO 4400																		1	0	0									
	Stecker Binder Serie 723 (5-polig)																		2	0	0									
	Kabelausgang mit PVC-Kabel ¹																		T	A	0									
	Stecker M12x1 (4-polig) / Metall																		M	1	0									
	Kompakt-Feldgehäuse																		8	5	0									
	Edelstahl 1.4305																		8	5	0									
	andere																		9	9	9								auf Anfrage	
Mechanischer Anschluss																														
	G1/2" DIN 3852 mit frontbündiger Membrane																		Z	0	0									
	G3/4" DIN 3852 mit frontbündiger Membrane																		Z	3	0									
	G1" DIN 3852 mit frontbündiger Membrane																		Z	3	1									
	G1" DIN 3852 mit rad. O-Ring und frontbündiger Membrane																		Z	5	7									
	G 1/2" DIN 3852 mit rad. O-Ring und frontbündiger Membrane																		Z	6	1									
	andere																		9	9	9									auf Anfrage
Trennmembrane																														
	Edelstahl 1.4435 (316L)																		1											
	andere																		9											auf Anfrage
Dichtung																														
	FKM																		1											
	FFKM ²																		7											
	andere																		9											auf Anfrage
Füllflüssigkeit																														
	Silikonöl																		1											
	Lebensmitteltaugliches Öl																		2											
	andere																		9											auf Anfrage
Sonderausführungen																														
	Standard																		0	0	0									
	mit Temperaturentkoppler bis 300°C ³																		2	0	0									
	andere																		9	9	9									auf Anfrage

¹ Standard: 2 m PVC-Kabel ohne Belüftungsschlauch (Temperaturreinsatzbereich: -5 ... 70°C)

² nur möglich für P_N ≤ 100 bar

³ nur möglich für P_N ≤ 160 bar

Die Angaben dieser Preisliste enthalten die Spezifikation der Produkte, nicht die Zusicherung von Eigenschaften. Ausführliche Informationen zu den Bestelloptionen können dem Datenblatt entnommen werden. Technische Änderungen vorbehalten.