



DMK 331P

Industrial **Pressure Transmitter**

Pressure Ports with Flush Welded Stainless Steel Diaphragm

accuracy according to IEC 61298-2: 0.5 % FSO

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
- according to IEC 61508 / IEC 61511
- food compatible filling fluid 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 BD|SENSORS, 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

















Industrial Pressure Transmitter

Input pressure range						
Nominal pressure gauge/a	bs. [bar]	60	100	160	250	400
Overpressure	[bar]	100	200	400	400	600
Burst pressure ≥	[bar]	180	300	500	750	1000

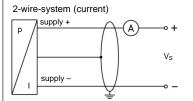
Standard 2-wine 4 20 mA / V ₈ = 8 32 V _{9c} SiL-version: V ₈ = 14 28 V _{9c} Options 3-wine 3-wine 0 20 mA / V ₈ = 10 28 V _{9c} SiL-version: V ₈ = 14 28 V _{9c} Options 3-wine 3-wine 0 20 mA / V ₈ = 14 30 V _{9c} SiL-version: V ₈ = 14 28 V _{9c} Options 3-wine 3-wine 0 20 mA / V ₈ = 14 30 V _{9c} Options 3-wine 3-wine 0 20 mA / V ₈ = 14 30 V _{9c} Options 3-wine 3-wine Options 3-wine Opti						
Quiton Suvers Quiton Suvers Quiton A V ₈ = 10 28 V _{9c} SIL-version: V ₈ = 14 28 V _{9c} Quiton Suvers Quiton A V ₈ = 14 30 V _{9c} Quiton Suvers Quiton A V ₈ = 14 30 V _{9c} Quiton Suvers Quiton A V ₈ = 14 30 V _{9c} Quiton Suvers Quiton A V ₈ = 14 30 V _{9c} Quiton Suvers Quiton A V ₈ = 14 30 V _{9c} Quiton Suvers Quiton A	Output signal / Supply					
Savirie 3-wire 3-wire 0 20 mA / V _S = 14 30 Voc	Standard	2-wire: 4 20 mA / V _S = 8 32 V _{DC}	SIL-version: $V_S = 14 \dots 28 V_{DC}$			
September Sep	Option IS-protection		SIL-version: $V_S = 14 \dots 28 V_{DC}$			
Accuracy \	Options 3-wire					
Certification Court 2-wire Ram = 10 (N = Vs enc) / 0.02 Å] Ω current 3-wire Ram = 50 (N ± Ram = 10 kΩ	Performance					
Certification Court 2-wire Ram = 10 (N = Vs enc) / 0.02 Å] Ω current 3-wire Ram = 50 (N ± Ram = 10 kΩ	Accuracy 1	≤±0.5 % FSO				
load: 0.05 % FSO / kar at reference conditions Response time	Permissible load	current 2-wire: $R_{max} = [(V_S - V_{S min}) / 0.02 \text{ A}] \Omega$ current 3-wire: $R_{max} = 500 \Omega$				
Response time 2. virie: ≤ 10 msec 3-wire: ≤ 3 msec 3-wire: ≤ 3 msec	Influence effects	supply: 0.05 % FSO / 10 V				
accuracy according to ICC 61293-2 - limit point adjustment (non-linearity, hysteresis, repeatability) Thermal effects (offset and span) Thermal effects (offset and span	Long term stability	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				
S ± 0.2 % FSO / 10 K	Response time					
Thermal error	¹ accuracy according to IEC 61298-2 - In	mit point adjustment (non-linearity, hysteresis, repeatability)				
n compensated range 0 85°C an optional cooling element can influence thermal effects for offset and span depending on installation position and filling conditions Permissible temperatures Filling fluid silicone oil food compatible oil whedium 3 -40 125 °C -10 125 °C overpressure: -10 250 °C wacuum: -40 150 °C overpressure: -10 250 °C vacuum: -10 150 °C vacuum:	Thermal effects (offset and span) 2					
n compensated range 0 85°C an aptional cooling element can influence thermal effects for offset and span depending on installation position and filling conditions Permissible temperatures Filling fluid Silicone oil Good compatible oil Medium 3	Thermal error	≤±0.2 % FSO / 10 K				
Permissible temperatures Silicone oil Silicone oil Food compatible oil Silicone oil Silicone oil Food compatible oil Silicone oil	In compensated range					
Silicone oil Food compatible Food compatible oil Food compatible Food compatible oil Food compatib			ation position and filling conditions			
Silicone oil Good compatible oil Good compatible oil Hedium 3	<u> </u>	. , 5	<u> </u>			
Medium 3	-	silicone oil	food compatible oil			
Medium with cooling element Overpressure: -40 300 °C vacuum: -10 250 °C vacuum: -10 150 °C vacuum: -10 °C vacuum: -10 °C vacuum: -10 °C °C vacuum: -10 °C °C vacuum: -10 °C °C °C °C vacuum: -10 °C		1 11 1	·			
Security	Medium with cooling element ⁴	overpressure: -40 300 °C	overpressure: -10 250 °C			
Storage	Flectronics / environment		I .			
I max. temperature of the medium for overpressure > 0 bar: 150 °C for 60 minutes with a max. environmental temperature of 50 °C max. temperature depends on the used sealing material, type of seal and installation Electrical protection Short-circuit protection Permanent Reverse polarity protection Permanent						
Short-circuit protection permanent Reverse polarity protection no damage, but also no function Electromagnetic compatibility Wechanical stability Wibration 20 g RMS / 10 2000 Hz according to DIN EN 60068-2-6 10 g RMS / 10 2000 Hz according to DIN EN 60068-2-6 (with cooling element) Shock 500 g / 1 msec half sine according to DIN EN 60068-2-7 Filling fluids Standard Options food compatible oil (with FDA approval) (Mobil SHC Cibus 32; Category Code: H1; NSF Registration No.: 141500) others on request Waterials Pressure port / housing Stainless steel 1.4404 (316 L) Option compact field housing Stainless steel 1.4404 (316 L) Scals standard: FKM (recommended for medium temperatures ≤ 200 °C) option: FFKM δ (recommended for medium temperatures ≤ 200 °C) option: FFKM δ (recommended for medium temperatures < 260 °C) option: FFKM δ (recommended for medium temperatures < 260 °C) Wedia wetted parts For pressure ranges p _N ≤ 100 bar Explosion protection (only for 4 20 mA / 2-wire) BEXU 10 ATEX 1068 X / IECEx IBE 12.0027X ZOX19-DMK 331P Safety technical maximum values I ISEXU 10 ATEX 1068 X / IECEx IBE 12.0027X ZOX19-DMK 331P Safety technical maximum values I ISEXU 10 ATEX 1068 Nay i IIC 74 Ga Zone 20: II 10 Ex ia IIIC 74 Ga Zone 20: II	³ max. temperature of the medium for or	verpressure > 0 bar: 150 °C for 60 minutes with a max. env				
Reverse polarity protection no damage, but also no function Electromagnetic compatibility emission and immunity according to EN 61326 Wechanical stability Vibration 20 g RMS / 10 2000 Hz according to DIN EN 60068-2-6 10 g RMS / 10 2000 Hz according to DIN EN 60068-2-6 (with cooling element) Shock 500 g / 1 msec half sine according to DIN EN 60068-2-27 Filling fluids Standard silicone oil Coptions food compatible oil (with FDA approval) (Mobil SHC Cibus 32; Category Code: H1; NSF Registration No.: 141500) others on request Waterials Pressure port / housing stainless steel 1.4404 (316 L) Stainless steel 1.4301 (304); cable gland M12x1.5, brass, nickel plated (clamping range 2 8 mm) Seals stainless steel 1.4301 (304); cable gland M12x1.5, brass, nickel plated (clamping range 2 8 mm) Standard: FKM (recommended for medium temperatures < 200 °C) option: FFKM stainless steel 1.4435 (316 L) Pressure ranges p _N ≤ 100 bar Explosion protection (only for 4 20 mA / 2-wire) Approvals Diaphragm IBEXU 10 ATEX 1068 X / IECEX IBE 12.0027X zone 0: II 10 Ex ia IIIC T135 °C Da Safety technical maximum values U = 28 V, I = 93 mA, P _i = 660 mW, C _i ≈ 0 nF, L _i ≈ 0 µH, the supply connections have an inner capacity of max. 27 nF to the housing in zone 0: in zone 1 or higher: -400/-20 70 °C conhecting cables	Electrical protection					
### Mechanical stability ### Wechanical st	Short-circuit protection	permanent				
### Mechanical stability ### Wechanical st	Reverse polarity protection					
Mechanical stability Vibration 20 g RMS / 10 2000 Hz according to DIN EN 60068-2-6 (with cooling element) Shock 500 g / 1 msec half sine according to DIN EN 60068-2-6 (with cooling element) Shock 500 g / 1 msec half sine according to DIN EN 60068-2-6 (with cooling element) Filling fluids Standard silicone oil Options food compatible oil (with FDA approval) (Mobil SHC Cibus 32; Category Code: H1; NSF Registration No.: 141500) others on request Materials Pressure port / housing stainless steel 1.4404 (316 L) Option compact field housing stainless steel 1.4301 (304); cable gland M12x1.5, brass, nickel plated (clamping range 2 8 mm) Seals standard: FKM (recommended for medium temperatures ≤ 200 °C) option: FFKM ⁵ (recommended for medium temperatures < 260 °C) others on request						
10 g RMS / 10 2000 Hz according to DIN EN 60068-2-6 (with cooling element)	Mechanical stability	· · · · · · · · · · · · · · · · · · ·				
Shock 500 g / 1 msec half sine according to DIN EN 60068-2-27 Filling fluids Standard silicone oil food compatible oil (with FDA approval) (Mobil SHC Cibus 32; Category Code: H1; NSF Registration No.: 141500) others on request Materials Pressure port / housing stainless steel 1.4404 (316 L) stainless steel 1.4301 (304); cable gland M12x1.5, brass, nickel plated (clamping range 2 8 mm) Seals standard: FKM (recommended for medium temperatures ≤ 200 °C) option: FFKM (recommended for medium temperatures < 260 °C) others on request stainless steel 1.4435 (316 L) Diaphragm stainless steel 1.4435 (316 L) Media wetted parts pressure port, seals, diaphragm For pressure ranges p _N ≤ 100 bar Explosion protection (only for 4 20 mA / 2-wire) Approvals DA19-DMK 331P Seals V, I is 93 mA, P ₁ = 660 mW, C ₁ ≈ 0 nF, L ₁ ≈ 0 μH, the supply connections have an inner capacity of max. 27 nF to the housing in zone 0: -20 60 °C with p _{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -40/-20 70 °C Connecting cables cables cable in zone 1 or higher: -40/-20 70 °C Connecting cables Sillone oil (with FDA approval) (Mobil SHC (bitwis FDA approval) (Altitude) (Altitude) (Mobil SHC (bitwis FDA approval) (Mobil SHC (bitwis FDA approval) (Altitude) (A	Vibration					
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Media wetted parts pressure port, seals, diaphragm For pressure ranges $p_N \le 100$ bar Explosion protection (only for 4 20 mA / 2-wire) Approvals DX19-DMK 331P Safety technical maximum values U _i = 28 V, I _i = 93 mA, P _i = 660 mW, C _i ≈ 0 nF, L _i ≈ 0 μ H, the supply connections have an inner capacity of max. 27 nF to the housing in zone 1 or higher: -40/-20 70 °C Connecting cables pressure port, seals, diaphragm pressure ranges $p_N \le 100$ bar Explosion protection (only for 4 20 mA / 2-wire) IBEXU 10 ATEX 1068 X / IECEX IBE 12.0027X zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ia IIIC T135 °C Da U _i = 28 V, I _i = 93 mA, P _i = 660 mW, C _i ≈ 0 nF, L _i ≈ 0 μ H, the supply connections have an inner capacity of max. 27 nF to the housing in zone 0: -20 60 °C with p_{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -40/-20 70 °C Connecting cables	Seals	standard: FKM (recommended for medium temperatures ≤ 200 °C)				
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Explosion protection (only for 4 20 mA / 2-wire) Approvals DX19-DMK 331P BEXU 10 ATEX 1068 X / IECEx IBE 12.0027X zone 0: II 1G Ex ia IIC T4 Ga 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 ≈ 0 nF, L _i ≈ 0 μ 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 _{atm} 0.8 bar up to 1.1 bar environment in zone 1 or higher: -40/-20 70 °C Connecting cables Cable capacitance: signal line/shield also signal line/signal line: 160 pF/m	Media wetted parts	pressure port, seals, diaphragm				
Approvals DX19-DMK 331P IBExU 10 ATEX 1068 X / IECEx IBE 12.0027X zone 0: II 1G Ex ia IIC T4 Ga 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 \approx 0 nF, L _i \approx 0 μ H, the supply connections have an inner capacity of max. 27 nF to the housing in zone 0: -20 60 °C with p _{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -40/-20 70 °C Connecting cables capacitance: signal line/shield also signal line/signal line: 160 pF/m	⁵ for pressure ranges p _N ≤ 100 bar					
DX19-DMK 331Pzone 0: zone 20: II 1D Ex ia IIIC T4 Ga zone 20: 	Explosion protection (only for 4	. 20 mA / 2-wire)				
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{ µH}, \\ \text{the supply connections have an inner capacity of max. 27 nF to the housing} \\ \text{Permissible temperatures for} \\ \text{in zone 0:} -20 \dots 60 \text{ °C with patm } 0.8 \text{ bar up to } 1.1 \text{ bar in zone } 1 \text{ or higher:} -40/-20 \dots 70 \text{ °C} \\ \text{Connecting cables} \\ \text{cable capacitance:} \text{signal line/shield also signal line:} 160 \text{ pF/m} \\ \text{The supply connections have an inner capacity of max. 27 nF to the housing} \\ \text{In zone 0:} -20 \dots 60 \text{ °C with patm } 0.8 \text{ bar up to } 1.1 \text{ bar in zone } 1.0 \text{ pF/m} \\ \text{The supply connections have an inner capacity of max.} \\ \text{In zone 0:} -20 \dots 60 \text{ °C with patm } 0.8 \text{ bar up to } 1.1 \text{ bar in zone } 1.0 \text{ pF/m} \\ \text{The supply connections have an inner capacity of max.} \\ \text{In zone 0:} -20 \dots 60 \text{ °C with patm } 0.8 \text{ bar up to } 1.1 \text{ bar in zone } 1.0 \text{ pF/m} \\ \text{The supply connections have an inner capacity of max.} \\ \text{In zone 0:} -20 \dots 60 \text{ °C with patm } 0.8 \text{ bar up to } 1.1 \text{ bar in zone } 1.0 \text{ pF/m} \\ \text{The supply connections have an inner capacity of max.} \\ \text{In zone 0:} -20 \dots 60 \text{ °C with patm } 0.8 \text{ bar up to } 1.1 \text{ bar in zone } 1.0 \text{ pF/m} \\ \text{The supply connections have an inner capacity of max.} \\ \text{In zone 0:} -20 \dots 60 \text{ °C with patm } 0.8 \text{ bar up to } 1.1 \text{ bar in zone } 1.0 \text{ properties} \\ \text{In zone 0:} -20 \dots 70 \text{ °C with patm } 0.8 \text{ bar up to } 1.1 \text{ bar in zone } 1.0 \text{ properties} \\ \text{The supple connections have an inner capacity of max.} \\ \text{In zone 0:} -20 \dots 60 \text{ °C with patm } 0.8 \text{ bar up to } 1.1 \text{ bar in zone } 1.0 $	Approvals DX19-DMK 331P	zone 0: II 1G Ex ia IIC T4 Ga				
Permissible temperatures for in zone 0: -20 60 °C with p _{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -40/-20 70 °C Connecting cables cable capacitance: signal line/shield also signal line: 160 pF/m	Safety technical maximum values	$U_i = 28 \text{ V}, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C_i \approx 0 \text{ nF}, L_i \approx 0 \mu\text{H},$				
Connecting cables capacitance: signal line/shield also signal line/signal line: 160 pF/m	Permissible temperatures for environment	in zone 0: -20 60 °C with p _{atm} 0.8 bar up to 1.1 bar				
	Connecting cables (by factory)	cable capacitance: signal line/shield also signal				

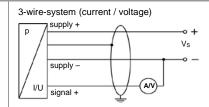
Industrial Pressure Transmitter

Miscellaneous					
according to IEC 61508 / IEC 61511					
signal output current: max. 25 mA	signal output voltage: max. 7 mA				
min. 200 g (depending on process connection)					
any (standard calibration in a vertical position with the pressure port connection down)					
100 million load cycles					
EMC Directive: 2014/30/EU	Pressure Equipment Directive: 2014/68/EU (module A) 7				
2014/34/EU					
	signal output current: max. 25 mA min. 200 g (depending on process cor any (standard calibration in a vertical) 100 million load cycles EMC Directive: 2014/30/EU				

⁶ only for 4 ... 20 mA / 2-wire

Wiring diagrams





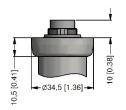
Pin configuration Electrical connection ISO 4400 Binder 723 M12x1 / metal compact (5-pin) (4-pin) field housing cable colours (IEC 60757) Vs- S+ GND supply + V_S+ WH (white) BN (brown) 2 4 2 V_{S} supply -3 signal + (only 3-wire) 3 GN (green) 1 S+ **GNYE** (1) 4 5 GND Shield ground pin (green-yellow)

Electrical connections (dimensions mm / in)

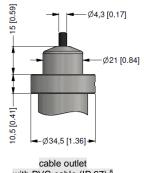


ISO 4400 (IP 65)





Binder series 723, 5-pin (IP 67)



with PVC-cable (IP 67) 8



M12x1, 4-pin (IP 67)

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

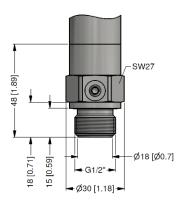
⁸ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)

⁷ this directive is only valid for devices with maximum permissible overpressure > 200 bar

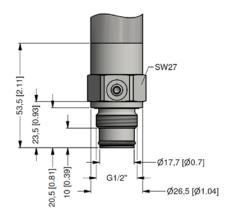
Industrial Pressure Transmitter

⁴ max. temperature depends on the used sealing material, type of seal and installation

Mechanical connections (dimensions mm / in)



G1/2" flush DIN 3852



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G1/2" flush with radial o-ring 9

⇒ SIL- and SIL-Ex version: total length increases by 26.5 mm!

 \Rightarrow metric threads and other versions on request

⁹ not possible in combination with cooling element

BD SENSORS

pressure measurement

DMK331P_E_080425

Tel.: +49 (0) 92 35 / 98 11- 0 Fax: +49 (0) 92 35 / 98 11- 11



Ordering code DMK 331P **DMK 331P** Pressure gauge absolute 5 0 6 Input [bar] 60 6 0 0 2 100 0 0 3 1 6 0 3 160 2 5 0 3 250 400 4 0 0 3 customer 9 9 9 9 consult 4 ... 20 mA / 2-wire 1 0 ... 20 mA / 3-wire 2 0 ... 20 mA / 3-wire intrinsic safety 4 ... 20 mA / 2-wire SIL2 4 ... 20 mA / 2-wire 3 F 1S SIL2 with intrinsic safety ES 4 ... 20 mA / 2-wire 9 customer consult Accuracy 0.5 % FSO 5 customer 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) T A 0 male plug M12x1 (4-pin) / metal compact field housing M 1 0 8 5 0 stainless steel1.4301 (304) 9 9 9 customer consult G1/2" DIN 3852 with Z 0 0 flush diaphragm G 1/2" DIN 3852 with rad. o-ring and flush diaphragm ² Z 6 1 9 9 9 customer consult Diaphragm stainless steel 1.4435 (316L) 1 customer consult FKM FFKM ³ customer 9 consult Filling fluid silicone oil 1 food compatible oil customer consult Special version standard 0 0 0 with cooling element up to 300°C 2 0 0 9 9 9 consult

06.03.2025

We reserve the right to make modifications to the specifications and materials.

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

 $^{^{\}rm 2}\,$ not possible in combination with cooling element

³ only for p_N ≤ 100 bar possible

⁴ only for p_N ≤ 160 bar possible