



# **DMK 331P**

# Industrial **Pressure Transmitter**

Pressure Ports with Flush Welded Stainless Steel Diaphragm

accuracy according to IEC 60770: 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	e/abs. [bar]	60	100	160	250	400
Overpressure	[bar]	100	200	400	400	600
Burst pressure ≥	[bar]	180	300	500	750	1000

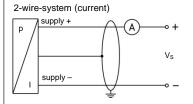
Sandard							
Quitor 15-protection   Q-wire: 4 20 m/s / V <sub>3</sub> = 10 28 V <sub>3</sub> c   SIL-version: V <sub>3</sub> = 14 28 V <sub>3</sub> c   Outlines 3-wire: 0 20 m/s / V <sub>3</sub> = 14 30 V <sub>3</sub> c	Output signal / Supply						
Options 3-wire  Options 4-wire  Options 5-wire  Options 5-wire  Options 4-wire  Options 5-wire  Options 6-wire  Options 6-wire  Options 6-wire  Options 6-wire  Options 6-wire  Options 6-wire  Options 7-wire  Options 6-wire  Options 6-wire  Options 7-wire  Options 7-wire  Options 7-wire  Options 6-wire  Options 7-wire  Options 7-wire  Options 7-wire  Options 7-wire  Options 7-wire  Options 7-wire  Options 7-wi	Standard						
Performance			SIL-version: $V_S = 14 \dots 28 V_{DC}$				
Accuracy¹ ≤ £ 0.5 %; FSO  Permissible load  Current 3-wire: Rous = [(V_0 − V_0 min) / 0.02 A] Ω  Current 3-wire: Rous = 600 Ω  Voltage 3-wire: Rous = 600 Ω  Influence effects  Supply: 0.05 %; FSO / 10 V  load: 0.05 %; FSO /	Options 3-wire						
Current 2-wire: Ras = F(Ne - V s not) / 0.02 Å Ω current 3-wire: Ras = F(Ne - V s not) / 0.02 Å Ω current 3-wire: Ras = 50 kΩ voltage 3-wire: S = 50.9 kg art at reference conditions	Performance						
Current 2-wire: Ras = F(Ne - V s not) / 0.02 Å Ω current 3-wire: Ras = F(Ne - V s not) / 0.02 Å Ω current 3-wire: Ras = 50 kΩ voltage 3-wire: S = 50.9 kg art at reference conditions	Accuracy 1	≤±0.5 % FSO					
Long term stability  \$ < 0.05 % FSO / kΩ Response time  \$ < \( \text{seq} \) \( \text{seq}	Permissible load	current 2-wire: $R_{max} = [(V_S - V_{S min}) / 0.02 \text{ A}] \Omega$ current 3-wire: $R_{max} = 500 \Omega$ voltage 3-wire: $R_{min} = 10 \text{ k}\Omega$					
Response time  2-wire: \$ 10 msec 3-wire: \$ 3 msec  1 accuracy according to IEC 60770 - limit point adjustment (non-linearity, hysteresis, repeatability)  Thermal effects (offset and span)  \$ \( \text{ \$ \  \text{ \$ \  \  } \text{ \$ \  \       } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \       } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \       } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \       } \text{ \$ \  \  } \text{ \$ \  \  } \text{ \$ \  \  }  \$ \  \	Influence effects	supply: 0.05 % FSO / 10 V					
"accuracy according to IEC 60770 - Imite point adjustment (non-linearity, hysteresis, repeatability)  Thermal effects (offset and span) 2  Thermal error   \$\leq \ 2.0.2 \% FSO / 10 K	Long term stability	≤ ± 0.3 % FSO / year at reference conditions					
Thermal efrects (offset and span) 2  Thermal error   S ± 0.2 % FSO / 10 K   In compensated range   0 85°C   2 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   Medium 3	Response time						
Thermal error   S ± 0.2 % FSO / 10 K	<sup>1</sup> accuracy according to IEC 60770 - lim	nit point adjustment (non-linearity, hysteresis, repeatability)					
In compensated range  0 85°C  ² an optonal 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  Medium ³ -40 125 °C -10 125 °C  Medium with cooling element ⁴ overpressure: -40 300 °C vacuum: -10 150 °C  Electronics / environment  -40 150 °C vacuum: -10 150 °C  Electronics / environment  Storage  40 100 °C  3 max. temperature of the medium for overpressure > 0 bar. 150 °C for 60 minutes with a max. environmental temperature of 50 °C  4 max. temperature depends on the used sealing material, type of seal and installation  Electrical protection  Short-circuit protection  Short-circuit protection  Electronagretic compatibitity  mission and immunity according to BIN EN 60068-2-6  10 g RMS / 10 2000 Hz according to BIN EN 60068-2-6  10 g RMS / 10 2000 Hz according to DIN EN 60068-2-6  10 g RMS / 10 2000 Hz according to DIN EN 60068-2-27  Filling fluids  Standard  Options  Materials  Pressure port / housing  Option compact field housing  Stainless steel 1.4404 (316 L)  Stainless steel 1.4301 (304);  cable gland M12x1.5 brass, nickel plated (clamping range 2 8 mm)  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 < 200 °C)  option: FFKM (recommended for medium temperatures < 200 °C)  option: FFKM (recommended for medium temperatures < 260 °C)  others on request  Explosion protection (only for 4 20 mA / 2-wire)  Explosion protection (only for 4 20 mA / 2-wire)  Explosion protection (only for 4 20 mA / 2-wire)  Explosion protection (only for 4 20 mA / 2-wire)  Explosion protection (only for 4 20 mA / 2-wire)  Explosion protection (only for 4 20 mA / 2-wire)  Explosion protection (only for 4 20 mA / 2-wire)  Explosion protection (only	Thermal effects (offset and span) 2						
Permissible temperatures  Permissible temperatures  Filling fluid  Silicone oil food compatible oil food compatible oil Medium   3	Thermal error	≤ ± 0.2 % FSO / 10 K					
Parmissible temperatures  Permissible temperatures  Filling fluid  Silicone oil food compatible oil food compatible oil Medium 3	In compensated range						
Filling fluid  Silicone oil food compatible oil food compatible oil Medium ³ -40 125 °C -10 125 °C overpressure: -10 250 °C overpressure: -10 25		1	ation position and filling conditions				
Filling fluid  Medium with cooling element 4  Au 125 °C  Au 150 °C  Vacuum: -40 150 °C  Vacuum: -40 150 °C  Vacuum: -10 1		,,					
Medium 3         40 125 °C         1-10 125 °C           Medium with cooling element 4         overpressure: -40 300 °C         overpressure: -10 150 °C           Electronics / environment         -40 150 °C         -40 85 °C           Storage         -40 100 °C           ³ max. temperature of the medium for overpressure > 0 bar: 150 °C for 60 minutes with a max. environmental temperature of 50 °C           ⁴ max. temperature depends on the used sealing material, type of seal and installation           Electrical protection           Short-circuit protection         permanent           Reverse polarity protection         no damage, but also no function           Electromagnetic compatibility         emission and immunity according to DIN EN 60068-2-6           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)           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)           Seals         stainless steel 1.44301 (304); cable gland M12x1.5, brass, nickel plated (clamping range 2 8 mm)	•	silicone oil	food compatible oil				
Medium with cooling element <sup>4</sup> overpressure: -40 300 °C vacuum: -10 250 °C vacuum: -10 150 °C vacuum: -10 °C vacuum:			·				
Vacuum: -40 150 °C			I .				
Storage		vacuum: -40 150 °C	vacuum: -10 150 °C				
3 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							
* max. temperature depends on the used sealing material, type of seal and installation  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   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   Good 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) (304); cable gland M12x1.5, brass, nickel plated (clamping range 2 8 mm)   Seals   standard: FKM (recommended for medium temperatures ≤ 200 °C) others on request  Diaphragm   stainless steel 1.4435 (316 L)   Media wetted parts   pressure port, seals, diaphragm   ### Media wetted parts   pressure port, seals, diaphragm   ### Stainless steel 1.4435 (316 L)    ### Standard: FKM   (recommended for medium temperatures ≤ 200 °C) others on request    ### Diaphragm   stainless steel 1.4435 (316 L)    ### Media wetted parts   pressure port, seals, diaphragm   ### Standard: FKM   (recommended for medium temperatures ≤ 200 °C)    ### Standard: FKM   (recommended for medium temperatures ≤ 200 °C)    ### Standard: FKM   (recommended for medium temperatures ≤ 200 °C)    ### Others on request    ### Diaphragm   stainless steel 1.4435 (316 L)    ### Diaphragm   Stainless steel 1.4435 (316 L)    ### Standard: FKM   (recommended for medium temperatures ≤ 200 °C)    ### Others on request    ### Standard: FKM   (recommended for medium temperatures ≤ 200 °C)    ### Others on request    ### Standard: FKM   (recommended for medium temperatures ≤ 200 °C)    ### Others on request    ### Standard: FKM   (recommended for medium temperatures ≤ 200 °C)    ### Others on request							
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 (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 60068-2-7  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) cable gland M12x1.5, brass, nickel plated for medium temperatures ≤ 200 °C) option: FFKM (recommended for medium temperatures < 260 °C) others on request  Biaphragm stainless steel 1.4435 (316 L)  Media wetted parts pressure ranges pn ≤ 100 bar  Explosion protection (only for 4 20 mA / 2-wire)  Approvals  DX19-DMK 331P zone 0: II 16 Ex ia IIIC T14 Ga zone 20: II 11 D Ex ia IIIC T14 Ga zone 20: II 11 D Ex ia IIIC T145 °C Da  Safety technical maximum values U, = 28 V, I, = 93 mA, P, = 660 mW, C, = 0 nF, L, = 0 µH, te supply connections have an inner capacity of max. 27 nF to the housing in zone 0: 10 nc never 10			rronmental temperature of 50 °C				
Reverse polarity protection Electromagnetic compatibility  Mechanical 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 60068-2-6 (with cooling element)  Shock  500 g / 1 msec half sine according to DIN EN 60068-2-27  Filling fluids  Standard  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 cable gland M12x1.5, brass, nickel plated (clamping range 2 8 mm)  Seals  standard: FKM (recommended for medium temperatures ≤ 200 °C) option: FFKM δ (recommended for medium temperatures < 260 °C)  option: FFKM δ (recommended for medium temperatures < 260 °C)  option: FFKM δ (recommended for medium temperatures < 260 °C)  Diaphragm  stainless steel 1.4435 (316 L)  Media wetted parts  pressure ranges p <sub>N</sub> ≤ 100 bar  Explosion protection (only for 4 20 mA / 2-wire)  Approvals  DX19-DMK 331P  Zone 0: II 10 Ex ia IIIC T135 °C Da  Safety technical maximum values  U <sub>1</sub> = 28 V, I <sub>1</sub> = 93 mA, P <sub>1</sub> = 660 mW, C <sub>1</sub> ≈ 0 nF, L <sub>1</sub> ≈ 0 μH, the supply connections have an inner capacity of max. 27 nF to the housing  in zone 0: -20 60 °C with p <sub>atm</sub> 0.8 bar up to 1.1 bar in zone 1 or higher: -40/-20 70 °C  Connecting cables	Electrical protection						
Mechanical stability	Short-circuit protection	permanent					
Mechanical stability	Reverse polarity protection	'					
Vibration		<b>↓</b>					
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 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 Option compact field 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) option: FFKM 5 (recommended for medium temperatures < 260 °C) Others on request  Diaphragm stainless steel 1.4435 (316 L) Media wetted parts For pressure ranges pN ≤ 100 bar  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		, ,					
Shock       500 g / 1 msec half sine according to DIN EN 60068-2-27         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 6 (recommended for medium temperatures < 260 °C) others on request	Vibration						
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 (recommended for medium temperatures < 260 °C) others on request	Shock						
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 ≤ 200 °C) option: FFKM ⁵ (recommended for medium temperatures < 260 °C) option: FFKM ⁵ (recommended for medium temperatures < 260 °C) option: FFKM ⁵ (recommended for medium temperatures < 260 °C) option: FFKM ⁵ (recommended for medium temperatures < 260 °C)  Diaphragm stainless steel 1.4435 (316 L) Media wetted parts pressure port, seals, diaphragm  ⁵ for pressure ranges p <sub>N</sub> ≤ 100 bar  Explosion protection (only for 4 20 mA / 2-wire)  Approvals DX19-DMK 331P IBEXU 10 ATEX 1068 X / IECEx IBE 12.0027X zone 0: II 1G Ex ia IIIC T4 Ga 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> ≈ 0 nF, L <sub>i</sub> ≈ 0 μH, the supply connections have an inner capacity of max. 27 nF to the housing in zone 0: -20 60 °C with p <sub>atm</sub> 0.8 bar up to 1.1 bar in zone 1 in zone 1 or higher: -40/-20 70 °C Connecting cables cable capacitance: signal line/shield also signal line/signal line: 160 pF/m		300 g / 1 mace half affice according to bit Liv 000	00 2 21				
food compatible oil (with FDA approval) (Mobil SHC Cibus 32; Category Code: H1; NSF Registration No.: 141500) others on request		-92					
(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)							
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	Options	(Mobil SHC Cibus 32; Category Code: H1; NSF Registration No.: 141500)					
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) option: FFKM ⁵ (recommended for medium temperatures < 260 °C)  Others on request  Diaphragm  stainless steel 1.4435 (316 L)  Media wetted parts  pressure port, seals, diaphragm  ⁵ for pressure ranges p <sub>N</sub> ≤ 100 bar  Explosion protection (only for 4 20 mA / 2-wire)  Approvals  DX19-DMK 331P  Safety technical maximum values  U₁ = 28 V, I₁ = 93 mA, P₁ = 660 mW, C₁ ≈ 0 nF, L₁ ≈ 0 μH, 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 in zone 1 or higher: -40/-20 70 °C  Connecting cables	Materials						
Seals  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) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: FFKM ⁵ (recommended for medium temperatures < 260 °C) Option: F	Pressure port / housing	stainless steel 1.4404 (316 L)					
Seals  standard: pfKM (recommended for medium temperatures ≤ 200 °C) option: pfFKM 5 (recommended for medium temperatures < 260 °C) others on request  stainless steel 1.4435 (316 L)  Media wetted parts pressure port, seals, diaphragm  for pressure ranges p <sub>N</sub> ≤ 100 bar  Explosion protection (only for 4 20 mA / 2-wire)  Approvals DX19-DMK 331P  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> ≈ 0 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 1 or higher: -40/-20 70 °C  Connecting cables  standard: pfKM (recommended for medium temperatures ≤ 200 °C) others on request	Option compact field housing	stainless steel 1.4301 (304);					
Diaphragm       stainless steel 1.4435 (316 L)         Media wetted parts       pressure port, seals, diaphragm         ⁵ for pressure ranges $p_N ≤ 100$ bar         Explosion protection (only for 4 20 mA / 2-wire)         Approvals       IBEXU 10 ATEX 1068 X / IECEx IBE 12.0027X         DX19-DMK 331P       IBEXU 10 ATEX 1068 X / IECEx IBE 12.0027X         DX19-DMK 331P       zone 20: II 1D Ex ia IIIC T4 Ga         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> ≈ 0 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 $p_{atm}$ 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/signal line: 160 pF/m	Seals	standard: FKM (recommended for medium temperatures ≤ 200 °C)					
Media wetted partspressure port, seals, diaphragm⁵ for pressure ranges $p_N ≤ 100$ barExplosion protection (only for 4 20 mA / 2-wire)ApprovalsIBExU 10 ATEX 1068 X / IECEx IBE 12.0027XDX19-DMK 331PII 1G Ex ia IIC T4 Gazone 20:II 1D Ex ia IIIC T135 °C DaSafety technical maximum values $U_i = 28 \text{ V}, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C_i ≈ 0 \text{ nF}, L_i ≈ 0 \mu\text{H}, the supply connections have an inner capacity of max. 27 nF to the housingPermissible temperatures for environmentin zone 0: -20 60 °C with p_{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -40/-20 70 °CConnecting cablescable capacitance: signal line/shield also signal line/signal line: 160 pF/m$	Diaphragm						
Explosion protection (only for 4 20 mA / 2-wire)  Approvals  DX19-DMK 331P  Safety technical maximum values  Permissible temperatures for environment  in zone 1 or higher: -40/-20 70 °C  Connecting cables  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 <sub>i</sub> = 28 V, I <sub>i</sub> = 93 mA, P <sub>i</sub> = 660 mW, C <sub>i</sub> ≈ 0 nF, L <sub>i</sub> ≈ 0 $\mu$ H, the supply connections have an inner capacity of max. 27 nF to the housing  in zone 0: -20 60 °C with p <sub>atm</sub> 0.8 bar up to 1.1 bar  in zone 1 or higher: -40/-20 70 °C  Connecting cables	Media wetted parts						
Explosion protection (only for 4 20 mA / 2-wire)  Approvals  DX19-DMK 331P  Safety technical maximum values  Permissible temperatures for environment  in zone 1 or higher: -40/-20 70 °C  Connecting cables  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 <sub>i</sub> = 28 V, I <sub>i</sub> = 93 mA, P <sub>i</sub> = 660 mW, C <sub>i</sub> ≈ 0 nF, L <sub>i</sub> ≈ 0 $\mu$ H, the supply connections have an inner capacity of max. 27 nF to the housing  in zone 0: -20 60 °C with p <sub>atm</sub> 0.8 bar up to 1.1 bar  in zone 1 or higher: -40/-20 70 °C  Connecting cables	<sup>5</sup> for pressure ranges p <sub>N</sub> ≤ 100 bar						
Approvals DX19-DMK 331P $ \begin{array}{c} \text{IBExU 10 ATEX 1068 X / IECEx IBE 12.0027X} \\ \text{zone 0:}  \text{II 1G Ex ia IIC T4 Ga} \\ \text{zone 20:}  \text{II 1D Ex ia IIIC T135 °C Da} \\ \text{Safety technical maximum values} \\ \text{Safety technical maximum values} \\ \text{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{ $\mu$H,} \\ \text{the supply connections have an inner capacity of max. 27 nF to the housing} \\ \text{Permissible temperatures for} \\ \text{environment} \\ \text{in zone 0:} \\ \text{expression of the capacitance:} \\ \text{Signal line/shield also signal line/signal line: 160 pF/m} \\ \text{Total of the capacitance:} \\ \text{Signal line/shield also signal line/signal line: 160 pF/m} \\ \text{Total of the capacitance:} \\ Total of t$	Explosion protection (only for 4	. 20 mA / 2-wire)					
Safety technical maximum values $U_i = 28 \text{ V}, \ I_i = 93 \text{ mA}, \ P_i = 660 \text{ mW}, \ C_i \approx 0 \text{ nF}, \ L_i \approx 0 \text{ µH},$ 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 $p_{atm}$ 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/signal line: 160 pF/m	Approvals DX19-DMK 331P	IBExU 10 ATEX 1068 X / IECEx IBE 12.0027X zone 0: II 1G Ex ia IIC T4 Ga					
Permissible temperatures for environment in zone 0: -20 60 °C with p <sub>atm</sub> 0.8 bar up to 1.1 bar -40/-20 70 °C  Connecting cables 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 cable capacitance: signal line/shield also signal line/signal line: 160 pF/m	Permissible temperatures for environment	in zone 0: -20 60 °C with p <sub>atm</sub> 0.8 bar up to 1.1 bar					
	Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m					

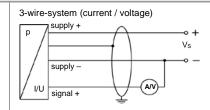
#### **Industrial Pressure Transmitter**

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				

<sup>&</sup>lt;sup>6</sup> only for 4 ... 20 mA / 2-wire

#### Wiring diagrams



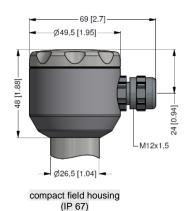


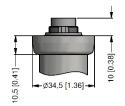
#### Pin configuration Electrical connection ISO 4400 Binder 723 M12x1 / metal compact (5-pin) (4-pin) field housing cable colours (IEC 60757) Vs- S+ GND supply + V<sub>S</sub>+ WH (white) BN (brown) supply -2 4 2 $V_{\text{S}}$ -3 signal + (only 3-wire) 3 GN (green) 1 S+ **GNYE** (1) 4 5 GND Shield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

#### Electrical connections (dimensions mm / in)

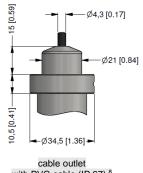








Binder series 723, 5-pin (IP 67)



with PVC-cable (IP 67) 8



M12x1, 4-pin (IP 67)

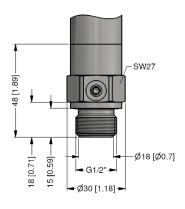
⇒ universal field housing stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request

<sup>&</sup>lt;sup>7</sup> this directive is only valid for devices with maximum permissible overpressure > 200 bar

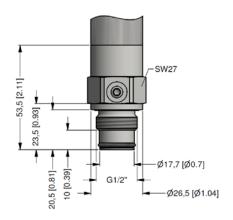
#### **Industrial Pressure Transmitter**

# 

### Mechanical connections (dimensions mm / in)



G1/2" flush DIN 3852



G1/2" flush with radial o-ring

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

⇒ metric threads and other versions on request

BD SENSORS

pressure measurement

DMK331P\_E\_040325

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#### 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 Z 6 1 and flush diaphragm 9 9 9 customer consult Diaphragm stainless steel 1.4435 (316L) 1 customer consult FKM FFKM <sup>2</sup> 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

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

We,

state of engineering at the time of publishing.

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

 $<sup>^2</sup>$  only for  $p_N \le 100$  bar possible

<sup>&</sup>lt;sup>3</sup> only for p<sub>N</sub> ≤ 160 bar possible