



DMP 331i DMP 333i

Precision Pressure Transmitter

Stainless Steel Sensor

accuracy according to IEC 60770: 0.1 % FSO

Nominal pressure

from 0 ... 400 mbar up to 0 ... 600 bar

Output signal

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

Product characteristics

- thermal error in compensated range -20 ... 80 °C: 0.2 % FSO TC 0.02 % FSO / 10K
- Turn-Down 1:10
- communication interface for adjusting of offset, span and damping

Optional versions

- **IS-versions** Ex ia = intrinsically safe for gases and dusts
- adjustment of nominal pressure ranges (factory-provided)

The precision pressure transmitter DMP 331i and DMP 333i demonstrate the further development of our industrial pressure transmitters.

The signal processing of sensor signal is done by digital electronics with 16-bit analogue digital converter. Consequently, it is possible to conduct an active compensation and the transmitters with excellent measurements and exceptionally attractive price to offer on the market.

Preferred areas of use are



Laboratory techniques



Energy production (gas consumption and thermal energy measurement)













Pressure ranges DMP 331	li ¹									
Nominal pressure	•	I								
gauge / absolute	[bar]	0.4	1	2	4	10	20	40	60	
Overpressure	[bar]	2	5	10	20	40	80	105	105	
Burst pressure	[bar]	3	7.5	15	25	50	120	210	210	
•	[DGI]		7.0	10			120	210	210	
Vacuum ranges										
Nominal pressure gauge	[bar]	-0.4 0.4		-1 1	-1 1 -1 2		-1 4	-1 10		
Overpressure	[bar]		2	5		10	10 20		40	
Burst pressure	[bar]	3		7.5	7.5 15		25		50	
Pressure ranges DMP 333	Bi ¹									
Nominal pressure		. 100			200		400	6	600	
gauge / absolute	[bar]									
Overpressure	[bar]		210		600		1000	1000		
Burst pressure	[bar]		420		1000		1250	1250		
¹ On customer request we adju-	st the dev	rice within th	ne turn-down	-possibility by s	oftware on	the required pres	sure range.			
Output signal / Supply										
Standard		2-wire:	4 20 m/	A / V _S = 12	2 36 Vn	3				
Option IS-version		2-wire:	4 20 m/			-				
Options analogue signal		2-wire:	4 20 m/			ion interface 2				
,		3-wire:	0 10 V	/ V _S = 14						
			0 10 V			ion interface 2				
² only possible with el. connecti	ion Binder	r series 723	(7-pin)							
Performance			2							
Accuracy		IEC 607	70^{3} : $\leq \pm 0.1$	1 % FSO						
performance after turn-dow										
	D ≤ 1:5	no change of accuracy ⁴								
- 11	D > 1:5	for calculation use the following formula (for nominal pressure ranges ≤ 0.40 bar see note 4):								
≤ ± [0.1 + 0.015 x turn-down] % FSO with turn-down = nominal pressure range / adjusted range										
					•	, .	- 4			
		e.g. with	a turn-dow ⊾ ∩ ∩15 ∨ 1	n of 1:10 folic	wing accu	racy is calculat	ea: ESO			
Permissible load	$\leq \pm$ (0.1 + 0.015 x 10) % FSO i.e. accuracy is $\leq \pm$ 0.25 % FSO current 2-wire: $R_{max} = [(V_S - V_{S min}) / 0.02 \text{ A}] \Omega$ voltage 3-wire: $R_{min} = 10 \text{ k}\Omega$									
Influence effects	supply: $0.05 \% FSO / 10 V$ load: $0.05 \% FSO / k\Omega$									
Long term stability	Supply: 0.03 % FSO / 10 V Idad: 0.03 % FSO / Kt2 ≤ ± (0.1 x turn-down) % FSO / year at reference conditions									
Response time		approx. 5 msec								
Adjustability (with option		configuration of following parameters possible (interface / software necessary ⁵):								
communication interface RS	S232)	electronic damping: 0 100 sec offset: 0 90 % FSO turn down of span: max. 1:10								
³ accuracy according to IEC 60			<u> </u>		esis, repeat	ability)				
⁴ except nominal pressure rang										
\leq ± (0.1 + 0.02 x turn-down) % software, interface, and cable								O or higher and	d XP)	
Thermal effects (Offset ar								<u> </u>		
·		-	x turn-dowr		ompensat	ed range -20	80 °C			
TC, average [% FSC	/ 10 K]	± (0.02 x	turn-down) in c	ompensat	ed range -20	80 °C			
Permissible temperatures		medium:		-25	125 °C					
- I I I I I I I I I I I I I I I I I I I		electronics / environment: -25 85 °C								
		storage:		-40	100 °C					
Electrical protection										
Short-circuit protection		permane								
Reverse polarity protection	everse polarity protection no damage, but also no function									
Electromagnetic compatibili	ity	emission	and immu	nity according	to EN 61	326				
Materials										
Pressure port			steel 1.44							
Housing		stainless	steel 1.44	04 (316 L)						
Option compact field housir	ng	stainless	steel 1.43	01 (304); cab	le gland N	112x1.5, brass,	nickel plated (d	clamping rang	e 2 8 mr	
Seals		FKM								
		NBR								
		welded v				others	on request			
Diaphragm			steel 1.44							
Modia watted parts		procesure	nort cool	dianhraam						

pressure port, seal, diaphragm ⁶ welded version only with pressure ports according to EN 837; welded version not available with pressure ranges > 60 bar

according to DIN EN 60068-2-6

according to DIN EN 60068-2-27

10 g RMS (20 ... 2000 Hz)

100 g / 11 msec.

Vibration

Shock

Media wetted parts

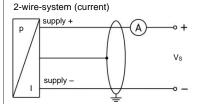
Mechanical stability

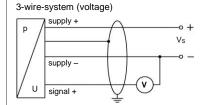
Explosion protection (only for 4 20 mA / 2-wire)							
Approvals DX19-DMP 331i	IBExU 10 ATEX 1068 X / IECEx IBE 12.0027X						
DX19-DMP 333i	zone 0: II 1G Ex ia IIC T4 Ga	zone 20: II 1D Ex ia IIIC T135 °C Da					
Safety technical max. values	$U_i = 28 \text{ V}, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C_i \approx 0 \text{ nF}, L_i \approx 0 \mu\text{H},$						
	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 65 °C						
Connecting cables	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m						
(by factory)	cable inductance: signal line/shield also signal line/sign	tance: signal line/shield also signal line/signal line: 1µH/m					
Miscellaneous							
Current consumption	signal output current: max. 25 mA	signal output voltage: max. 7 mA					
Weight	approx. 200 g						
Installation position	any ⁷						
Operational life	100 million load cycles						
CE-conformity	EMC Directive: 2014/30/EU Pressure Equipme	ent Directive: 2014/68/EU (module A) 8					
ATEX Directive	2014/34/EU						
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⁷ Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviations in the zero point for pressure ranges $p_N \le 1$ bar.

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

Wiring diagrams



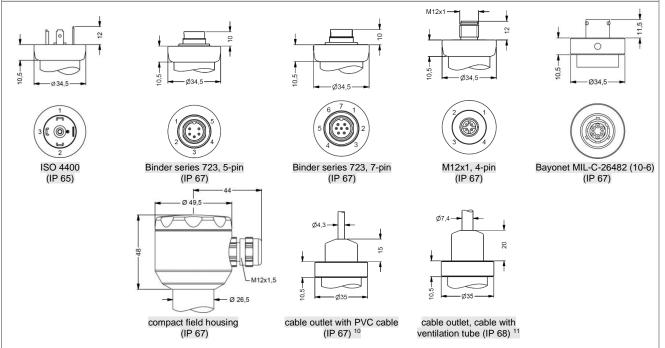


Pin configuration	
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Electrical connections		ISO 4400	Binder 723	Binder 723/423	M12x1/metal	Bayonet MIL-C-26482 (10-6)		compact field	cable colours
		130 4400	(5-pin)	(7-pin)	(4-pin)	2-wire	3-wire	housing	(IEC 60757)
supply + 1		1	3	3	1	Α	Α	IN +	WH (white)
supply –		2	4	1	2	В	D	IN –	BN (brown)
signal + (only for 3-wire)		3	1	6	3	-	В	OUT +	GN (green)
shield		ground 🖶	5	2	4	pressure port		(a)	GNYE (green-yellow)
Communication RxD		рііі 🔾		1					(green-yellow)
interface RS232 9	TxD	-	-	4 -	-	-		_	-
		-	-	3	-	-		-	-
	GND	-	_	/	-			-	1

⁹ may not be transmitted directly with the PC (the suitable adapter is available as accessory)

Electrical connections (dimensions in mm)



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

¹⁰ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)

¹¹ different cable types and lengths available, permissible temperature depends on kind of cable

Mechanical connections (dimensions in mm) DMP 333i 12, 13 DMP331i 12 **DMP 331i** with communication interface RS232 © 2021 BD|SENSORS GmbH - The specifications given in this document represent the state of engineering at the time of publishing. We reserve the right to make modifications to the specifications and materials. -Ø26,5 -ø26.5 -Ø26.5 57,5 SW27 SW27 4 G1/2" DIN 3852 G1/2" DIN 3852 G1/2" DIN 3852 Optional G1/2" -G1/2" EN 837 G1/2" DIN 3852 1/2" NPT open port, p_N ≤ 40 bar 12 G 1/4 1/4" NPT G 1/4 G1/4" DIN 3852 G1/4" EN 837 1/4" NPT ⇒ metric threads and others on request

pressure measurement

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12 with electrical connection Bayonet MIL-C-26482 (10-6) increases the length of devices by 5 mm

 13 for nominal pressure $p_N > 400$ bar increases the length without IS-version by 19 mm and with IS-version by 39 mm



Ordering code DMP 331i / DMP 333i DMP 331i / DMP 333i For DMP 331i 1 0 absolute For DMP 333i 1 3 0 gauge 0 absolute Input [bar] For DMP 331i² 0.40 4 0 0 0 10 1.0 0 0 20 20 2 0 0 1 40 4 0 0 0 4 0 0 1 1 0 0 2 2 0 0 2 4 0 0 2 6 0 0 2 100 10 200 20 400 40 For DMP 333i ² 1 0 0 3 100 2 0 0 3 4 0 0 3 6 0 0 3 200 400 600 For DMP 331i -0.40 ... 0.40 4 0 0 S 1 0 2 V 2 0 2 V 4 0 2 V 1 0 3 -1 ... 1 -1 ... 2 specifications -1 ... 4 -1 ... 10 9 9 9 9 consult customer 4 ... 20 mA / 2-wire the s intrinsic safety 4 ... 20 mA / 2-wire Е 0 ... 10 V / 3-wire 3 9 customer consult Accuracy (at nominal pressure) 0.1 % FSO customer consult We reserve the right to make Electrical connection male and female plug ISO 4400 male plug Binder series 723 (5-pin) 1 0 0 2 0 0 male plug Binder series 723 (7-pin) A 0 0 and female plug Binder series 423 (7-pin) male plug M12x1 (4-pin) / metal - for analog output M 1 0 M 1 3 male plug M12x1 (4-pin) / metal - for digital output Bayonet MIL-C-26482 (10-6); 2 wire Bayonet MIL-C-26482 (10-6); 3 wire B G 0 B G 4 T A 0 T R 0 sring at the time of publishing. cable outlet with PVC cable (IP67) cable outlet, cable with ventilation tube (IP68) 4 compact field housing stainless steel 1.4301 (304) 8 5 0 9 9 9 consult customer Mechanical connection G1/2" DIN 3852 0 0 1 0 0 2 0 0 3 0 0 4 0 0 F 0 0 H 0 0 N 0 0 N 4 0 9 9 9 G1/2" EN 837 G1/4" DIN 3852 G1/4" EN 837 G1/2" DIN 3852 with flush sensor 5 G1/2" DIN 3852 open pressure port 1/2" NPT 1/4" NPT sent the customer consult For DMP 331i FKM without (welded version) 5,6 2 For DMP 333i FKM NBR 5 given in this customer 9 consult Special version 1 1 1 1 2 1 standard communication interface RS232 BD|SENSORS GmbH - The specifications 9 9 9 customer consult

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¹ measurement starts with ambient pressure

² pressure ranges ≤ 60 bar as DMP 331i; pressure ranges > 60 bar as DMP 333i

³ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C); others on request

⁴ code TR0 = PVC cable, cable with ventilation tube available in different types and lengths

 $^{^5}$ only possible for DMP 331i and $\,p_{N} \leq 40$ bar

⁶ welded version only with pressure ports according to EN 837

⁷ Communication interface RS232 only possible with el. connection Binder serie 723/423 (7pin) Software, Interface and cable for DMP 331i and DMP 333i with option RS232 have to be order separately (ordering code: CIS-G; software appropriate for Windows® 95, 98, 2000, NT Version 4.0 or newer and XP) Windows® is a registrated trademark of Microsoft Corporation