

DMP 331i DMP 333i LMP 331i

Precision-

- Pressure Transmitter
- Screw-in Transmitter
- nominal pressure ranges from 0 ... 170 mbar up to 0 ... 600 bar

The precision pressure transmitters DMP 331i and DMP 333i as well as the precision screw-in transmitter LMP 331i represent the further development of our approved standard transmitters for industrial use.

The signal processing of the sensor signal occurs about a digital amplifier with 16-bit A/D and D/A conversion. Now it's possible to compensate actively the sensor specific deviations like nonlinearity and thermal effects. You will get pressure transmitters with excellent technical features at an extraordinary price.

The precision transmitter can be delivered with communication interface and Exversion.

Typical areas of use are:

DMP 331i / DMP 333i:

- process control
- laboratory applications
- gas consumption and calorimetric measurements

LMP 331i:

- tank level measurement of neutral and aggressive fluids
- chemical, pharmaceutical and foodstuff industry
- water and sewage treatment

- accuracy
 0.05 % FSO BFSL
 (0.1 % FSO IEC 60770)
- thermal error for offset and span in compansated range -20 ... 80 °C: 0.2 % FSO, average TC 0.02 % FSO / 10 K
- output signal
 4 ... 20 mA / 2-wire or
 0 ... 10 V / 3-wire
- option: communication interface for adjusting of offset, span, and damping
- ▶ good long term stability
- option Ex version (only for 4 ... 20 mA / 2-wire) TÜV 03 ATEX 2006 X
- customer specific versions:
 - special pressure ranges
 - other versions on request





Characteristics

Input pressure r	ang	е									
DMP 331i ¹											
Pressure ranges											
Nominal pressure gauge	[bar]	0 0.17	0	. 0.35	0 1	0) 2	0 7	0 17	'	0 35
Nominal pressure abs.	[bar]	-	0	. 0.35	0 1	0) 2	0 7	0 17	'	0 35
Permissible overpressure	[bar]	0.5		1	3		6	20	60		100
Vacuum ranges											
Nominal pressure gauge	[bar]	-0.170.	17	-0.35	0.35	-1	1 1	-1	2		-1 7
Permissible overpressure	[bar]	0.5			1		3	6			20
DMP 333i ¹											
Nominal pressure gauge ²	[bar]	0	70		0 17	0	(350		0.	600
Nominal pressure abs.	[bar]	0	70		0 17	0		350		0.	600
Permissible overpressure	[bar]	140)		340			600		1	000
LMP 331i											
Nominal pressure gauge	[bar]	0 0.17	0	0.35	0 1		0 2	0 7	0	17	0 35
Level [r	nWC]	0 1.7	0	3.5	0 10)	0 20	0 70	0 1	70	0 350
Permissible overpressure	[bar]	0.5		1	3		6	20	60		100

Output signal / Sup	pply			
Standard	2-wire:	4 20 mA / V _s = 12 36 V _{pc}	Ex-protection:	V _s = 14 28 V _{DC}
Optional	2-wire:	4 20 mA with communication interface ³		-
	3-wire:	$0 \dots 10 \text{ V} / \text{V}_{\text{s}} = 14 \dots 36 \text{ V}_{\text{DC}}$		
	3-wire:	0 10 V with communication interface ³		

Performance		
Accuracy performance after turn-down (TD) - TD < 1:5	IEC 60770 ⁴ : ≤± 0.1 % FSO no change of accuracy ⁵	BFSL: ≤± 0.05 % FSO
- TD > 1:5	for calculation use the following formula (for no $\leq \pm [0.1 + 0.015 \text{ x}]$ (nominal range / adjusted range.g. with a turn-down of 1:10 following accuracy $\leq \pm (0.1 + 0.015 \text{ x})$ 10) % FSO i.e. accuracy is $\leq \pm$	ge)] % FSO y is calculated:
Permissible load	current 2-wire: $R_{max} = [(V_s - V_{s min}) / 0.02] \Omega$ 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 Response time	$\leq \pm$ (0.1 x nominal range / adjusted range) % FS approx. 40 ms	O / year
Adjustability	configuration of following parameters possible - electronical damping: 0 100 s - offset: 0 90 % FSO - turn down of span: max. 1:10	(interface / software necessary ⁶):

Thermal errors (Offse	t and Span)
Tolerance band	≤± (0.2 x nominal range / adjusted range) % FSO
TC, average	± (0.02 x nominal range / adjusted range) % FSO / 10 K
in compensated range	- 20 80 °C

only possible with el. connection Binder serie 723 (7pin)

.

¹ pressure ranges ≤ 40 bar as DMP 331i; pressure ranges > 40 bar as DMP 333i

measurement starts with ambient pressure

accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

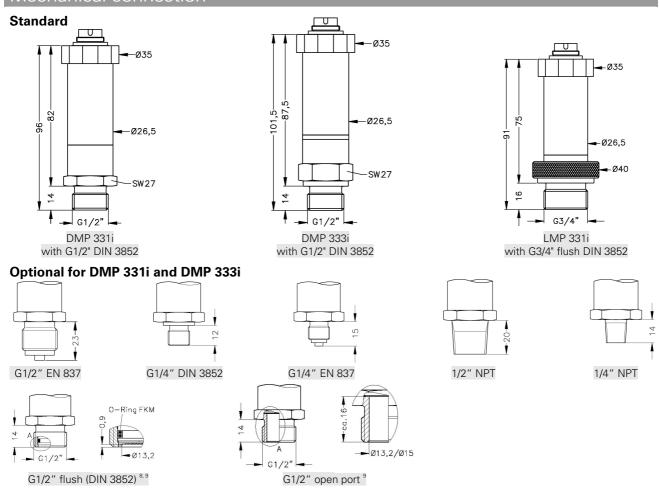
⁶ software, interface, and cable have to be ordered separately (software appropriate for Windows® 95, 98, 2000, NT Version 4.0 or higher, and XP)

Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission an immunity according to EN 61326
Option Ex-protection only with 4 20 mA / 2-wire DX13-DMP 331i / DX13-DMP 333i / DX13-LMP 331i	zone 0 7 : II 1 G EEx ia IIC T4 zone 20: II 1 D T 85°C safety technical maximum values: U $_i$ = 28 V, I $_i$ = 93 mA, P $_i$ = 660 mW, C $_i$ ≤ 1nF, L $_i$ ≤ 10 μ H

Mechanical stability	
Vibration	10 g RMS (20 2000 Hz)
Shock	100 g / 11 ms

Permissible tempe	ratures				
Medium	-25 125 °C				
Electronics / environment	-25 85 °C	Ex-protection:	application in zone 0: application in zone 1 or higher	-20 60 °C r: -25 70 °C	
Storage	-40 100 °C				

Mechanical connection

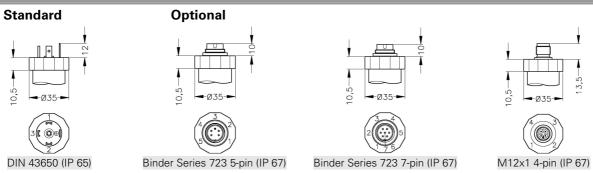


⁷ approved for atmospheric pressure from 0.8 bar up to 1.1 bar

 $^{^{8}}$ not possible for nominal pressure $\rm P_{N}$ < 0.1 bar and for vacuum ranges

⁹ only possible for DMP 331i

Electrical connection



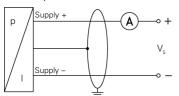
Materials			
Pressure port	stainless steel 1.4571 (316Ti)		
Housing	stainless steel 1.4301 (304)		
Seals (media wetted)	DMP 331i / LMP 331i: FKM optional: welded version ¹⁰ ; others on request	DMP 333i:NBR	
Diaphragm	stainless steel 1.4435 (316L)	stainless steel 1.4435 (316L)	
Media wetted parts	pressure part, seals, diaphragm		

Miscellaneous		
Current consumption	3	ax. 25 mA ax. 7 mA
Weight	approx. 180 200 g	
Installation position	any 11	
Operation life	> 100 x 10 ⁶ cycles	

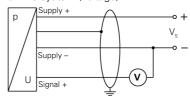
Pin configu	ıration				
Electrical connecti	on	DIN 43650	Binder 723 (5-pin)	Binder 723 (7-pin)	M12x1 (4-pin)
2-wire-system	Supply + Supply –	1 2	3 4	3 1	1 2
	Ground	ground pin	5	2	4
3-wire-system	Supply + Supply - Signal +	1 2 3	3 4 1	3 1 6	1 2 3
	Ground	ground pin	5	2	4
Communication interface 12	RxD TxD GND	-	- - -	4 5 7	- - -

Wiring diagram

2-wire-system (current)



3-wire-system (voltage)



 $^{^{10}}$ welded version only with pressure ports according to EN 837; welded version not available with pressure ranges ≤ 0.16 bar and > 40 bar

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BD SENSORS

This data sheet contains product specification, properties are not guaranteed. Subject to change without notice

DMPi_E_010706

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.

may not be transmitted directly with the PC (the suitable adapter "Adapt 1" is available as accessory)



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

Ordering Code DMP 331i/ DMP 333i/ LMP 331i

In base A 3 0 0 0 0 0 0 0 0 0		
Section		
account of the property of the		1 1 0
Section Sect	absolute	
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Common		4 3 0
For DMP 3311		4 3 1
3.5 0.35 3 5 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	or DMP 331i ² or LMP 331i	
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170		
350 3 5 0 3 3 4 4 4 4 4 4 4 4		7 0 0 2
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-0.55	or DMP 331i	
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0 10 V / 3-wire 9		1
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Binder series 7/23 (7-pin)	Binder series 723 (5-pin)	
Binder series 7/3 (7-pin)		$A \mid 0 \mid 0 \mid 1 \mid 1$
Mechanical connection	Binder series 723 (7-pin) M12x1 (4-pin)	
Gr DMP 331i or DMP 338i G1/2" EN 837 G1/2" EN 837 G1/4" EN 837 G1/4" EN 837 G1/2"		9 9 9
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¹ measurement starts with ambient pressure



This

² pressure ranges ≤ 40 bar as DMP 331i; pressure ranges > 40 bar as DMP 333i

 $^{^3}$ Mechanical connection G1/2" DIN 3852 flush impossible for nominal pressure PN < 0.1 bar and for vacuum ranges

⁴ only possible for DMP 331i

 $^{^{5}}$ welded version only with pressure ports according to EN 837; not possible with pressure ranges \leq 0.16 bar and > 40 bar

⁶ RS-232 interface only possible with el. connection Binder serie 723 (7pin)

Software, Interface and cable for DMP 331i, DMP 333i and LMP 331i with option RS-232 have to be order separately (Order.-Nr.: I-232; Software appropriate for Windows $^{\odot}$ 95, 98, 2000, NT Version 4.0 or newer and XP)