



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.

They are designed for universal use in industry at high standards for accuracy and stability.

The basic mechanical construction is adequate to the standard versions. A completely new developed digital amplifier based on a microprocessor unit and a 16-bit A/D converter replaces the conventional analogue amplifier. 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.

Typical areas of use are:

DMP 331i / DMP 333i:

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

LMP 331i:

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

- ▶ **accuracy** (at nominal range)
0.05 % FSO BFSL
(0.1 % FSO IEC 60770)
- ▶ **thermal error for offset and span in temperature range -20 ... 80 °C:**
0.2%FSO, average TC 0.02%FSO/°C
(at nominal pressure)
- ▶ output signal 4 ... 20 mA / 2-wire
- ▶ option: digital interface RS-232 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



DMP 331i / DMP 333i / LMP 331i
Precision Pressure Transmitter

Pressure - Temperature - Level - Flow - Analytical - Control - Indication - Logging

Input pressure range

DMP 331i¹

Nominal pressure gauge	[bar]	-1 ... 0	0.17	0.35	1	2	7	17	35
Nominal pressure abs.	[bar]	-	-	0.35	1	2	7	17	35
Permissible overpressure	[bar]	3	0.5	1	3	4	20	60	100

DMP 333i¹

Nominal pressure gauge ²	[bar]	70	170	350	600
Nominal pressure abs.	[bar]	70	170	350	600
Permissible overpressure	[bar]	140	340	600	1000

LMP 331i

Nominal pressure gauge	[bar]	0.17	0.35	1	2	7	17	35
Level	[mWs]	1.7	3.5	10	20	70	170	350
Permissible overpressure	[bar]	0.5	1	3	4	20	60	100

Output signal / Supply

Standard	2-wire:	4 ... 20 mA / U _B = 12 ... 36 V _{DC}	Ex-protection:	U _B = 14 ... 28 V _{DC}
Optional	2-wire:	4 ... 20 mA with digital interface RS-232 ³ for adjusting the following parameters (interface / software necessary ⁴): offset: 0 ... 80 % FSO turn down of span: 1:10 damping: 0 ... 99.9 s		
	3-wire:	0 ... 10 V (on request)		

Performance

Accuracy	IEC 60770 ⁵ : $\leq \pm 0.1$ % FSO	BFSL: $\leq \pm 0.05$ % FSO relating to nominal range
Permissible load	$R_{max} = [(V_S - V_{Smin}) / 0.02] \Omega$	
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / k Ω	
Long term stability	$\leq \pm (0.1 \times \text{nominal range} / \text{adjusted range})$ % FSO / year	
Response time	approx. 40 ms	

Thermal errors (Offset and Span)

Tolerance band	$\leq \pm (0.2 \times \text{nominal range} / \text{adjusted range})$ % FSO
TC, average	$\pm (0.02 \times \text{nominal range} / \text{adjusted range})$ % FSO / 10 K
in compensated range	- 20 ... 80 °C

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 DX13-DMP 331i / DX13-DMP 333i / DX13-LMP 331i	zone 0: II 1 G EEx ia IIC T4 (only with 4 ... 20 mA / 2-wire) zone 20: II 1 D T 85°C (only with 4 ... 20 mA / 2-wire) safety technical maximum values: V _i = 28 V, I _i = 93 mA, P _i = 660 mW, C _i \leq 1 nF, L _i \leq 10 μ H

Mechanical stability

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

¹ pressure ranges \leq 40 bar as DMP 331i; pressure ranges $>$ 40 bar as DMP 333i

² measurement starts with ambient pressure

³ RS-232 interface only possible with el. connection Binder serie 723 (7pin))

⁴ software, interface, and cable have to be ordered separately (ordering no.: I-232; software appropriate for Windows[®] 95, 98, 2000, NT Version 4.0 or higher, and XP)

⁵ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability) relating to nominal range

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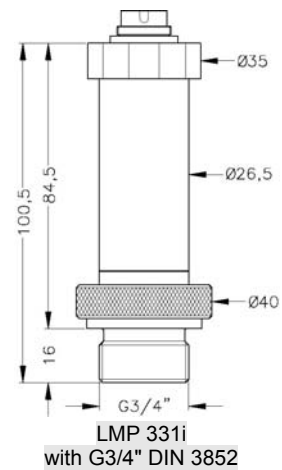
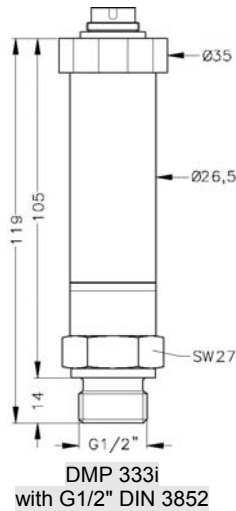
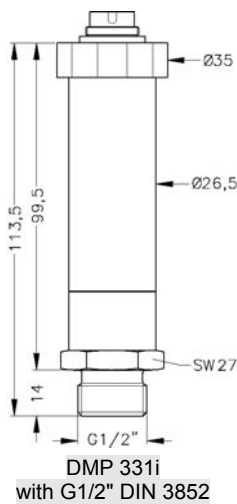
Pressure - Temperature - Level - Flow - Analytical - Control - Indication - Logging

Permissible temperatures

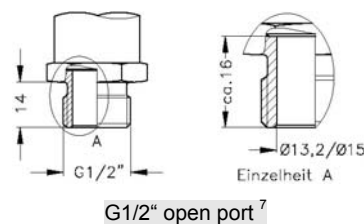
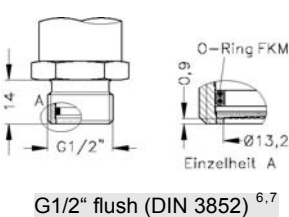
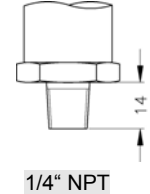
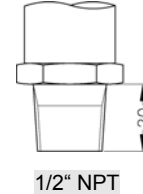
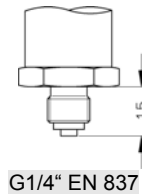
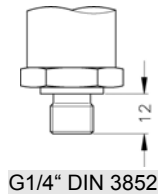
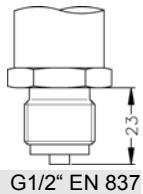
Medium	-25 ... 125 °C
Electronics / environment	-25 ... 85 °C
Storage	-40 ... 100 °C

Mechanical connection

Standard

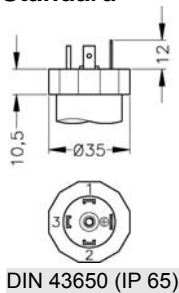


Optional for DMP 331i and DMP 333i

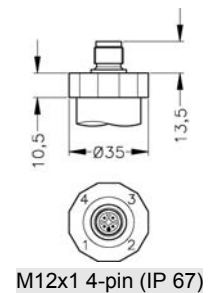
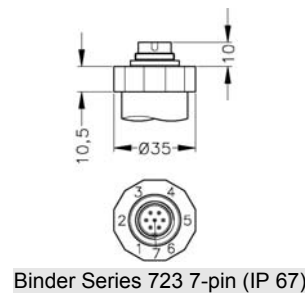
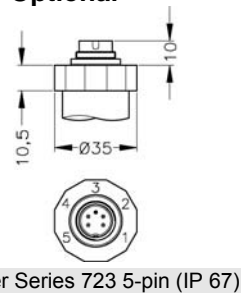


Electrical connection

Standard



Optional



⁶ impossible for nominal pressure $P_N < 0.1$ bar and for vacuum ranges
⁷ only possible for DMP 331i

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Materials

Pressure port	stainless steel 1.4571 (316Ti)
Housing	stainless steel 1.4301 (304)
Seals (media wetted)	DMP 331i / LMP 331i: FKM DMP 333i: NBR optional: welded version ⁸ ; others on request
Diaphragm	stainless steel 1.4435 (316L)
Media wetted parts	pressure part, seals, diaphragm

Miscellaneous

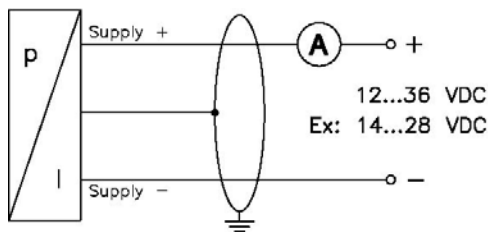
Current consumption	max. 25 mA
Weight	approx. 180 ... 200 g
Installation position	any ⁹
Operation life	> 100 x 10 ⁶ cycles

Pin configuration

Electrical connection		DIN 43650	Binder 723 (5-pin)	Binder 723 (7-pin)	M12x1 (4-pin)
2-wire-system	Supply +	1	3	3	1
	Supply -	2	4	1	2
	Ground	ground pin	5	2	4
RS-232	RxD	-	-	4	-
	TxD	-	-	5	-
	CTS	-	-	6	-
	GND	-	-	7	-

Wiring diagram

2-wire-system (current)



⁸ welded version only with pressure ports according to EN 837; welded version not available with pressure ranges ≤ 0.16 bar and > 40 bar

⁹ 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 $P_N \leq 1$ bar.

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