



DMP 331i / DMP333i LMP 331 i

Precision Pressure Transmitter / Screw-in transmitter

Stainless Steel Sensor

accuracy according to EN IEC 62828-2: 0.1 % span

Nominal pressure

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

Output signal

2-wire: 4 ... 20 mA

3-wire: 0 ... 10 V (only for DMP 331i

and LMP 331i) others on request

Product characteristics

- thermal error in compensated range -20 ... 80 °C: 0.2 % span TC 0.02 % span / 10K
- turn:down 10:1
- 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 gauges (factory-provided)

The precision pressure transmitter DMP 331i and DMP 333i as well as the precision screw-in level probe LMP 331i demonstrate the further development of our industrial pressure transmitters.

The signal of the sensor is processed by the intelligent digital electronics with 16-bit A/D converter which is able to do an active temperature compensation and linearization. Due to this we are able to offer the transmitters with excellent measurement parameters and exceptionally attractive price.

Preferred areas of use are DMP 331i / DMP 333i



Laboratory Techniques



Energy production (gas consumption and thermal energy measurement)

Preferred areas of use are LMP 331i



Chemical / petrochemical industry



Environmental Engineering (water / sewage / recycling)

















Precision Pressure Transmitter / Screw-in Transmitter

Pressure ranges DMP	331 i ¹							
Nominal pressure gauge / absolute	[bar] [bar]	0.4	1	2	4	10	20	40
Overpressure	[bar]	2	5	10	20	40	80	105
Burst pressure	[bar]	3	7,5	15	25	50	120	210
¹ On customer request we a	adjust the device	within the tur	n-down-possibil	ity by software o	n the required p	ressure range.		

Vacuum ranges						
Nominal pressure	[bar]	-0.4 0.4	-1 1	-1 2	-1 4	-1 10
Overpressure	[bar]	2	5	10	20	40
Burst pressure	[bar]	3	7.5	15	25	50

Pressure ranges DMP	333 i ¹					
Nominal pressure	[bar]	60	100	200	400	600
gauge / absolute	[bar]	00	100	200	400	000
Overpressure	[bar]	210	210	600	1000	1000
Burst pressure	[bar]	420	420	1000	1250	1250
¹ On customer request we a	adiust the device v	within the turn-down	n-possibility by software	on the required pressu	ıre range.	

Pressure ranges LMF	² 331 i ¹							
Nominal pressure		0.4	4	2	4	10	20	40
gauge	[bar]	0.4	ļ .		4	10	20	40
Level gauge	[mH ₂ O]	4	10	20	40	100	200	400
Overpressure [bar] 2 5 10 20 40 80 105								
Burst pressure	[bar]	3	7.5	15	25	80	120	210
1 On customer request we	adjust the device	ce within the tur	n_down_nossihil	ity by software o	n the required n	reccure range		

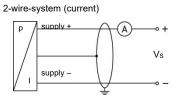
Standard	,	the watting the tarm down possibility by software on the required pressure range.
Option IS-protection 2-wire: 4 20 mA / W _S = 14 28 V _{DC} Options analog signal 2-wire: 4 20 mA with communication interface ² 3-wire**: 0 10 V / V _S = 14 36 V _{DC} * only for DMP 3311 and LMP 3311 ² only possible with el. connection Binder series 723 (7-pin) Performance Accuraço³ ≤ ± 0.1 % span performance after turn-down - TD > 5:1 - TD > 5:1 for calculation use the following formula (for nominal pressure ranges ≤ 0.40 bar see note 5): ≤ ± [0.1 + 0.015 x turn-down] % span with turn-down en nominal pressure range / adjusted range e.g. with a turn-down of 10:1 following accuracy is calculated: ≤ ± [0.1 + 0.015 x 10) % span l.e. accuracy is ≤ ± 0.25 % span with turn-down of 10:1 following accuracy is calculated: ≤ ± (0.1 + 0.015 x 10) % span l.e. accuracy is ≤ ± 0.25 % span / kΩ Permissible load current 2-wire: R _{min} = (10 kΩ v) Influence effects supply: 0.05 % span / 10 V load: 0.05 % span / kΩ Long term stability ≤ ± (0.1 x turn-down) % span / year Response time current output 420 ma (2-wire) 5ms 5ms Adjustability configuration of following parameters possible (interface / software necessary s): -electronic damping: 0 100 sec -offset: 0 90 % span - turn down of span: max. 101 <th>Output signal / Supply</th> <th></th>	Output signal / Supply	
	Standard	2-wire: 4 20 mA / $V_S = 12$ 36 V_{DC}
	Option IS-protection	
3-wire*: 0 10 V / V _s = 14 36 V _{DC} 0 10 V with communication interface ² * only for DMP 3311 and LMP 3311 * only possible with el. connection Binder series 723 (7-pin) Performance Accuracy³ Accuracy³ 5 ± 0.1 % span * on change of accuracy 4 for calculation use the following formula (for nominal pressure ranges ≤ 0.40 bar see note 5): 5 ± (0.1 + 0.015 x turn-down) % span with turn-down = nominal pressure range / adjusted range e.g. with a turn-down of 10:1 following accuracy is calculated: 5 ± (0.1 + 0.015 x 10) % span i.e. accuracy is ± 0.25 % span Permissible load current 2-wire: R _{max} = [(V _S = V _S min) / 0.02 A] Ω voltage 3-wire: R _{min} = 10 kΩ Influence effects supply: 0.05 % span / 10 V load: 0.05 % span / kΩ Long term stability ≤ ± (0.1 x turn-down) % span / year Current output 420 mA (2-wire) 5ms voltage output 0 10 V 25 ms Adjustability configuration of following parameters possible (interface / software necessary ⁵): - electronic damping: 0 100 sec - offset: 0 30 % span - turn down of span: max. 10:1 * accuracy according to EN IEC 62828-2- limit point adjustment (non-linearity, hysteresis, repeatability) * accuracy according to EN IEC 60282-2- limit point adjustment (non-linearity, hysteresis, repeatability) * accuracy according to EN IEC 60282-2- limit point adjustment (non-linearity, hysteresis, repeatability) * accuracy according to EN IEC 60282-2- limit point adjustment (non-linearity, hysteresis, repeatability) * accuracy according to EN IEC 60282-2- limit point adjustment (non-linearity, hysteresis, repeatability) * accuracy according to EN IEC 60282-2- limit point adjustment (non-linearity, hysteresis, repeatability) * accuracy according to EN IEC 60282-2- limit point adjustment (non-linearity, hysteresis, repeatability) * accuracy according to EN IEC 60282-2- limit point adjustment (non-linearity, hysteresis, repeatability) * accuracy according to EN IEC 60282-2- limit point adjustment (non-linearity, hysteresis, repeatability) * accuracy accor	Options analog signal	2-wire: 4 20 mA with communication interface ²
* only for DMP 331i and LMP 331i 2 only possible with et. connection Binder series 723 (7-pin) Performance Accuracy³	3 3	
Porformance S ± 0.1 % span Accuracy³ ≤ ± 0.1 % span performance after turn-down - TD ≤ 5:1 - TD > 5:1 no change of accuracy ⁴ for calculation use the following formula (for nominal pressure ranges ≤ 0.40 bar see note 5): ≤ ± [0.1 + 0.015 x turn-down] % span with turn-down = nominal pressure range / adjusted range e.g. with a turn-down of 10:1 following accuracy is ≤ ± 0.25 % span Permissible load current 2-wire: R _{max} = [(V _S − V _S min) / 0.02 A] Ω voltage 3-wire: R _{min} = 10 kΩ Influence effects supply: 0.05 % span / 10 V load: 0.05 % span / kΩ Long term stability ≤ ± (0.1 x turn-down) % span / year Response time current output 420 mA (2-wire) 5ms voltage output 0 10 V 25 ms Adjustability configuration of following parameters possible (interface / software necessary 5): - electronic damping: 0 100 sec - offset: 0 90 % span - turn down of span: max. 10:1 ³ accuracy according to EN IEC 62828-2- limit point adjustment (non-linearity, hysteresis, repeatability) ⁴ except nominal pressure ranges ≤ 0.40 bar, for these calculation of accuracy is as follows: ≤ ± 0.1 + 0.02 x 1 mm span in accuracy is ≤ ± 0.16 % span * sylone, interface, and cable have to be ordered separately (software appropriate for Windows® 95, 98, 2000, NT Version 4.0 or higher, and XP) Thermal effects (Offset and Span) / Permissible temperatures Tolerance band [% span] 10 k] ± (0.0		0 10 V with communication interface ²
Accuracy³	* only for DMP 331i and LMP 331i	
Accuracy³ performance after turn-down - TD ≤ 5:1	² only possible with el. connection Binder	series 723 (7-pin)
performance after turn-down - TD $\leq 5:1$ no change of accuracy 4 for calculation use the following formula (for nominal pressure ranges ≤ 0.40 bar see note 5): $\leq \pm [0.1 + 0.015 \times \text{turn-down}]$ % span with turn-down = nominal pressure range adjusted range e.g. with a turn-down of 10:1 following accuracy is calculated: $\leq \pm (0.1 + 0.015 \times 10)$ % span e. accuracy is $\leq \pm 0.25$ % span Permissible load current 2-wire: $R_{\text{max}} = [(V_s - V_s \text{min}) / 0.02 \text{ A}] \Omega$ voltage 3-wire: $R_{\text{min}} = 10 \text{ k}\Omega$ Influence effects supply: 0.05 % span / 10 V load: 0.05 % span / 10 V 0.05 % span / 10 S 0.05 S	Performance	
- TD ≤ 5:1 - TD > 5:	Accuracy ³	≤ ± 0.1 % span
For calculation use the following formula (for nominal pressure ranges ≤ 0.40 bar see note 5): ≤ ± [0.1 + 0.015 x turn-down] % span with turn-down = nominal pressure range / adjusted range e.g. with a turn-down of 10:1 following accuracy is calculated: ≤ ± (0.1 + 0.015 x 10) % span i.e. accuracy is ≤ ± 0.25 % span Permissible load current 2-wire: $R_{max} = [(V_S - V_S \min) / 0.02 A] \Omega$ voltage 3-wire: $R_{min} = 10 \text{ k}\Omega$ Influence effects supply: 0.05 % span / 10 V load: 0.05 % span / kΩ Long term stability ≤ ± (0.1 x turn-down) % span / year current output 420 mA (2-wire) 5ms voltage output 0 10 V 25 ms Adjustability configuration of following parameters possible (interface / software necessary 5): - electronic damping: 0 100 sec - offset: 0 90 % span - turn down of span: max. 10:1 *accuracy according to EN IEC 62828-2- limit point adjustment (non-linearity, hysteresis, repeatability) *except nominal pressure ranges ≤ 0.40 bar, for these calculation of accuracy is as follows: ≤ ± (0.1 + 0.02 x turn-down) % span e.g. turn-down of 3:1: ≤ ± (0.1 + 0.02 x 3) % span i.e. accuracy is ≤ ± 0.16 % span * software, interface, and cable have to be ordered separately (software appropriate for Windows* 95, 98, 2000, NT Version 4.0 or higher, and XP) Thermal effects (Offset and Span) / Permissible temperatures Tolerance band [% span] ≤ ± (0.02 x turn-down) in compensated range -20 80 °C TC, average [% span / 10 K] ± (0.02 x turn-down) in compensated range -20 80 °C Permissible temperatures medium: -25 125 °C electronics / environment: -25 85 °C storage: -40 100 °C Electrical protection permanent no damage, but also no function	performance after turn-down	
S ± [0.1 + 0.015 x turn-down] % span with turn-down = nominal pressure range / adjusted range e.g. with a turn-down of 10:1 following accuracy is calculated: ≤ ± (0.1 + 0.015 x 10) % span i.e. accuracy is ≤ ± 0.25 % span Permissible load current 2-wire: R _{max} = [(V _S − V _S min) / 0.02 A] Ω voltage 3-wire: R _{min} = 10 kΩ Influence effects supply: 0.05 % span / 10 V load: 0.05 % span / kΩ Long term stability Es ± (0.1 x turn-down) % span / year current output 420 mA (2-wire) 5ms voltage output 0 10 V 25 ms Adjustability configuration of following parameters possible (interface / software necessary ⁵): - electronic damping: 0 10 o sec - offset: 0 90 % span - turn down of span: max. 10:1 *accuracy according to EN IEC 62828-2- limit point adjustment (non-linearity, hysteresis, repeatability) *except nominal pressure ranges ≤ 0. 40 bar, for these calculation of accuracy is as follows: ≤ ± (0.1 + 0.02 x turn-down) % span e.g. turn-down of 3:1: ≤ ± (0.1 + 0.02 x 3) % span i.e. accuracy is ≤ ± 0.16 % span *software, interface, and cable have to be ordered separately (software appropriate for Windows® 95, 98, 2000, NT Version 4.0 or higher, and XP) Thermal effects (Offset and Span) / Permissible temperatures Tolerance band [% span] ≤ ± (0.2 x turn-down) in compensated range -20 80 °C TC, average [% span / 10 K] ## Exploration in compensated range -20 80 °C ## Electrical protection Reverse polarity protection Reverse polarity protection Reverse polarity protection	- TD ≤ 5:1	no change of accuracy ⁴
	- TD > 5:1	for calculation use the following formula (for nominal pressure ranges ≤ 0.40 bar see note 5):
$\begin{array}{c} \text{e.g. with a turn-down of } 10:1 \text{ following accuracy is } \text{calculated:} \\ \leq \pm (0.1 + 0.015 \times 10) \text{ % span i.e. accuracy is } \leq \pm 0.25 \text{ % span} \\ \text{Permissible load} \\ \text{Influence effects} \\ \text{supply:} 0.05 \text{ % span / 10 V} \\ \text{load:} 0.05 \text{ % span / k}\Omega \\ \text{Long term stability} \\ \text{Seponse time} \\ \text{Current output} \\ \text{Supply:} 0.05 \text{ % span / 10 V} \\ \text{Seponse time} \\ \text{Current output} \\ \text{Current output} \\ \text{Supply:} 0.05 \text{ % span / 10 V} \\ \text{Seponse time} \\ \text{Current output} \\ \text{Current output} \\ \text{Supply:} 0.05 \text{ % span / 10 V} \\ \text{Current output} \\ \text{Current output} \\ \text{Supply:} 0.05 \text{ % span / 2-wire}) \\ \text{Sms} \\ \text{Voltage output} \\ \text{Output on ind pressure ranges } \text{Current output} \\ \text{Configuration of following parameters possible (interface / software necessary 5):} \\ \text{Supply:} 0.00 \text{ % span} \\ \text{Supply:} 0.00 \text{ % span} \\ \text{Current output} 0.00 \text{ sec} \\ \text{Supply:} 0.00 \text{ % span} \\ \text{Supply:} 0.00 \text{ % span} \\ \text{Current own of span:} 0.00 \text{ sec} \\ \text{Supply:} 0.00 \text{ sec} \\ \text{Supply:} 0.00 \text{ % span} \\ \text{Supply:} 0.00 \text{ % span} \\ \text{Current own of span:} 0.00 \text{ sec} \\ \text{Supply:} 0.00 \text{ sec} \\ \text{Supply:} 0.00 \text{ % span} \\ \text{Supply:} 0.00 \text{ % span} \\ \text{Current own of span:} 0.00 \text{ sec} \\ \text{Supply:} 0.00 \text{ % span} \\ \text{Current own of span:} 0.00 \text{ sec} \\ \text{Supply:} 0.00 \text{ % span} \\ Supply:$		
Permissible load 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: $0.05 \% \text{ span } / 10 \text{ V}$ load: $0.05 \% \text{ span } / \text{ k}\Omega$ Long term stability $\leq \pm (0.1 + \text{km} - \text{km}) \% \text{ span } / s$		with turn-down = nominal pressure range / adjusted range
Permissible load 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: $0.05 \text{ % span } / 10 \text{ V}$ load: $0.05 \text{ % span } / \text{ k}\Omega$ Long term stability $\leq \pm (0.1 \times \text{turn-down}) \text{ % span } / \text{ span } / sp$		e.g. with a turn-down of 10:1 following accuracy is calculated:
Influence effects Supply: 0.05 % span / 10 V load: 0.05 % span / kΩ Long term stability ≤ ± (0.1 x turn-down) % span / year current output 420 mA (2-wire) 5ms voltage output 0 10 V 25 ms Adjustability configuration of following parameters possible (interface / software necessary 5): - electronic damping: 0 100 sec - offset: 0 90 % span - turn down of span: max. 10:1 3 accuracy according to EN IEC 62828-2- limit point adjustment (non-linearity, hysteresis, repeatability) 4 except nominal pressure ranges ≤ 0. 40 bar; for these calculation of accuracy is as follows: ≤ ± (0.1 + 0.02 x turn-down) % span e.g. turn-down of 3:1: ≤ ± (0.1 + 0.02 x 3) % span i.e. accuracy is ≤ ± 0.16 % span 5 software, interface, and cable have to be ordered separately (software appropriate for Windows® 95, 98, 2000, NT Version 4.0 or higher, and XP) Thermal effects (Offset and Span) / Permissible temperatures Tolerance band [% span] ≤ ± (0.2 x turn-down) in compensated range -20 80 °C TC, average [% span / 10 K]		≤ ± (0.1 + 0.015 x 10) % span i.e. accuracy is ≤ ± 0.25 % span
Long term stability S ± (0.1 x turn-down) % span / year current output 420 mA (2-wire) 5ms voltage output 0 10 V 25 ms Adjustability configuration of following parameters possible (interface / software necessary 5): - electronic damping: 0 100 sec - offset: 0 90 % span - turn down of span: max. 10:1 3 accuracy according to EN IEC 62828-2- limit point adjustment (non-linearity, hysteresis, repeatability) 4 except nominal pressure ranges ≤ 0 .40 bar; for these calculation of accuracy is as follows: ≤ ± (0.1 + 0.02 x turn-down) % span e.g. turn-down of 3:1: ≤ ± (0.1 + 0.02 x 3) % span i.e. accuracy is ≤ ± 0.16 % span 5 software, interface, and cable have to be ordered separately (software appropriate for Windows® 95, 98, 2000, NT Version 4.0 or higher, and XP) Thermal effects (Offset and Span) / Permissible temperatures Tolerance band [% span] ≤ ± (0.2 x turn-down) in compensated range -20 80 °C TC, average [% span / 10 K] ± (0.02 x turn-down) in compensated range -20 80 °C Permissible temperatures medium: -25 125 °C electronics / environment: -25 85 °C storage: -40 100 °C Electrical protection Short-circuit protection permanent no damage, but also no function	Permissible load	current 2-wire: $R_{max} = [(V_S - V_S min) / 0.02 A] \Omega$ voltage 3-wire: $R_{min} = 10 k\Omega$
Response time current output 420 mA (2-wire) 5ms voltage output 0 10 V 25 ms Adjustability configuration of following parameters possible (interface / software necessary 5): - electronic damping: 0 100 sec - offset: 0 90 % span - turn down of span: max. 10:1 3 accuracy according to EN IEC 62828-2- limit point adjustment (non-linearity, hysteresis, repeatability) 4 except nominal pressure ranges ≤ 040 bar; for these calculation of accuracy is as follows: ≤ ± (0.1 + 0.02 x turn-down) % span e.g. turn-down of 3:1: ≤ ± (0.1 + 0.02 x 3) % span i.e. accuracy is ≤ ± 0.16 % span 5 software, interface, and cable have to be ordered separately (software appropriate for Windows® 95, 98, 2000, NT Version 4.0 or higher, and XP) Thermal effects (Offset and Span) / Permissible temperatures Tolerance band [% span] ≤ ± (0.2 x turn-down) in compensated range -20 80 °C TC, average [% span / 10 K] ± (0.02 x turn-down) in compensated range -20 80 °C Permissible temperatures medium: -25 125 °C electronics / environment:-25 85 °C storage: -40 100 °C Electrical protection Short-circuit protection permanent Reverse polarity protection no damage, but also no function	Influence effects	supply: 0.05 % span / 10 V load: 0.05 % span / kΩ
Adjustability configuration of following parameters possible (interface / software necessary 5): - electronic damping: 0 100 sec - offset: 0 90 % span - turn down of span: max. 10:1 3 accuracy according to EN IEC 62828-2- limit point adjustment (non-linearity, hysteresis, repeatability) 4 except nominal pressure ranges ≤ 0 .40 bar; for these calculation of accuracy is as follows: ≤ ± (0.1 + 0.02 x turn-down) % span e.g. turn-down of 3:1: ≤ ± (0.1 + 0.02 x 3) % span i.e. accuracy is ≤ ± 0.16 % span 5 software, interface, and cable have to be ordered separately (software appropriate for Windows® 95, 98, 2000, NT Version 4.0 or higher, and XP) Thermal effects (Offset and Span) / Permissible temperatures Tolerance band [% span] ≤ ± (0.2 x turn-down) in compensated range -20 80 °C TC, average [% span / 10 K] ± (0.02 x turn-down) in compensated range -20 80 °C Permissible temperatures medium: -25 125 °C electronics / environment: -25 85 °C storage: -40 100 °C Electrical protection Short-circuit protection Reverse polarity protection permanent Reverse polarity protection no damage, but also no function	Long term stability	≤ ± (0.1 x turn-down) % span / year
Adjustability configuration of following parameters possible (interface / software necessary ⁵): - electronic damping: 0 10 v sec - offset: 0 90 % span - turn down of span: max. 10:1 ³ accuracy according to EN IEC 62828-2− limit point adjustment (non-linearity, hysteresis, repeatability) ⁴ except nominal pressure ranges ≤ 0 .40 bar; for these calculation of accuracy is as follows: ≤ ± (0.1 + 0.02 x turn-down) % span e.g. turn-down of 3:1: ≤ ± (0.1 + 0.02 x 3) % span i.e. accuracy is ≤ ± 0.16 % span ⁵ software, interface, and cable have to be ordered separately (software appropriate for Windows® 95, 98, 2000, NT Version 4.0 or higher, and XP) Thermal effects (Offset and Span) / Permissible temperatures Tolerance band [% span] ≤ ± (0.2 x turn-down) in compensated range -20 80 °C TC, average [% span / 10 K] ± (0.02 x turn-down) in compensated range -20 80 °C Permissible temperatures medium: -25 125 °C electronics / environment:-25 85 °C storage: -40 100 °C Electrical protection Short-circuit protection permanent Reverse polarity protection no damage, but also no function	Decrease time	current output 420 mA (2-wire) 5ms
- electronic damping: 0 100 sec - offset: 0 90 % span - turn down of span: max. 10:1 ³ accuracy according to EN IEC 62828-2- limit point adjustment (non-linearity, hysteresis, repeatability) ⁴ except nominal pressure ranges ≤ 0.40 bar; for these calculation of accuracy is as follows: ≤ ± (0.1 + 0.02 x turn-down) % span e.g. turn-down of 3:1: ≤ ± (0.1 + 0.02 x 3) % span i.e. accuracy is ≤ ± 0.16 % span ⁵ software, interface, and cable have to be ordered separately (software appropriate for Windows® 95, 98, 2000, NT Version 4.0 or higher, and XP) Thermal effects (Offset and Span) / Permissible temperatures Tolerance band [% span] ≤ ± (0.2 x turn-down) in compensated range -20 80 °C TC, average [% span / 10 K] ± (0.02 x turn-down) in compensated range -20 80 °C Permissible temperatures medium: -25 125 °C electronics / environment:-25 85 °C storage: -40 100 °C Electrical protection Short-circuit protection permanent Reverse polarity protection no damage, but also no function	Response time	voltage output 0 10 V 25 ms
- offset: 0 90 % span - turn down of span: max. 10:1 3 accuracy according to EN IEC 62828-2- limit point adjustment (non-linearity, hysteresis, repeatability) 4 except nominal pressure ranges ≤ 0 .40 bar; for these calculation of accuracy is as follows: ≤ ± (0.1 + 0.02 x turn-down) % span e.g. turn-down of 3:1: ≤ ± (0.1 + 0.02 x 3) % span i.e. accuracy is ≤ ± 0.16 % span 5 software, interface, and cable have to be ordered separately (software appropriate for Windows® 95, 98, 2000, NT Version 4.0 or higher, and XP) Thermal effects (Offset and Span) / Permissible temperatures Tolerance band [% span] ≤ ± (0.2 x turn-down) in compensated range -20 80 °C TC, average [% span / 10 K] ± (0.02 x turn-down) in compensated range -20 80 °C Permissible temperatures medium: -25 125 °C electronics / environment: -25 85 °C storage: -40 100 °C Electrical protection Short-circuit protection permanent Reverse polarity protection no damage, but also no function	Adjustability	configuration of following parameters possible (interface / software necessary ⁵):
- turn down of span: max. 10:1 3 accuracy according to EN IEC 62828-2- limit point adjustment (non-linearity, hysteresis, repeatability) 4 except nominal pressure ranges ≤ 0.40 bar; for these calculation of accuracy is as follows: ≤ ± (0.1 + 0.02 x turn-down) % span e.g. turn-down of 3:1: ≤ ± (0.1 + 0.02 x 3) % span i.e. accuracy is ≤ ± 0.16 % span 5 software, interface, and cable have to be ordered separately (software appropriate for Windows® 95, 98, 2000, NT Version 4.0 or higher, and XP) Thermal effects (Offset and Span) / Permissible temperatures Tolerance band [% span] ≤ ± (0.2 x turn-down) in compensated range -20 80 °C TC, average [% span / 10 K] ± (0.02 x turn-down) in compensated range -20 80 °C Permissible temperatures medium: -25 125 °C electronics / environment: -25 85 °C storage: -40 100 °C Electrical protection Short-circuit protection permanent Reverse polarity protection no damage, but also no function		
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5 software, interface, and cable have to be ordered separately (software appropriate for Windows® 95, 98, 2000, NT Version 4.0 or higher, and XP) Thermal effects (Offset and Span) / Permissible temperatures Tolerance band [% span] ≤ ± (0.2 x turn-down) in compensated range -20 80 °C TC, average [% span / 10 K] ± (0.02 x turn-down) in compensated range -20 80 °C Permissible temperatures medium: -25 125 °C electronics / environment:-25 85 °C storage: -40 100 °C Electrical protection Short-circuit protection permanent Reverse polarity protection no damage, but also no function		
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in compensated range -20 80 °C TC, average [% span / 10 K] ± (0.02 x turn-down) in compensated range -20 80 °C Permissible temperatures medium: -25 125 °C electronics / environment:-25 85 °C storage: -40 100 °C Electrical protection Short-circuit protection permanent Reverse polarity protection no damage, but also no function	· · · · · · · · · · · · · · · · · · ·	·
TC, average [% span / 10 K] ± (0.02 x turn-down) in compensated range -20 80 °C Permissible temperatures medium: -25 125 °C electronics / environment:-25 85 °C storage: -40 100 °C Electrical protection Short-circuit protection permanent Reverse polarity protection no damage, but also no function	[/s span]	
in compensated range -20 80 °C Permissible temperatures medium: -25 125 °C electronics / environment:-25 85 °C storage: -40 100 °C Electrical protection Short-circuit protection permanent Reverse polarity protection no damage, but also no function	TC, average [% span / 10 K]	· · · · · ·
Electrical protection Short-circuit protection permanent Reverse polarity protection no damage, but also no function	, 5	
Short-circuit protection permanent Reverse polarity protection no damage, but also no function	Permissible temperatures	medium: -25 125 °C electronics / environment:-25 85 °C storage: -40 100 °C
Reverse polarity protection no damage, but also no function	Electrical protection	<u></u>
Reverse polarity protection no damage, but also no function	Short-circuit protection	permanent
	Reverse polarity protection	
	Electromagnetic compatibility	emission and immunity according to EN 61326

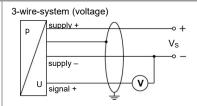
Precision Pressure Transmitter / Screw-in Transmitter

Materials	
Pressure port	stainless steel 1.4404 (316 L)
Housing	stainless steel 1.4404 (316 L)
Option field housing	stainless steel 1.4301 (304); cable gland M16x1.5, brass, nickel plated (clamping range 2 8 mm)
Seals	DMP 331i / LMP 331i: FKM
	DMP 333i: NBR
	optional: welded version ⁶
	others on request
Diaphragm	stainless steel 1.4435 (316L)
Media wetted parts	pressure port, seals, diaphragm
	orts according to EN 837; welded version not available with pressure ranges ≤ 0.16 bar and > 40 bar
Mechanical stability	
Vibration	10 g RMS (20 2000 Hz) according to DIN EN 60068-2-6
Shock	100 g / 11 msec according to DIN EN 60068-2-27
Explosion protection (only for	4 20 mA / 2-wire)
Approvals DX9-DMP 331i	IBExU10ATEX1122 X
DX9-DMP 333i	zone 0: II 1G Ex ia IIC T4 Ga
DX9-LMP 331i	zone 20: II 1D Ex ia IIIC T135°C Da
Safety technical max. values	$U_i = 28 \text{ V}, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C_i \approx 0 \text{ nF}, L_i \approx 0 \mu\text{H},$
Jaiety technical max. values	the supply connections have an inner capacity of max. 27 nF to the housing
Ambient temperature range	in zone 0: -20 60 °C with p _{atm} 0.8 bar up to 1.1 bar
	in zone 1 or higher: -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/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 Equipment Directive: 2014/68/EU (module A) ⁸
ATEX Directive	2014/34/EU
7 Programs transmitters are calibrated	in a vertical position with the property connection down. If this position is changed an installation there can be clight

 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 ≤ 1 bar.
 ⁸ This directive is only valid for devices with maximum permissible overpressure > 200 bar

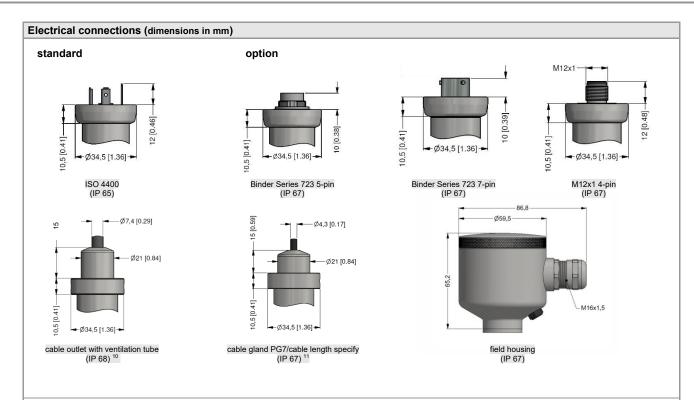
Wiring diagrams





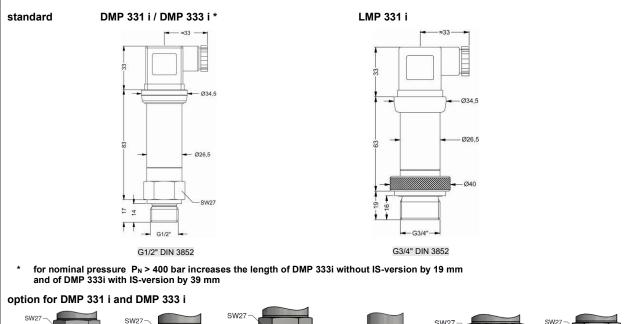
Pin configuration								
Electrical connections	ISO 4400	Binder 723 (5-pin)	Binder 723/423 (7-pin)	M12x1/ metal (4-pin)	field housing Vs- Vs- S+ GND		et MIL-C- 2 (10-6) B B A 2-wire	cable co- lours (DIN 47100)
supply +	1	3	3	1	Vs +	Α	Α	wh (white)
supply -	2 3	4	1	2	Vs –	В	D	bn (brown)
signal + (only for 3-wire	3	1	6	3	S +	-	В	gn (green)
shield	ground pin	5	2	4	GND	pressu	ure port	gn/ye (green/yel- low)
Communica- RxD	_	_	4	_	_	_	_	_
tion interface ⁹ TxD		_	5	_	_	_	_	_
GND	-	-	7	-	-	-	-	-
⁹ may not be transmitted direct	y with the PC (the	suitable adapte	r is available as	accessory)				

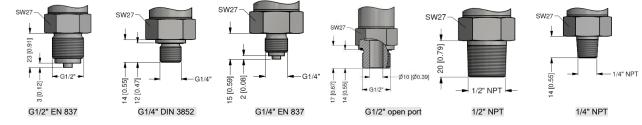
www.bdsensors.com



¹⁰ different cable types and lengths available, permissible temperature depends on kind of cable

Mechanical connection (dimensions in mm)





⇒ metric threads and others on request

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BD SENSORS® pressure measurement

¹¹ standard: 2 m PVC cable (without ventilation tube, permissible temperature: -5 ... 70 °C)

Programming kits for i-devices: CIS 510-RS232 and CIS 510-USB

CIS 510-RS232



CIS 510-USB



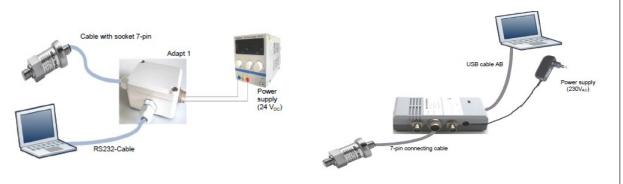
Supply V _S	for CIS 510-RS232: 24V _{DC}	
	for CIS 510-USB: 24V _{DC}	
	Programming software "Config 3.0" on CD operating manual	
Package contents	CIS 510-RS232: Adapt 1 RS-232 connecting cable (for PC) 7-pin connecting cable (for measuring device)	
	CIS 510-USB: Adapt 5 USB connecting cable (for PC) 7-pin connecting cable (for measuring device)	
System requirement	For the installation of the software, a Windows® PC (95, 98, ME, 2000, NT, XP) with se interface (RS 232) or USB-interface is required	erial

Please read the operating manual carefully before installing and starting up the programming kit.

Wiring diagrams

CIS 510-RS232:





Ordering codes

Version: Ordering code:

Adapt 1 with RS232 connecting cable for PC CIS 510-RS232

Adapt 5 with USB connecting cable for PC CIS 510-USB

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Price list DMP 33	1i							
15.01.2024								
DMP 331i	- П	$\cdot \square \cdot \square$	- 🔲	Д-	·Щ]-[]-□	П
Pressure								
Gauge (0,440 bar) Absolute (0,440 bar)	1 1 0							
Input [bar]	1 1 1 1				-			
0 0,4	4 0 0 0			т				
01	1 0 0 1							
0 2	2 0 0 1							
0 4	4 0 0 1							
0 10	1 0 0 2							ш
0 20	2 0 0 2							
0 40 -0,4 0,4	4 0 0 2 S 4 0 0							
-0,4 0,4 -1 1	S 1 0 2							
-12	V 2 0 2							
-1 4	V 4 0 2							
-1 10	V 1 0 3							
Customer	9 9 9 9							
Customer - underpressure	x x x x							
Output								
420 mA / 2-wire 010 V / 3-wire		3						
Intrinsic safety Ex ia 420 mA / 2-wire		E						
Intrinsic safety Ex la 420 mA / 2-wire Intrinsic safety M1 Ex la 420 mA / 2-wire (for mines)		F						
Customer		9						
Accuracy								
0,1 % - standard range		1		П				П
0,1 % - standard range including Calibration Certificate		Р						
0,1 % - customer range		- 1						Ш
0,1 % - customer range including Calibration Certificate		Н						
0.2 % (P _N < 0,1 bar)		В						
0.2 % (P _N < 0,1 bar) with Calibration Certificate		Q						
Customer Electrical connection		9		-	-	-		-
Connector DIN 43650 (ISO 4400) (IP 65)			1 (0 0				_
Connector Binder 723 5-pin (IP 67)				0 0				
Cable gland PG7 / cable length specify (IP 67)				0 0				
+ PVC cable / 1 m								
			5	0 0				
+ PVC cable / 1 m Connector Buccaneer (IP 68) Field housing stainless steel, cable gland M 16 x 1,5 (IP 67)			5 8	0 0				
+ PVC cable / 1 m Connector Buccaneer (IP 68) Field housing stainless steel, cable gland M 16 x 1,5 (IP 67) Field housing stainless steel, cable gland M 20 x 1,5 (IP 67)			5 8 8 8	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0				
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+ PVC cable / 1 m Connector Buccaneer (IP 68) Field housing stainless steel, cable gland M 16 x 1,5 (IP 67) Field housing stainless steel, cable gland M 20 x 1,5 (IP 67) Connector Binder 723 and 423 7-pin (IP 67) (for Interface RS 232) Connector DIN 43650 (ISO 4400) - potting compound inside (IP 67) Connector M12 x 1, 4-pin (IP 67) Connector M12 x 1, 4-pin (IP 67) - metal Cable outlet, cable with ventilation tube (IP 68) 1 + PVC cable / 1 m Customer Mechanical connection G 1/2" DIN 3852 G 1/4" EN 837 M 20 x 1,5 DIN 3852 M 10 x 1 DIN 3852 M 10 x 1 DIN 3852 M 20 x 1,5 EN 837 G 1/2" DIN 3852 with flush sensor diaphragm I/2" NPT I/4" NPT			5 (8 8 8 8 8 8 M M M T F	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 3 0 0 4 0 0 5 0 0 6 0 0 7 0 0 8 0 0 F 0 0 N 4 0			
+ PVC cable / 1 m Connector Buccaneer (IP 68) Field housing stainless steel, cable gland M 16 x 1,5 (IP 67) Field housing stainless steel, cable gland M 20 x 1,5 (IP 67) Connector Binder 723 and 423 7-pin (IP 67) (for Interface RS 232) Connector DIN 43650 (ISO 4400) - potting compound inside (IP 67) Connector M12 x 1, 4-pin (IP 67) Connector M12 x 1, 4-pin (IP 67) - metal Cable outlet, cable with ventilation tube (IP 68) 1 + PVC cable / 1 m Customer Mcchanical connection G 1/2" DIN 3852 G 1/4" EN 837 M 20 x 1,5 DIN 3852 M 12 x 1 DIN 3852 M 10 x 1 DIN 3852 M 20 x 1,5 EN 837 G 1/2" DIN 3852 with flush sensor diaphragm 2 M 20 x 1,5 DIN 3852 with flush sensor diaphragm 1/2" NPT 1/4" NPT Customer Seals			5 (8 8 8 8 8 8 M M M T F	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 3 0 0 4 0 0 5 0 0 6 0 0 7 0 0 8 0 0 F 0 0 N 4 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
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+ PVC cable / 1 m Connector Buccaneer (IP 68) Field housing stainless steel, cable gland M 16 x 1,5 (IP 67) Field housing stainless steel, cable gland M 20 x 1,5 (IP 67) Connector Binder 723 and 423 7-pin (IP 67) (for Interface RS 232) Connector DIN 43650 (ISO 4400) - potting compound inside (IP 67) Connector M12 x 1, 4-pin (IP 67) Connector M12 x 1, 4-pin (IP 67) - metal Cable outlet, cable with ventilation tube (IP 68) 1 + PVC cable / 1 m Customer Mechanical connection G 1/2" DIN 3852 G 1/2" EN 837 G 1/4" DIN 3852 G 1/4" EN 837 M 20 x 1,5 DIN 3852 M 10 x 1 DIN 3852 M 10 x 1 DIN 3852 M 20 x 1,5 EN 837 G 1/2" DIN 3852 with flush sensor diaphragm 2 M 20 x 1,5 DIN 3852 with flush sensor diaphragm 1/2" NPT 1/4" NPT Customer Seals Viton (FKM) Without seals - welded (only with EN 837-1/-3) 2.3 EPDM Viton (FKM) up to -40 °C			5 (8 8 8 8 8 8 M M M T F	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 3 0 0 4 0 0 5 0 0 6 0 0 7 0 0 8 0 0 F 0 0 N 4 0	1 2	3	
+ PVC cable / 1 m Connector Buccaneer (IP 68) Field housing stainless steel, cable gland M 16 x 1,5 (IP 67) Field housing stainless steel, cable gland M 20 x 1,5 (IP 67) Connector Binder 723 and 423 7-pin (IP 67) (for Interface RS 232) Connector DIN 43650 (ISO 4400) - potting compound inside (IP 67) Connector M12 x 1, 4-pin (IP 67) Connector M12 x 1, 4-pin (IP 67) - metal Cable outlet, cable with ventilation tube (IP 68) 1 + PVC cable / 1 m Customer Mechanical connection G 1/2" DIN 3852 G 1/2" EN 837 G 1/4" DIN 3852 G 1/4" EN 837 M 20 x 1,5 DIN 3852 M 10 x 1 DIN 3852 M 10 x 1 DIN 3852 M 10 x 1 DIN 3852 M 20 x 1,5 EN 837 G 1/2" DIN 3852 with flush sensor diaphragm G 1/2" NPT 1/4" NPT Customer Viton (FKM) Without seals - welded (only with EN 837-1/-3) 2.3 EPDM			5 (8 8 8 8 8 8 M M M T F	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 3 0 0 4 0 0 5 0 0 6 0 0 7 0 0 8 0 0 F 0 0 N 4 0	1 2 3	3 S	



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Standard	1 1 1
Temperature compesation -30 80 °C (only with seals "F" or welded "2")	1 1 2
Interface RS 232 (only for connector Binder 723/423 7-pin) ⁴	1 2 1
Customer	9 9 9
Software for set up on site	
Communication module ADAPT-6 (RS 232 / USB for DMP 331i, DMP 333i) + software	
Software for DMP 331i, 333i / update code 503498	
Accessories	
Adapt 1 with RS232 connecting cable for PC (CIS 510-RS232)	
Adapt 5 with USB connecting cable for PC (CIS 510-USB)	

0,-...without additional charge

On request...in accordance with the producer

Surcharges for calibration are not subject to any discounts. Subject to change.

This document contains the specification for ordering the product; detailed technical parameters of the product and its possible variants are given in the data sheet. BD SENSORS reserves the right to change sensor specifications without further notice.

- 1 code TR0 = PVC cable, cable with ventilation tube available in different types and lengths; cable not included in the price 2 only possible for DMP 331i and $P_N \le 40$ bar
- 3 welded version only with pressure ports according to EN 837
- 4 Communication interface RS232 only possible with el. connection Binder serie 723/423 (7pin)

Software, Interface and cable for DMP 331i with option RS-232 have to be order separately

(Ordering code: CIS-G; Software appropriate for Windows® 95, 98, 2000, NT Version 4.0 or newer and XP)

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Ordering code DI	MP 3331
DMP 333i	TH-TH-Q-Q-TH-TH-Q-TH
ressure	
auge ¹	1 3 0
osolute	1 3 1
put [bar]	
60	6 0 0 2
100 ²	1 0 0 3
200 ²	2 0 0 3
400 ²	4003
600 ²	6 0 0 3
ustomer	9 9 9
utput	3 3 3 3
20 mA / 2-wire	
	1 E
trinsic safety Ex ia 420 mA /2-wire	
trinsic safety M1 Ex ia 4 20 mA / 2-wire (for mines) ustomer	F 9
ccuracy	
1 % - standard range	1
1 % - standard range including Calibration Certificate	P
1 % - customer range	
1 % - customer range including Calibration Certificate	н
2 % (P _N < 0,1 bar)	В
ustomer	9
ectrical connection	
onnector DIN 43650 (ISO 4400) (IP 65)	1 0 0
onnector Binder 723 5-pin (IP 67)	2 0 0
able gland PG7 / cable length specify (IP 67)	4 0 0
PVC cable / 1 m	
onnector Buccaneer (IP 68)	5 0 0
eld housing stainless steel, cable gland M 16 x 1,5 (IP 67)	8 0 0
eld housing stainless steel, cable gland M 20 x 1,5 (IP 67)	8 8 0
connector Binder 723 and 423 7-pin (IP 67) (for Interface RS 232)	
onnector DIN 43650 (ISO 4400) - potting compound inside (IP 67)	E 0 0
onnector M12 x 1, 4-pin (IP 67)	M 0 0
onnector M12 x 1, 4-pin (IP 67) - metal	M 1 0
able outlet, cable with ventilation tube (IP 68) ³	T R 0
PVC cable / 1 m	
ustomer	9 9 9
echanical connection	
1/2" DIN 3852	1 0 0
1/2" EN 837	2 0 0
1/4" DIN 3852	3 0 0
1/4" EN 837	4 0 0
20 x 1,5 DIN 3852	4 0 0 5 0 0
12 x 1 DIN 3852	6 0 0
10 x 1 DIN 3852	7 0 0
20 x 1,5 EN 837	8 0 0
1/2" DIN 3852 open pressure port	H 0 0
2" NPT	N 0 0
2 NPT 4" NPT	N 4 0
ustomer	9 9 9
eals	9 9 9
ears ton (FKM)	1
ithout seals - welded (only with EN 837-1/-3; only for P _N < 170 bar)	
	2
PDM (P _N < 160 bar)	3
BR (standard)	5
ustomer	9
pecial version	
andard	1 1
terface RS 232 (only for connector Binder 723/423 7-pin) ⁴	1 2
ustomer	9 9
oftware for the intelligent pressure transmitters	
oftware for the intelligent pressure transmitters	
ommunication module ADAPT-6 (RS 232 / USB for DMP 331i, DMP 333i) + software	



BD SENSORS s.r.o. Hradišťská 817 CZ – 687 08 Buchlovice

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Adapt 1 with RS232 connecting cable for PC (CIS 510-RS232) Adapt 5 with USB connecting cable for PC (CIS 510-USB)

0,-...without additional charge

On request...in accordance with the producer

Surcharges for calibration are not subject to any discounts. Subject to change.

This document contains the specification for ordering the product; detailed technical parameters of the product and its possible variants are given in the data sheet. BD SENSORS reserves the right to change sensor specifications without further notice.

1 measurement starts with ambient pressure

2 pressure ranges > 60 bar as DMP 333i

3 code TR0 = PVC cable, cable with ventilation tube available in different types and lengths; cable not included in the price

4 Communication interface RS232 only possible with el. connection Binder serie 723/423 (7pin)

Software, Interface and cable for DMP 333i with option RS-232 have to be order separately

(Ordering code: CIS-G; Software appropriate for Windows® 95, 98, 2000, NT Version 4.0 or newer and XP)



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