DRUCKMESSUMFORMER

PRODUKTKATALOG



DRUCK auf höchstem NIVEAU.



PRESSURE AT THE HIGHEST LEVEL

"Successful medium-sized companies are not successful because they are active in many areas, but rather because they concentrate on one area and do it better than anyone else"

This is our philosophy. That's why BDSENSORS has concentrated on electronic pressure measurement technology from the beginning.

With our unremitting product and and quality strategy we have been successful in becoming a major player on the world market for electronic pressure sensing devices within a few years.



With 300 employees at 3 locations in Germany, the Czech Republic and China BD|SENSORS has solutions from 0.1 mbar to 6,000 bar:

>	pressure	sensors,	pressure	transducers
	pressure	transmit	ters	

_	alactronic	proceuro	cwitches	

- pressure measuring devices with display and switching outputs
- > hydrostatic level probes

Two pressure transmitters and a submersible probe, based on a stainless steel silicon sensor were the beginning. Today the range extends to more than 70 standard products, from economical OEM devices to high-end products with HART* communication or field bus interface.

In addition we have developed hundreds of customerspecific applications, underlining the competence and flexibility of BDISENSORS. The excellent price/performance ratio of our products is proof of the fact that we are able to meet the toughest demand: Being a problem-solver for our customers.

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4 ADVANTAGES

For large production batches as well as for small production numbers, no matter for what medium or external factors, with almost any mechanical or electrical connection - we solve your problem

flexibly, quickly and cost-efficiently.

Manual Color Prozess anschlass Calebrage Caleb		PRODUCT		PREFE PPLIC				MEI	DIA W	/ETTE	D PAI	RTS		NOM PRES		ACCU- RACY*		AP	PROV	AL	
Name Color Color									dia	-			al								
Marti			process industry	general purpose	hygienic	maritime	metal	PVDF/PP	silicon	stainless steel	ceramic	elastomer	without, welded	bar min	bar max	% FSO (standard)	EX	UL	SIL	НАВТ	nautic
Xalactic	NO	XMP i	•		•		•			•		•	•	0.40	600	≤± 0.10	•	•	•	•	
Xalactic	ISI	XMP ci	•				•	•			•	•		0.16	20	≤± 0.10	•	•		•	
DMP 330	25	x act i	•		•		•			•			•	0.40	40	≤± 0.10	•	•	•	•	
DMP 330			•				•	•			•	•		0.16	20		•	•		•	
DMP 331 i				•			•			•		•		0.10	600			•			
DMP 334		DMP 331 i		•			•			•		•	•			≤± 0.10	•	•			
DMP 334		DMP 333 i		•			•			•		•		100	600	≤± 0.10	•	•			
DMP 331 Pi				•			•			•			•								
DMP 321					•		•			•		•	•				•	•			
DMP 331	>																				
DMP 334	JSTR						•			•		•									
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DMK 331 P • • • • 60 400 ≤± 0.50 •		DMP 333 P		•			•			•		•	•	60	600	≤± 0.35	•	•			
DMK 351 P •		DMP 339 P			•		•			•		•	•	25	600	≤± 0.50		•			
3 17.600 G •		DMK 331 P		•	•		•			•		•		60	400	≤± 0.50	•	•	•		
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17.609 G 17.620 G 18.600 G 18.601 G 18.605 G 26.600 G • • • • • • • • • • • • • • • • • •	EM	17.600 G		•			•			•		•	•	6	600	≤± 0.50		•			
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18.601 G • • • • 0.10 6 ≤± 0.50 • 18.605 G • • • 0.10 1 ≤± 0.50 • 26.600 G • • • 1 400 ≤± 0.50 •		17.620 G		•			•			•			•	16	1000	≤± 0.50		•			
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26.600 G • • • 1 400 ≤± 0.50 •		18.601 G		•			•			•		•		0.10	6	≤± 0.50		•			
		18.605 G		•			•			•		•		0.10	1	≤± 0.50		•			
30.600 G • • • 1.60 250 ≤± 1.00 •		26.600 G		•			•				•	•		1	400	≤± 0.50		•			
		30.600 G		•			•				•	•		1.60	250	≤± 1.00		•			



XMP i

Precision Pressure Transmitter for the Process Industry with HART®-Communication and SIL2 (optionally)

Stainless Steel Sensor

accuracy according to IEC 60770: 0.1 % FSO

Nominal pressure

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

Output signals

2-wire: 4 ... 20 mA others on request

Special characteristics

- ▶ turn-down 1:10
- two chamber aluminium die cast case or stainless field housing
- internal or flush welded diaphragm
- ► HART®-communication
- explosion protection intrinsic safety (ia)

Optional versions

- explosion protection flameproof equipment (d)
- SIL2 version according to IEC 61508 / IEC 61511
- integrated display and operating module
- special materials as Hastelloy[®] and Tantalum
- cooling element for media temperatures up to 300 °C

The process pressure transmitter XMP i has been especially designed for the process industry as well as food and pharmaceutical industry (version stainless steel field housing) and measures vacuum, gauge and absolute pressure ranges of gases, steam, fluids up to 600 bar.

Different process connections such as threads and flanges with an internal or flush welded diaphragm are available and can be combined with a cooling element for media temperatures up to 300 °C. The transmitter is as a standard equipped with HART®-communication; the customer can choose between an aluminium die cast case or a stainless field housing.

Preferred areas of use are





Oil and gas industry / chemical and petrochemical industry





Food / pharmaceutical industry

Material and test certificates

- Inspection certificate 3.1 according to EN 10204
- ► Test report 2.2 according to EN 10204







Pressure ranges 1

gauge / abs			_	1 .		l					
	oar] 0.4	1	2	4	10	20	40	100	200	400	600
<u>C t Oi pi O O O O I O</u>	parl 2	5	10	20	40	80	105	210	600	1000	1000
Burst pressure ≥ [b	parl 3	7.5	15	25	50	120	210	420	1000	1250	1250
on customer request we adjust th									1000	1230	1230
² absolute pressure possible from		the turn-ut	wii-possii	DIIILY DY SOI	lware lo lii	e required	pressure	ranges			
· · · · · · · · · · · · · · · · · · ·											
Vacuum ranges											
Nominal pressure gauge [b	oar] -0.4	0.4		-1 1		-1 2		-1	4	-1	. 10
Overpressure [b	par]	2		5		10		20		4	0
Burst pressure ≥ [b	oar]	3		7.5		15		25		5	0
Output signal / Supply											
2-wire: 4 20 mA	standard:			ia) with H						′ _s = 12	
with explosion protection	options:			pment (d)					V	′ _s = 13	$28 V_{DC}$
		SIL2 / i	ntrinsic s	afety (ia)	with HAR	T®-comn	nunicatio	n	V	′ _s = 12	$28 V_{DC}$
		SIL2 / f	lamepro	of equipm	ent (d) wi	th HART	®-commu	nication	V	' _S = 13	$28 V_{DC}$
Current consumption	max. 25 r	mA									
Performance											
Accuracy ³	≤ ± 0.1 %	FSO									
performance after turn-down (*		,, ,,									
- TD≤	' I	e of accur	acv								
	1:5 the accur			s follows:	≤ 0 1 + 0	0.015 x (t	urn-dow	1 - 5) % F	SO		
	e.g. turn-							. 0, 70.			
Permissible load	R _{max} = [(\				2, 73 . 3			T® commi	unication:	R = 25	0.0
				1] 32						1 (min - 25)	0 22
Influence effects	supply: 0					permiss	inie ioad:	0.05 % F	20 / K[]		
Long term stability				erence co						101	
Response time				eration of					uring rate		
Adjustability	electronic) 90 %	FSO	turn-c	down of sp	an up to	1:10
³ accuracy according to IEC 60770			on-linearity	y, hysteresi	s, repeatal	bility)					
Thermal errors / Permissible											
Tolerance band 4,5	≤ 0.2 % F	SO x turr	n-down (i	n compen	sated rar						
Permissible temperatures ⁶	medium:						without o	lisplay: e	environme		
		05.00.6						s	torage:	-40	. 80 °C
			fillina flui	d cilicono	oil				itorage.		
				d silicone		oil -	with disp		environme		. 70 °C
				d silicone d food co		oil	with disp	lay: e		nt: -20	. 70 °C . 80 °C
Permissible temperature medi	-10 1	25 °C for	filling flui	d food co	mpatible o	OII		lay: e s	environme storage:	nt: -20 -30	. 80 °C
Permissible temperature medi for cooling element ⁷	-10 1	25 °C for d silicone	filling flui oil	d food co	mpatible o	ure: -40 .	300 °C	lay: e s	environme storage: ow pressu	nt: -20 -30 re: -40	. 80 °C . 150 °C
for cooling element 7	-10 1 um filling fluid	25 °C for d silicone d food cor	filling flui oil npatible	d food cor coil c	mpatible overpress	ure: -40 . ure: -10 .	300 °C	lay: e s lo	environme storage: ow pressu ow pressu	nt: -20 -30 re: -40	. 80 °C . 150 °C
for cooling element ⁷ ⁴ an optional cooling element can i	-10 1 um filling fluid filling fluid influence therma	25 °C for d silicone d food cor l effects for	filling flui oil npatible	d food cor	mpatible overpress overpress ending on	ure: -40 . ure: -10 . installation	300 °C	lay: e s lo	environme storage: ow pressu ow pressu	nt: -20 -30 re: -40	. 80 °C . 150 °C
for cooling element ⁷ ⁴ an optional cooling element can i ⁵ for flange- and DRD-version: tole	-10 1 um filling fluid filling fluid influence therma erance band offse	25 °C for d silicone d food cor d effects for et ≤ ± 1.6 %	filling flui oil npatible offset and	d food col coil col d span deplerance bar	overpress overpress ending on and span <=:	ure: -40 . ure: -10 . installation	300 °C 250 °C n position o	lay: e s lo lo and filling c	environme storage: ow pressu ow pressu onditions	nt: -20 -30 re: -40 re: -10	. 80 °C . 150 °C
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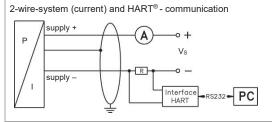
XMP i

Technical data

Approvals AX12-XMP i AX2-XMP i AX2-XMP i (with SIL2) Stainless steel field housing: zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ia IIIC T85 °C Da safety technical maximum values: $U_i = 28 \text{ V}, I_i = 98 \text{ mA}, P_i = 680 \text{ mW}, C_i = 0$ $L_i = 0 \mu\text{H}, C_{GND} = 27 \text{ nF}$	ATEX 1106 X (with SIL2: IBExU 05 ATEX1105 X) aluminium die cast case: zone $0/1$: II $1/2$ G Ex ia IIB T4 Ga/Gb zone 20: II 1D Ex ia IIIC T85 °C Da safety technical maximum values: U _i = 28 V, I _i = 98 mA, P _i = 680 mW, C _i = 0 nF, L _i = 0 μ H, C _{GND} = 33 nF
AX2-XMP i (with SIL2) zone 0: II 1G Ex ia IIC T $\dot{4}$ Ga zone 20: II 1D Ex ia IIIC T85 °C Da safety technical maximum values: $U_i = 28 \ V, \ I_i = 98 \ mA, \ P_i = 680 \ mW, \ C_i = 0$	zone 0/1: II 1/2G Ex ia IIB T4 Ga/Gb zone 20: II 1D Ex ia IIIC T85 °C Da safety technical maximum values: nF, U _i = 28 V, I _i = 98 mA, P _i = 680 mW, C _i = 0 nF,
zone 20: II 1D Ex ia IIIC T85 °C Da safety technical maximum values: U _i = 28 V, I _i = 98 mA, P _i = 680 mW, C _i = 0	zone 20: II 1D Ex ia IIIC T85 °C Da safety technical maximum values: nF, $U_i = 28 \text{ V}, I_i = 98 \text{ mA}, P_i = 680 \text{ mW}, C_i = 0 \text{ nF},$
safety technical maximum values: $U_i = 28 \text{ V}, I_i = 98 \text{ mA}, P_i = 680 \text{ mW}, C_i = 0$	safety technical maximum values: nF, $U_i = 28 \text{ V}, I_i = 98 \text{ mA}, P_i = 680 \text{ mW}, C_i = 0 \text{ nF},$
$U_i = 28 \text{ V}, I_i = 98 \text{ mA}, P_i = 680 \text{ mW}, C_i = 0$	nF, $U_i = 28 \text{ V}, I_i = 98 \text{ mA}, P_i = 680 \text{ mW}, C_i = 0 \text{ nF},$
$ L_i = 0 \text{ uH}$, $C_{CND} = 27 \text{ nF}$	$II_{r} = 0$ uH $II_{r} = 33$ nF
Approvals flameproof enclosure with aluminium die	
AX17-XMP i IBExU 12 ATEX 1045 X (with SIL2: IBExU	J 12 ATEX1073 X)
AX7-XMP i (with SIL2) zone 1: II 2G Ex db IIC T5 Gb	
Permissible temperatures for in zone 0: -20 60 °C with p _{atm} 0	
	70 °C / flameproof enclosure: -20 70 °C
	signal line/signal line: 160 pF/m
· · · · · · · · · · · · · · · · · · ·	signal line/signal line: 1 µH/m
Options	
SIL2-version according to IEC 61508 / IEC 61511	
	5-digit 7-segment main display, digit height 8 mm,
range of indication ±9999; 8-digit 14-segm 52-segement bargraph; accuracy 0.1% ± 1	
Miscellaneous	i digit
	bination with an approved seal. This is e.g. for
	seal from Combifit International B.V.
	-O-ring which is FDA-listed
Ingress protection IP 67	-C-ring which is i DA-listed
J 1	tion with the pressure port connection down;
differing installation position have to be spe	
Surface roughness pressure port R _a < 0.8 µm (media wette	·
diaphragm R _a < 0.15 µm	,
weld seam R _a < 0.8 µm	
Weight min. 400 g (depending on housing and me	echanical connection)
Operational life 100 million load cycles	
CE-conformity EMC Directive: 2014/30/EU F	Pressure Equipment Directive: 2014/68/EU (module A) 8
ATEX Directive 2014/34/EU	

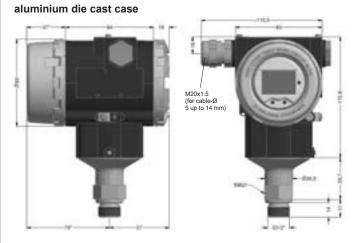
⁸ this directive is only valid for devices with maximum permissible overpressure > 200 bar

Wiring diagram / pin configuration

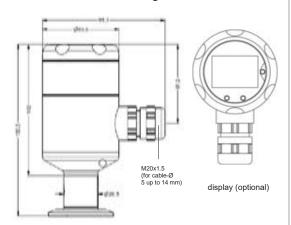


	Electrical	aluminium case	stainless steel field housing
1	connections	clamp section	clamp section
		2.5 mm ²	1.5 mm ²
	Supply +	IN+	IN+
	Supply –	IN-	IN-
	Test (HART)	Test	-
	Shield	⊕	⊕

Housing designs 9 (dimensions in mm)

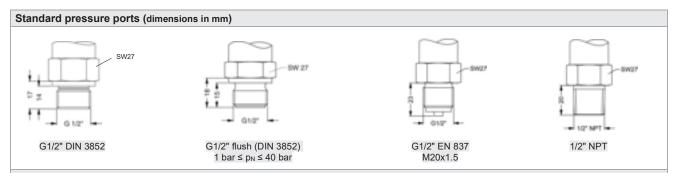


stainless steel field housing

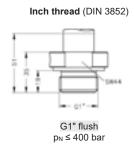


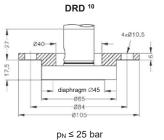
- * without display and operating module marked dimensions decrease by 22 mm (with aluminium case)
- \Rightarrow for nominal pressure p_N > 400 bar increases the length of devices by 39 mm

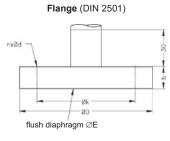
⁹ aluminium case is horizontally rotatable as standard



Process connections (dimensions in mm)

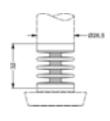


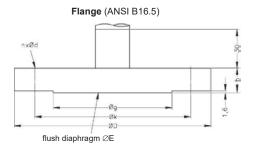




	dimensions in mm										
size	DN25	DN50	DN80								
D	115	165	200								
E	30	89	89								
k	85	125	160								
b	18	20	20								
n	4	4	8								
d	14	18	18								
p _N [bar]	≤ 40	≤ 40	≤ 16								

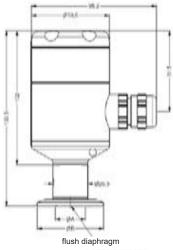
Cooling element up to 300 °C 7





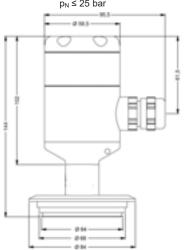
	dimensions in	mm
size	2"/150 lbs	3"/150 lbs
D	152.4	190.5
E	86	89
g	91.9	127
k	120.7	152.4
b	19.1	23.9
n	4	4
d	19.1	19.1
p _N [bar]	≤ 10	≤ 10

Clamp (DIN 32676)



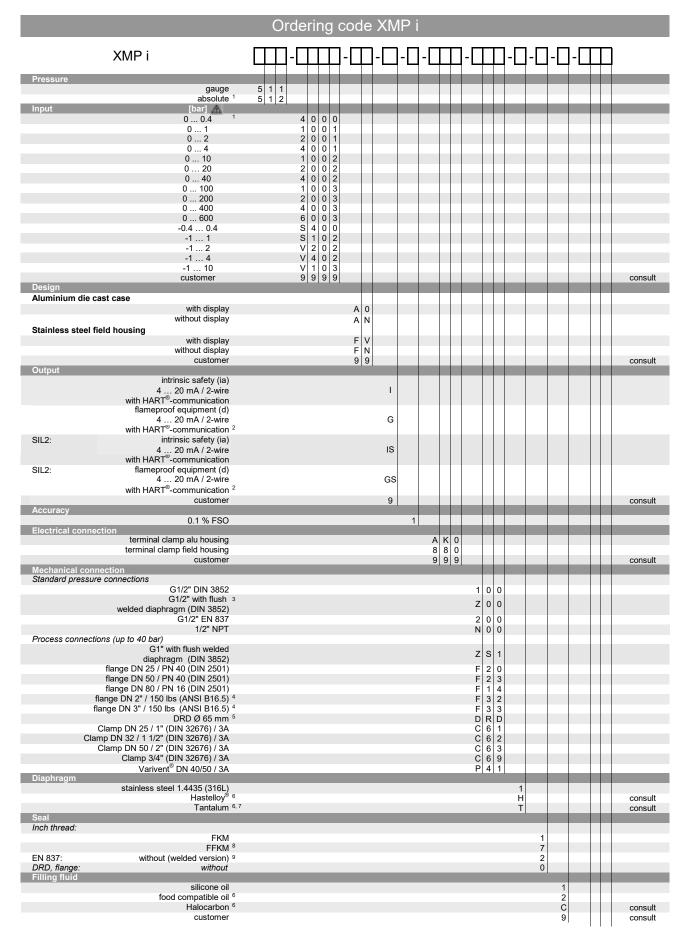
dimensions in mm									
size	3/4"	DN25	DN32	DN50					
Α	14	23	32	45					
В	25	50.5	50.5	64					
p _N [bar]	≥ 4 ≤ 8	≥ 0.25 ≤ 16	≤ 16	≤ 16					

Varivent® (DN 40/50) $p_N \le 25 \text{ bar}$



 $^{^7}$ max. temperature depends on the used sealing material, type of seal and installation $^{\rm 10}$ mounting flange is included in the delivery (already pre-assembled)

HART® is a registered trademark of HART Communication Foundation; Hastelloy® is a brand name of Haynes International Inc. Windows® is a registered trademark of Microsoft Corporation



Ordering code

	Ordering code XMP i	
XMP i		
Special version		
standard	0 0 0	
with cooling element up to 300 °C ⁶ special compensation -40 +60 °C ¹⁰	2 0 0	
special compensation -40 +60 °C 10	0 2 2	

- if setting range shall be different from nominal range please specify in your order 1 absolute pressure possible from 1 bar 2 only possible in combination with aluminium die cast case 3 only possible for $p_N \ge 1$ bar up to 40 bar 4 2"/150 lbs and 3"/150 lbs possible for nominal pressure ranges $p_N \le 10$ bar mounting flange is included in the delivery (already pre-assembled) 6 only possible with process connections 7 tantal diaphragm possible with nominal pressure ranges from 1 bar 8 min. permissible temperature from -15 °C, possible for nominal pressure ranges $p_N \le 100$ bar 9 possible with pressure ranges between 1 bar and 40 bar 10 option for version without display

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XMP ci

Process Pressure Transmitter with HART®-communication

Ceramic Sensor

accuracy according to IEC 60770: 0.1 % FSO

Nominal pressure

from 0 ... 160 mbar up to 0... 20 bar

Output signals

2-wire: 4 ... 20 mA others on request

Special characteristics

- turn-down 1:5
- two chamber aluminium die cast case or stainless field housing
- internal or flush mounted capacitive ceramic sensor
- HART®-communication
- explosion protection intrinsic safety (ia)
- diaphragm Al₂O₃ 99.9 %

Optional versions

- explosion protection flameproof equipment (d)
- with integrated display and operating module
- several process connections (thread, flange, DRD etc.)

The process pressure transmitter XMP ci measures the pressure of gases, steam and fluids. The special-developed capacitive ceramic sensor for this transmitter has a high overpressure capability and excellent media stability.

Several process connections e.g. thread or flange are available. The transmitter is as a standard equipped with HART®-communication, the customer can choose between a two chamber aluminium die cast case or a stainless field housing.

Preferred areas of use are



Oil and gas industry



Chemical and petrochemical industry

Preferred using in



Fuel and oil



Aggressive media





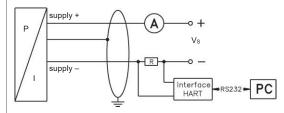




Pressure ranges ¹ Nominal pressure gauge	[bar]	0.16	0.4	1	2	5	10	20
Overpressure	[bar]	4	6	8	15	25	35	45
Permissible vacuum	[bar]	-0.3).5	10		<u> </u>	1 10
On customer request we adjust					Within the turn-d		-	ar).
Output signal / Supply						,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,	- /
2-wire: 4 20 mA		standard: int	rinsic safety (ia) with HART	®-communicatio	n	V _S =	12 28 V _{DC}
with explosion protection		option: fla	meproof equi	pment (d) with	HART®-comm	unication	$V_S = \frac{1}{2}$	13 28 V _{DC}
Current consumption		max. 25 mA						
Performance								
Accuracy ²		nominal press		≤ ± 0.2 % F				
		nominal press		≤±0.1% F		4 . (0.0 .	(TD 4) - 0 00)	0/ 500
					r up to 0.4 bar:		(TD-1) x 0.02)	
		for nominal pr			ว เอ 20 bar: / adjusted rang	,	- (TD-1) x 0.01)	% FSU
Permissible load		R _{max} ≤ [(V _S – V					nmunication: R _n	· = 250 O
Influence effects		supply: 0.05 %] 52		le load: 0.05 %		nin - 230 32
Long term stability		≤ ± 0.1 % FS0		erence condition		ic load. 0.00 /	70 1 00 7 132	
Response time		200 msec – w					measuri	ng rate 5/se
Adjustability		electronic dan						
,		offset 0 80 °	% FSO					
		turn-down of s						
² accuracy according to IEC 607		t point adjustment	(non-linearity, I	hysteresis, repe	atability)			
Thermal effects (offset and	d span)	l						
Tolerance band		≤±1%FSO						
in compensated range		-20 80 °C						
Permissible temperatures				25 125 22	<u> </u>			40 000
Permissible temperatures ³		without display with display:		·25 125 °C ·25 125 °C		nt: -40 70 ° nt: -20 70 °		-40 80° (-30 80° (
³ for pressure port in PVDF the r	medium t			-25 125 C	environme	nt20 70	C storage.	-30 00
Electrical protection	neulum te	emperature is -25	00 C					
Short-circuit protection		permanent						
Reverse polarity protection		no damage, b	ut also no fun	ction				
Electromagnetic compatibilit	tv	emission and			1326			
Mechanical stability	.,	ornicolori and	iriiriariity acci	ording to Err o	1020			
Vibration		5 g RMS (20 .	2000 Hz)		accord	ding to DIN EN	N 60068-2-6	
Shock		100 g / 11 ms				ding to DIN EN		
Materials		,						
Pressure port		standard:		stainless ste	el 1.4404 (316L	.)		
•		optionally for (G1 1/2" flush:		,			
Housing		aluminium die	cast, powder-	-coated or stai	nless steel 1.44	104 (316L)		
Cable gland		brass, nickel p	olated					
Viewing glass		laminated safe	ety glass					
Seals (media wetted)		FKM; EPDM		others on re	quest			
Diaphragm		ceramics Al ₂ O	-					
Media wetted parts		pressure port,	seal, diaphra	gm				
Explosion protection								
Approval AX12-XMP ci		intrinsic safe	·					
		stainless steel	5			ium die cast		
		zone 0/1 4: II	1G Ex ia IIC 1 1/2G Ex ia IIC		zone (Ex ia IIB T4 Ga	/Gb
			2G Ex ia IIC		(k ia IIB T4 Gb	De
			1D Ex ia IIIC i		zone 2	.u. II ID EX	ia IIIC T85 °C	⊔a
		safety techn. r			safety	techn. maxim	nım values.	
		$U_i = 28 \text{ V}, I_i =$					A, P _i = 680 mW.	$C_{i} = 0 \text{ nF},$
		$L_i = 0 \mu H, C_{GN}$	_D = 27 nF		L _i = 0	μ H, $C_{GND} = 33$	3 nF	
		flameproof e	nclosure with		e cast case IB			
Approval AX17-XMP ci			2G Ex db IIC					
			60 °C with	n. () 8 har ur	to 1.1 bar			
Permissible temperatures fo	r	in zone 0: -20		Patm 0.0 but up				
	r	in zone 1 or hi	gher:					
Permissible temperatures fo	r	in zone 1 or hi intrinsic safe	igher: ety: -	40 70° C				
Permissible temperatures fo environment		in zone 1 or hi intrinsic safe flameproof	gher: ety: - enclosure: -	40 70° C 20 70°C	l mhar are marke	l with 2G"		
Permissible temperatures fo	ne nomina	in zone 1 or hi intrinsic safe flameproof al pressure range.	gher: ety: - enclosure: - Nominal press	.40 70° C .20 70°C ure ranges ≤160			with "1G".	

Miscellaneous	
Display (optionally)	LC-display, visible range 32.5 x 22.5 mm; 5-digit 7-segment main display, digit height 8 mm, range of indication ±9999; 8-digit 14-segment additional display, digit height 5 mm;
	52-segement bargraph; accuracy 0.1 % ± 1 digit
Ingress protection	IP 67
Installation position	any
Weight	min. 400 g (depending on housing and mechanical connection)
Operational life	100 million load cycles
CE-conformity	EMC Directive: 2014/30/EU
ATEX Directive	2014/34/EU

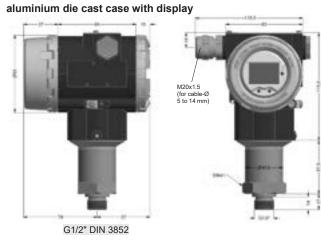
Wiring diagram



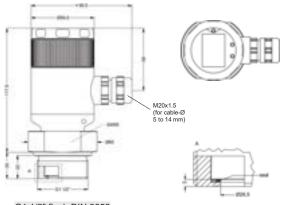
D:		c:	45	
PIN	con	TIQU	rati	on

3		
	aluminium die cast case:	stainless steel field housing:
Electrical connections	terminal clamps	terminal clamps
	(clamp section: 2.5 mm²)	(clamp section: 1.5 mm²)
Supply +	IN+	IN+
Supply –	IN-	IN-
Test	Test	-
Shield	⊕	(H)

Housing designs ⁶ (dimensions in mm)

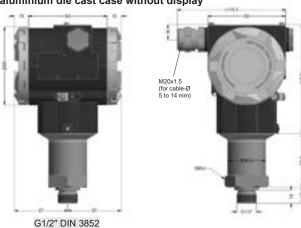


stainless steel field housing with display

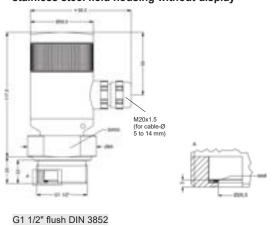


G1 1/2" flush DIN 3852

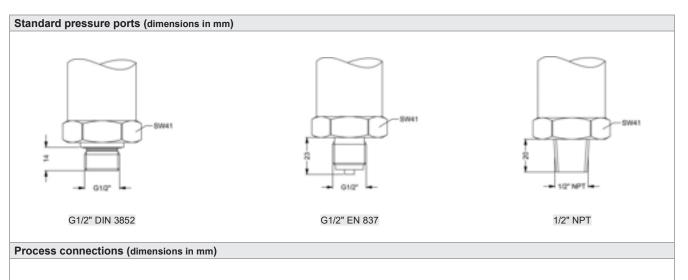
aluminium die cast case without display

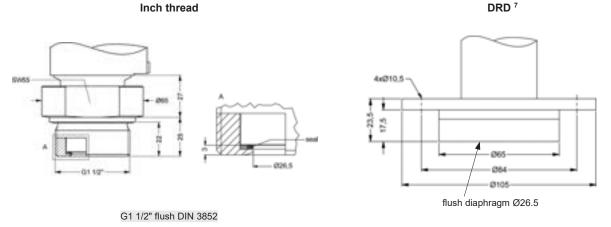


stainless steel field housing without display

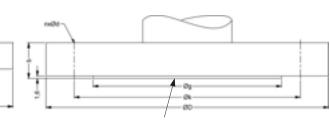


⁶ aluminium die cast case is horizontally rotatable as standard





Flange (DIN 2501)



Flange (ANSI)

flush diaphragm Ø26.5

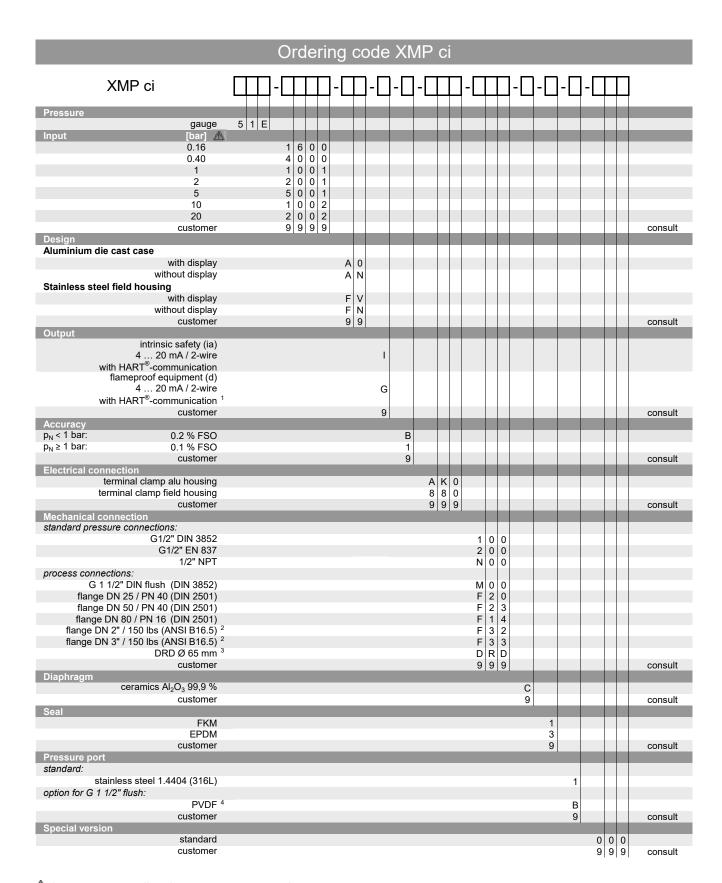
	dimensions in mm								
size	DN25	DN50	DN80						
D	115	165	200						
k	85	125	160						
d4	68	102	138						
b	18	20	20						
f	2	3	3						
n	4	4	8						
d2	14	18	18						
PΝ	≤ 40 bar	≤ 40 bar	≤ 16 bar						

flush diaphragm Ø26.5

	dimensions in mm							
size	2"/150 lbs	3"/150 lbs						
D	152.4	190.5						
g	91.9	127						
k	120.7	152.4						
b	19.1	23.9						
n	4	4						
d	19.1	19.1						
PΝ	≤ 10 bar	≤ 10 bar						

⁷ mounting flange is included in the delivery (already pre-assembled)
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Windows® is a registered trademark of Microsoft Corporation

XMP ci



- ¹ only possible in combination with aluminium die cast case
- 2 2"/150 lbs and 3"/150 lbs only possible for nominal pressure ranges $p_N \le 10$ bar
- $^{\rm 3}$ mounting flange is included in the delivery (already pre-assembled)
- 4 for pressure port in PVDF the operation medium temperature is -25 \dots 60 $^{\circ}\text{C}$



x act i

Precision **Pressure Transmitter** for Food Industry, Pharmacy and Biotechnology with SIL2 (optionally)

Stainless Steel Sensor

accuracy according to IEC 60770: 0.1 % FSO

Nominal pressure

from 0 ... 400 mbar up to 0 ... 40 bar

Output signals

2-wire: 4 ... 20 mA others on request

Special characteristics

- turn-down 1:10
- hygienic version
- flush welded diaphragm
- several process connections (G1" cone, Clamp, dairy pipe, etc.)
- integrated display and operating module

Optional versions

- explosion protection intrinsic safety (ia)
- SIL2 -version according to IEC 61508 / IEC 61511
- HART®-communication
- cooling element for media temperatures up to 300 °C

The precise pressure transmitter x act i has been especially designed for the food industry, pharmacy and biotechnology and measures vacuum, gauge and absolute pressure of gases, steam, and fluids up to 40 bar.

Several process connections e.g. thread or hygienic versions like Varivent®, dairy pipe and Clamp with a flush welded diaphragm are available, which can be combined with a cooling element for media temperatures up to 300 °C. The robust stainless steel globe housing has a high ingress protection IP 67 and all characteristics for a residue-free and antibacterial cleaning.

Preferred areas of use are



Food industry



Pharmacy

Material and test certificates

- Inspection certificate 3.1 according to EN 10204
- Test report 2.2 according to EN 10204









Diaphragm

Media wetted parts

Pressure ranges 1										
Nominal pressure	[h a1	0.4	1	2			10	20		40
gauge / abs. ²	[bar]	0.4	1				10	20		40
Overpressure	[bar]	2	5	10	2	0	40	80		105
Burst pressure ≥	[bar]	3	7.5	15	2	-	50	120		210
higher pressure ranges on re absolute pressure possible fi		mand we adjust t	he devices wit	thin the turn-do	wn-possibili	ty by soft	tware on the req	uired pres	sure ra	anges
Vacuum ranges										
Nominal pressure gauge	[bar]	-0.4 0.4		-1 1	-1 .	2	-1	<u> </u>		-1 10
Overpressure	[bar]	2		5	1		20	-		40
Burst pressure	[bar]	3		7.5	1		25			50
	[24.]			7.0						
Output signal / Supply										
2-wire: 4 20 mA		standard: options:	SIL2 SIL2 / intri		a)			V _S = V _S = V _S =	= 12 = 12 = 12 = 12	$\begin{array}{c} .\ 30\ V_{DC} \\ .\ 28\ V_{DC} \\ .\ 28\ V_{DC} \\ .\ 30\ V_{DC} \\ .\ 28\ V_{DC} \\ .\ 28\ V_{DC} \\ .\ 28\ V_{DC} \end{array}$
Current consumption		max. 25 mA	OILL / IIIIII	nois saisty (is	<i>x</i>	(1 001	mamoaton			. 20 100
Performance										
Accuracy ³		≤ ± 0.1 % FSC)							
	wn (TD) TD ≤ 1:5 TD > 1:5	no change of the accuracy i	s calculated					FSO		
Permissible load		$R_{max} = [(V_S - V_S)]$	/ _{S min}) / 0.02	A] Ω lo	ad during	HART®	communication	n: R _{min} =	250 9	2
Influence effects		supply: 0.05 %	6 FSO / 10 \	/ ре	ermissible	load: 0.	.05 % FSO / k	Ω		
Long term stability		≤ ± (0.1 x turn					าร			
Response time		100 msec – without consideration of electronic damping measuring rate 10/sec								
Adjustability		electronic dan	nping: 0 1	00 sec of	ffset: 0	90 % FS	SO turn-	down of	span:	max. 1:1
³ accuracy according to IEC 6		point adjustment (non-linearity, l	hysteresis, repe	eatability)					
Thermal effects (offset a	nd span)									
Tolerance band 4, 5		≤ ± 0.2 % FS0	x turn-dow	'n						
in compensated range		-20 85 °C	<u> </u>							
 ⁴ an optional cooling element ⁵ for flange-, Varivent-, DRD-v 								nditions		
Permissible temperature		arroo barra orroot s	2 1 1 1 7 0 7 0 0 0	7 10/0/4/100 54/	ia opan <u>=</u> <u>=</u>	0.0 70 7 0				
Filling fluid			silicone	oil			food (compatib	le oil	
Medium ⁶			-40 12) 125 °		
Medium with cooling elem	ent ⁷	overp vacuu	ressure: -4	40 300 °C 40 150 °C			overpressur	e: -10 .		
Electronics / environment		Vacac		10 100	-20	70 °C	vaodam.	10.	100	
Storage					-30					
⁶ for vacuum ranges and abso 150 °C for 60 minutes with a ⁷ max. temperature depends of	max. enviro	nmental temperat	ure of 50 °C (v	without cooling	temperatur		medium for nom	inal pressi	ure gau	ıge > 0 ba
Electrical protection										
Short-circuit protection		permanent								
Reverse polarity protectio		no damage, b			1.04000					
Electromagnetic compatib	ollity	emission and	ımmunity ac	cording to EN	161326					
Mechanical stability										
Vibration		5 g RMS (25 .			rding to DI					
Shock		100 g / 11 ms	ec	accoi	rding to DI	N EN 60	0068-2-27			
Filling fluids										
Standard		silicone oil								
Options		food compatib (Mobil SHC C Halocarbon ar	ibus 32; Cat	egory Code: I		Registrat	tion No.: 1415	00)		
Materials										
Pressure port		stainless stee	1.4435 (316	6 L)						
Housing		stainless stee	,							
Viewing glass		laminated safe		• 1						
Seals (media wetted)		none, not incli		scope of deliv	erv					
Dianhragm				1 4435 (316						

standard: stainless steel 1.4435 (316 L)
options: Hastelloy® C-276 (2.4819); tantalum (possible from 1 bar on) on request pressure port, diaphragm, seals (if existing)

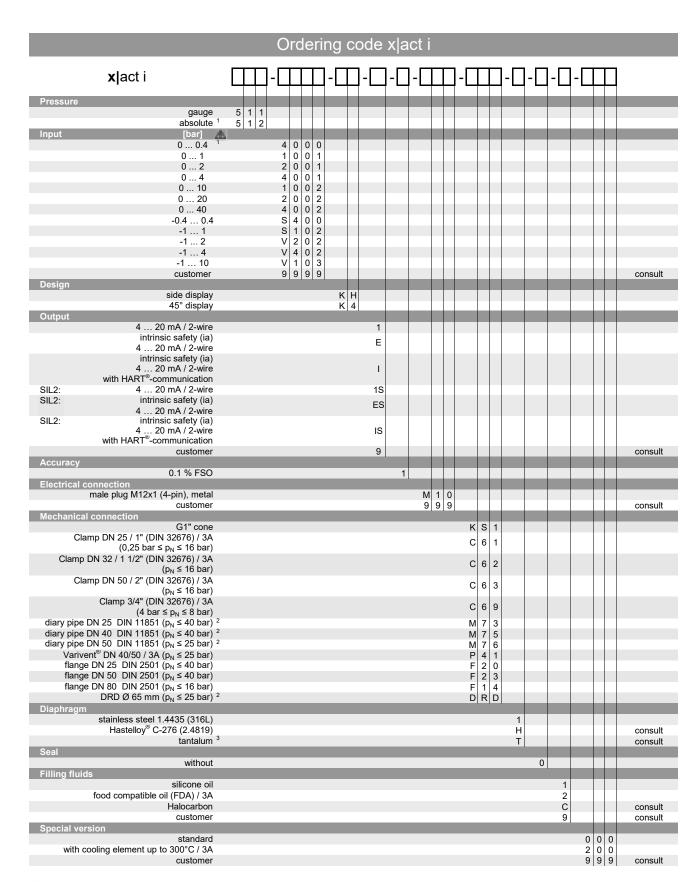
Explosion protection		
Approvals	IBExU 05 ATEX 1106 X	(with SIL2: IBExU 05 ATEX1105 X)
AX12-x act i		Ex ia IIC T4 Ga
AX2 - x act i (with SIL2)		Ex ia IIIC T85 °C Da
Safety technical maximum values	_	80 mW , $C_i = 0 \text{ nF}$, $L_i = 0 \mu H$, the supply connections have an inner
Dermissible temperatures for any	in zone 0: -20	60 °C with p _{atm} 0.8 bar up to 1.1 bar
Permissible temperatures for envi- ronment	in zone 1 or higher: -40	
	3	line/shield also signal line/signal line 160 pF/m
Connecting cables		
(by factory)	cable inductance. Signal	line/shield also signal line/signal line 1 µH/m
Option SIL2-version	according to IEC 61508 / IEC	2.64544
	according to IEC 61506 / IEC	5 0 1 3 1 1
Miscellaneous	I =	
EHEDG certificate Type EL Class I	- Clamp (C61, C62, C63 - Varivent® (P41): - dairy pipe (M73, M75, M75, M75)	nsured in combination with an approved seal. This is e.g. for 3): T-ring-seal from Combifit International B.V. EPDM-O-ring which is FDA-listed 6): ASEPTO-STAR k-flex upgrade seal by Kieselmann GmbH
Display		5 x 22.5 mm; 5-digit 7-segment main display, digit height 8 mm, -digit 14-segment additional display, digit height 5 mm; uracy 0.1% ± 1 digit
Ingress protection	IP 67	
Installation position	differing installation position	a vertical position with the pressure port connection down; for $p_N \le 2$ bar have to be specified in the order)
Surface roughness	· · · · · · · · · · · · · · · · · · ·	μm (media wetted parts)
	diaphragm R _a < 0.1	
	weld seam R _a < 0.8	
Weight	min. 400 g (depending on m	echanical connection)
Operational life	100 million load cycles	
CE-conformity	EMC Directive: 2014/30/EU	
ATEX Directive	2014/34/EU	
Wiring diagrams		
2-wire-system (current)		2-wire-system (current) HART® - communication
supply + supply -	V _S	supply - A o + Vs supply - Interface HART PC
Pin configuration / electrical configuration	nection (dimensions in mm)	
Electrical connections	M12x1 (4-pin), metal	An .
2 .	4	/ 4/3
Supply +	1	
Supply –	3	
Shield	plug housing	14,5
Designs ⁸		
Designs		
side display		45° display
8 all designs in combination with G1" con	e in horizontal rotatable housing a	s standard; other mech. connections in rotatable housing on request

Dimensions (in mm) G1" cone Clamp (DIN 32676) 50.5 dimensions in mm DN 50 size 3/4" DN 25 DN 32 ≥ 4 ≥ 0,25 p_N [bar] ≤ 16 ≤ 16 ≤8 ≤ 16 -031.5 dairy pipe 9 (DIN 11851) dimensions in mm DN 40 DN 50 DN 25 size Α 44 56 68,5 В 10 10 11 (548 ≥ 0.25 ≥ 0.25 ≥ 0.25 p_N [bar] ≤ 40 ≤ 40 ≤ 25 flange (DIN 2501) Varivent® nxØd d71 ØD DN40/50 flush diaphragm ∅ E p_N ≤ 25 bar dimensions in mm DN 80 size DN 25 DN 50 D 115 165 200 30 89 89 160 85 125 k 18 20 20 b 4 4 8 n 14 18 18 d ≤ 40 p_N [bar] ≤ 40 ≤ 16 **DRD** 9 (for $p_N \le 25$ bar) cooling element up to 300 °C 7 4xØ10,5 @26.5

Ø65 @84 @105

HART® is a registered trademark of HART Communication Foundation; Hastelloy® is a trademark of Haynes International Inc.; Varivent® is a trademark of GEA Tuchenhagen GmbH; Windows® is a registered trademark of Microsoft Corporation

 $^{^7}$ max. temperature depends on the used sealing material, type of seal and installation 9 cup nut resp. mounting flange is included in the delivery (already pre-assembled)



if setting range shall be different from nominal range please specify in your order

- ¹ absolute pressure possible from 1 bar
- $^{\rm 2}$ cup nut resp. mounting flange is included in the delivery (already pre-assembled)
- ³ tantalum diaphragm possible with nominal pressure ranges from 1 bar HART[®] is a registered trade mark of HART Communication Foundation; Hastelloy[®] is a brand name of Haynes International Inc. Varivent[®] is a brand name of GEA Tuchenhagen GmbH



x act ci

Precision Pressure Transmitter for Food / Beverage, **Pharmaceutical Industry** and Biotechnology

Ceramic Sensor

accuracy according to IEC 60770: 0.1 % FSO

Nominal pressure

from 0 ... 160 mbar up to 0... 20 bar

Output signals

2-wire: 4 ... 20 mA others on request

Special characteristics

- turn-down 1:5
- hygienic version
- flush mounted, capacitive ceramic sensor
- several process connections (inch thread, Clamp, etc.)
- with integrated display and operating module
- diaphragm Al₂O₃ 99.9 %

Optional versions

- explosion protection intrinsic safety (ia)
- HART®-communication

precise pressure transmitter measures the pressure of gases, steam and fluids. The special-developed capacitive ceramic sensor for this transmitter, which can optionally be delivered in pure ceramic, has a high overpressure capability and excellent media stability.

Several process connections e.g. inch thread or hygienic versions like Varivent®, dairy pipe or Clamp are available. The robust stainless steel globe housing has a high ingress protection IP 67 and all characteristics for a residue-free and antibacterial cleaning.

Preferred areas of use are



Food and beverage



Chemical and petrochemical industry



Laboratory techniques

Preferred using in



Viscous and pasty media









22 x|act ci Technical da

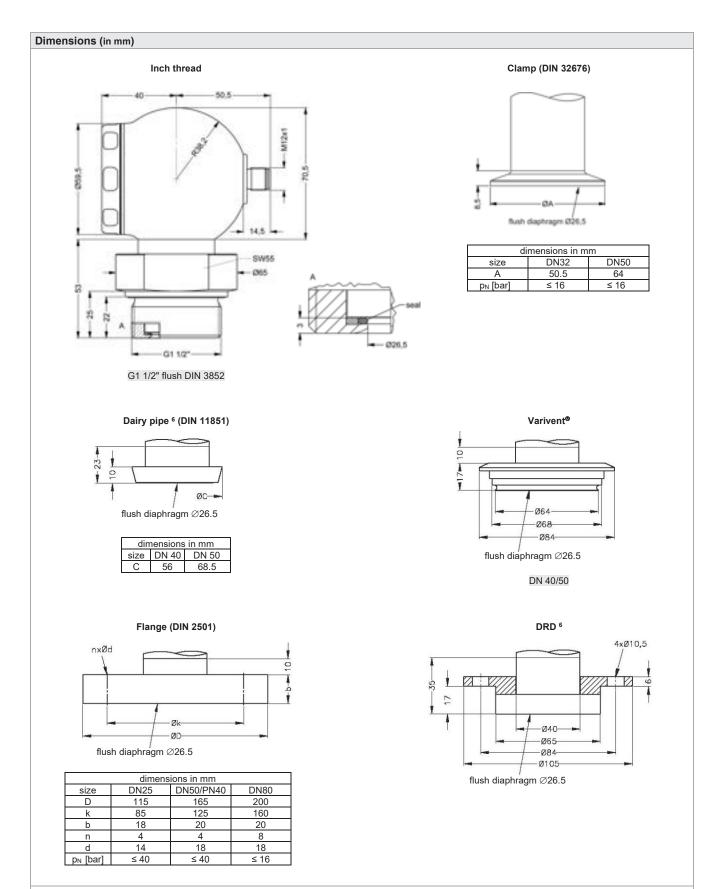
Technical data

Pressure ranges ¹								
Nominal pressure gauge	[bar]	0.16	0.4	1	2	5	10	20
Overpressure	[bar]	4	6	8	15	25	35	45
Permissible vacuum	[bar]	-0.3	-(0.5	-1			
¹ On customer request we adjust the devices by software on the required pressure ranges (within the turn-down-possibility; starting at 0.02 bar).								

Output signal / Supply					
2-wire: 4 20 mA	standard: options:	1	$V_S = 12 30 V_{DC}$ $V_S = 12 28 V_{DC}$ $V_S = 12 28 V_{DC}$		
Current consumption	max. 25 mA				
Performance					
Accuracy ²	nominal pressu	ıre < 1 bar:	≤ ± 0.2 % FSO		
•	nominal pressu	ıre ≥ 1 bar:	≤ ± 0.1 % FSO		
	for nominal pre from 0.16 bar u		≤ ± (0.2 + (TD-1) x 0.02) %	FSO	
	for nominal pre from 1 bar up t	ssure ranges:	≤ ± (0.1 + (TD-1) x 0.01) %	FSO	
			ure range / adjusted range		
Permissible load		' _{S min}) / 0.02 A] Ω		unication: R	$R_{\text{min}} = 250 \Omega$
Influence effects	supply: 0.05 %		permissible load: 0.05 %		
Long term stability		/ year at reference			
Response time			on of electronic damping		measuring rate 5/sec
Adjustability	electronic dam		0 100 sec		<u> </u>
,	offset:	-··· ʊ ·	0 80 % FSO		
	turn-down of sp	oan:	max. 1:5 (span min. 0.02 ba	r)	
² accuracy according to IEC 60770 – limi				,	
Thermal effects (offset and span)		, , , , , , , , , , , , , , , , , , ,	<u>, , , , , , , , , , , , , , , , , , , </u>		
Tolerance band	≤ ± 1 % FSO				
in compensated range	-20 80 °C				
	-20 00 0				
Permissible temperatures		405.00	70 %0		
Permissible temperatures ³	medium: -25		environment: -20 70 °C		storage: -30 80 °C
³ for pressure port in PVDF the medium i	emperature is -25	60 °C			
Electrical protection					
Short-circuit protection	permanent				
Reverse polarity protection	no damage, bu	t also no function	1		
Electromagnetic compatibility	emission and in	mmunity accordin	ng to EN 61326		
Mechanical stability					
Vibration	5 g RMS (20	2000 Hz)	according to DIN EN 60068-	-2-6	
Shock	100 g / 11 mse	C	according to DIN EN 60068-	-2-27	
Materials			-		
Pressure port	inch thread DF	RD flange Varive	ent®, dairy pipe and clamp:	stainless	steel 1.4404 (316L)
		1 1/2" flush (DIN		PVDF	
Housing	stainless steel		3002).	1 701	
Viewing glass	laminated safe				
		ıy yıass		others s:	roquest
Seals	FKM; EPDM	00.0.0/		others on	request
Diaphragm Madia waterd parts	ceramics Al ₂ O ₃				
Media wetted parts	pressure port,	seals, diaphragm			
Explosion protection					
Approval	IBExU05ATEX	1106 X			
AX12-x act ci	zone 0/1 4:				
	II 2G Ex ia IIC				
	II 1/2G Ex ia II				
	II 1G Ex ia IIC	T4 Ga			
	zone 20:				
	II 1D Ex ia IIIC				
Safety technical maximum values	the supply con	nections have an	nW , $C_i = 0$ nF, $L_i = 0$ μH , inner capacity of max. 27 nF t		ng
Permissible temperatures for environment	in zone 0: in zone 1 or hig		C with p _{atm} 0.8 bar up to 1.1 bar C	ar	
Connecting cables (by factory)	cable capacitar		/shield also signal line/signal li /shield also signal line/signal li		n
⁴ The designation depends on the nominal					
Nominal pressure ranges > 160 mbar a					n "1G".

Miscellaneous								
Display	LC-display, visible range 32.5 prange of indication ±9999; 8-dig 52-segement bargraph; accura	x 22.5 mm; 5-digit 7-segment main display, digit height 8 mm, git 14-segment additional display, digit height 5 mm; cy 0.1% ± 1 digit						
Ingress protection	IP 67	•						
Installation position	ny							
Weight	min. 400 g (depending on mec	hanical connection)						
Operational life	100 million load cycles							
CE-conformity	EMC Directive: 2014/30/EU							
ATEX Directive	2014/34/EU							
Wiring diagram								
2-wire-system (current)		2-wire-system (current) HART®						
p supply + A	Vs —	p supply +						
Pin configuration								
Electrical connections		M12x1 (4-pin), metal						
Supply +		1						
Supply –		3						
Shield		plug housing						
Electrical connections (in mm)								
14,5 M12x1 (4-pin)	4 3							
Designs ⁵								
side display		45° display						

⁵ all designs in combination with G1 1/2" flush in horizontal rotatable housing as standard; other mech. connections in rotatable housing on request

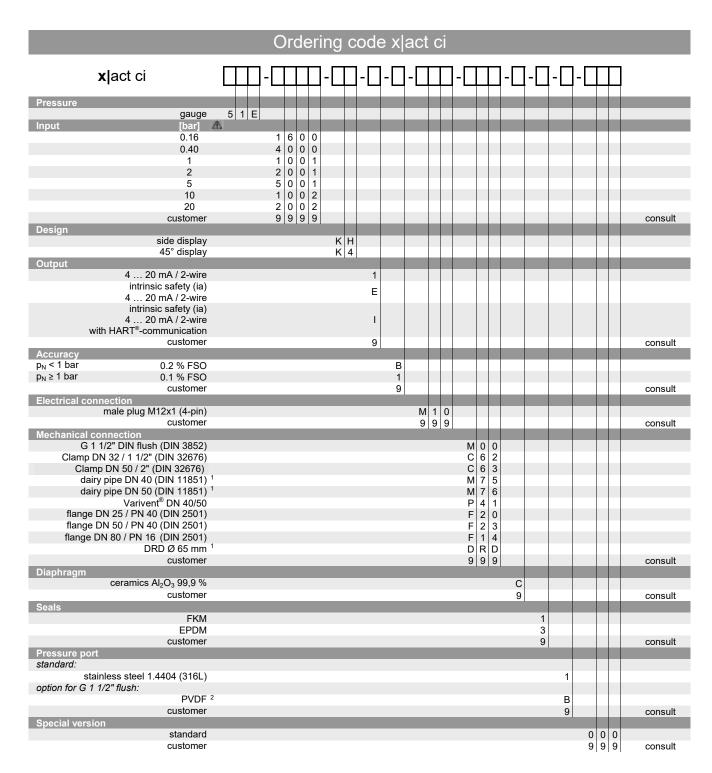


⁶ cup nut for dairy pipe or mounting flange for DRD is included in the delivery (already pre-assembled)

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Varivent® is a trademark of GEA Tuchenhagen GmbH; Windows® is a registered trademark of Microsoft Corporation

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HART® is a registered trade mark of HART Communication Foundation; Varivent® is a brand name of GEA Tuchenhagen GmbH

¹ cup nut resp. mounting flange is included in the delivery (already pre-assembled)

 $^{^2}$ for pressure port in PVDF the operation medium temperature is -25 \dots 60 $^{\circ}\text{C}$



DMP 320

Precision Pressure Transmitter with Fast Response Time

Stainless Steel Sensor

accuracy according to IEC 60770: 0.1 % FSO

Nominal pressure

from 0...100 mbar up to 0...600 bar

Output signal

3-wire: 0.1 ... 10 V

4 ... 20 mA

others on request

Special characteristics

- extremely fast response time ≤ 0.5 msec
- internal sample rate 10 kHz
- accuracy 0.1 % FSO
- excellent thermal behaviour
- outstanding long term stability

Optional versions

customer specific versions

DMP 320 stands for speed and precision.

With a response time of ≤ 0.5 msec and a sampling rate of 10 kHz, the pressure transmitter was designed for applications, in which an extremely fast and exact pressure measuring is required. Pressure curves, peaks and hits can be monitored and evaluated exactly.

The signal processing of the sensor signal is done by newly developed digital electronics, which detect the signal with a sampling rate of 10 kHz. Sensorspecific deviations such as non-linearity, hysteresis and temperature errors are compensated actively.

Preferred areas of use are



Plant and machine engineering



Energy industry





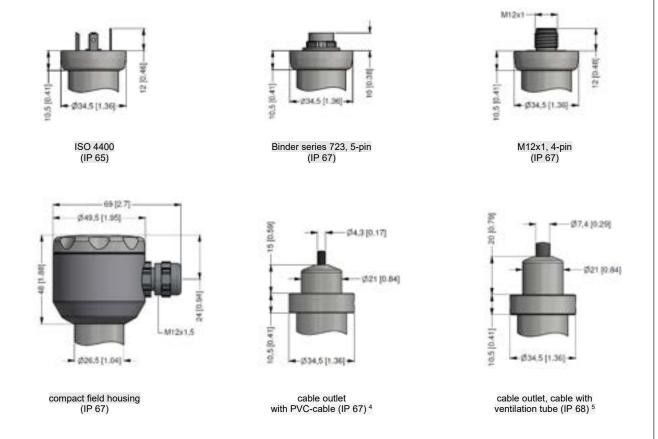


Input pressure range														
Nominal pressure gauge	[bar]	-10	0.10	0.16	0.25	0.	40	0.60	1		1.6	2.5	4	6
Nominal pressure abs.	[bar]	-	-	-	-	0.	40	0.60	1		1.6	2.5	4	6
Overpressure	[bar]	5	0.5	1	1		2	5	5		10	10	20	40
Burst pressure ≥	[bar]	7.5	1.5	1.5	1.5	;	3	7.5	7.5	5	15	15	25	50
Nominal pressure		40	10	0.5	40	.			100		20	050	400	000
gauge /abs	[bar]	10	16	25	40	'	60)	100	16	50	250	400	600
Overpressure	[bar]	40	80	80	10	5	21	0	600	60	00	1000	1000	1000
Burst pressure ≥	[bar]	50	120	120	210)	42	0	1000	10	00	1250	1250	1250
Vacuum resistance			ar: unlimite		n resista	nce								
		$p_N < 1 ba$	ar: on requ	est										
Output signal / Supply														
3-wire voltage		0.1 10	V / V	s = 14	30 V _{DC}									
3-wire current		4 20 r	nA / V	s = 14	30 V _{DC}									
Performance														
Accuracy 1		nominal	pressure :	≥ 0.25 ba	r: ≤	± 0.	10 %	FSO						
,			pressure ·			± 0.2	25 %	FSO						
Permissible load		current voltage 3		$R_{max} = 0$ $R_{min} = 1$										
Influence effects		supply: load:			FSO / 10									
Long term stability			6 FSO / ye	ear at refe	erence co	nditi	ons							
Response time		≤ 0.5 m	sec											
¹ accuracy according to IEC 60	770 – Iir	nit point ad	justment (n	on-linearit	, hysteres	sis, re	peatal	bility)						
Thermal effects (offset an	d spar	1)												
Tolerance band		≤ ± 0.2 %	6 FSO											
TC, average			FSO / 10	K										
in compensated range		-20 80												
Permissible temperatures	;													
Medium		-40 12	25°C											
Electronics / environment		-40 8												
Storage		-40 10												
Electrical protection														
Short-circuit protection		permane	ent											
Reverse polarity protection			ge, but al	so no fun	ction									
Electromagnetic compatibil			and imm			FN 6	31326	3						
Mechanical stability	ıcy	CITIIOOIUI	and IIIIII	army acc	craing to	_14 (J 1020	,						
Vibration		10 a DM	S (25 2	000 H²/				cordin	to DIN	ENG	0068 2	-6		
Shock		500 g / 1		000 FIZ)										
		300 g / 1	msec				ac	corain	g to DIN	⊏IN 0	UU08-2	-21		
Materials				104 (045	1.									
Pressure Port			steel 1.4											
Housing	200		steel 1.4											
Option compact field housing	ıg	cable gla	steel 1.43 and M12x1			lated	d (clar	mping	range 2	8 r	mm)			
Seals		standard												
		options:	EPDN	I										
Dianhragm			n request steel 1.4	125 (246	1.)									
Diaphragm Media wetted parts			port, sea											
Miscellaneous		pressure	port, sea	s, uiapili	ayııı									
		2	ltoge: -	20 n= 1										
Current consumption		3-wire cu	oltage: < urrent: <											
Weight		approx.	200 g											
Installation position		any ²												
Operational life			on load cy											
CE-conformity		Pressure	ective: 20 Equipme	nt Direct	ve: 2014									
² Pressure transmitters are cali deviations in the zero point for ³ This directive is only valid for	r pressu	re ranges p	o _N ≤ 1 bar.	•				. If this	position is	s chan	iged on i	installation	there can l	be slight



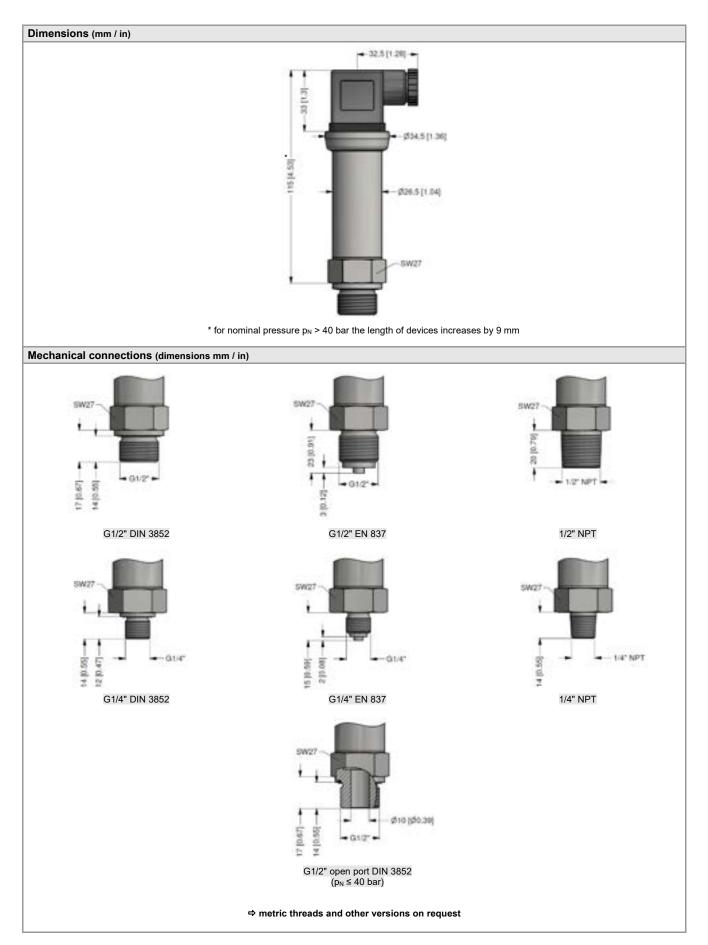
Pin configuration					
Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	compact field housing	
	3	3		Vs+ Vs- S+ GND	cable colours (IEC 60757)
Supply +	1	3	1	V _S +	WH (white)
Supply –	2	4	2	V _S -	BN (brown)
Signal +	3	1	3	S+	GN (green)
Shield	ground pin	5	4	GND	GNYE (green-yellow)

Electrical connections (dimensions mm / in)



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

standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)
 different cable types and lengths available, permissible temperature depends on kind of cable



Ordering code

	Orde	ering	cod	e D	M	P :	32	20	i	i	i	ı	i		
DMP 320	ПП-Г	Ш	-П	-□	-□	П	7	-	П	7-	П	-П	T	7	
Pressure															
gauge absolute ¹	1 1 C 1 1 D														
Input [bar] 0.10 ¹	1						ı	-		-			-		
0.16 1	1 2	6 0 0													
0.25 ¹ 0.40	4	0 0 0													
0.60	6														
1.0 1.6	1	6 0 1													
2.5 4.0	2	5 0 1													
6.0	4	0 0 1													
10	1	0 0 2													
16 25	1 2	5 0 2													
40 60	4	0 0 2													
100	1	0 0 3													
160	1	6 0 3													
250 400	2 4	0 0 3													
600	6 X	0 0 3													
-1 0 customer	9	1 0 2 9 9												consu	lt
Output 0,1 10 V / 3 wire			3A												
4 20 mA / 3-wire			7												
Accuracy			9					_	_		_			consu	it
for $p_N \ge 0.25$ bar: 0.10 % FSO		_		1			T			_			_		
for $p_N < 0.25$ bar: 0.25 % FSO				2 9										aanau	14
Electrical connection	_	_	-	9			i							consu	IL
male and female plug ISO 4400					1		0								
male plug Binder series 723 (5-pin) cable outlet with PVC cable (IP67) ²					2 T		0								
cable outlet,							0								
cable with ventilation tube (IP68) ³ male plug M12x1 (4-pin) / metal					М	1 (0								
compact field housing					8		0								
stainless steel 1.4301 (304) customer						9 !	9							consu	lt
Mechanical connection G1/2" DIN 3852								1	0 (
G1/2" EN 837								1 2 3)					
G1/4" DIN 3852 G1/4" EN 837								3 4		0					
G1/2" DIN 3852 open pressure port 4								H H	0 (0					
1/2" NPT 1/4" NPT								N	0 ()					
customer								N 9	9 9	9				consu	lt
Seals FKM											1				
EPDM											3				
Special version customer			-								9			consu	it
Special version standard												0	0 (
customer												9	9 9	consu	it

¹ absolute pressure possible from 0.4 bar ² standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C); others on request

 ³ code TR0 = PVC cable, cable with ventilation tube available in different types and lengths
 4 only for p_N ≤ 40 bar



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
- excellent long term stability

Optional versions

- **IS-versions** Ex ia = intrinsically safe for gases and dusts
- welded pressure sensor
- pressure port G1/2" flush
- customer specific versions

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 3	331i								
Nominal pressure 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

Vacuum ranges								
Nominal pressure gauge	[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		

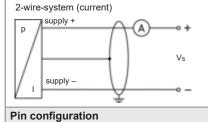
Pressure ranges DMP 333i								
Nominal pressure gauge / absolute	[bar]	100	200	400	600			
Overpressure	[bar]	210	600	1000	1000			
Burst pressure ≥	[bar]	420	1000	1250	1250			

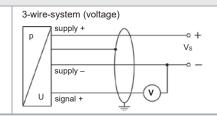
Output signal / Supply									
Standard	2-wire: 4 20 mA / V _S = 12 36 V _{DC}								
Option IS-version	2-wire: 4 20 mA / V _S = 14 28 V _{DC}								
Options analogue signal	3-wire: 0 10 V / V _S = 14 36 V _{DC}								
Performance									
Accuracy ¹	≤±0.1% FSO								
Permissible load	current 2-wire: $R_{max} = [(V_S - V_{S min}) / 0.02 A] \Omega$ voltage 3-wire: $R_{min} = 10 k\Omega$								
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ								
Long term stability	≤ ± 0.1 % FSO / year at reference conditions								
Response time	approx. 5 msec								
¹ accuracy according to IEC 60770 – limit	point adjustment (non-linearity, hysteresis, repeatability)								
Thermal effects (offset and span)									
Tolerance band [% FSO]	≤ ± 0.2 in compensated range -20 80 °C								
TC, average [% FSO / 10 K]	± 0.02 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								
Electromagnetic compatibility	emission and immunity according to EN 61326								
Materials									
Pressure port	stainless steel 1.4404 (316 L)								
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	FKM NBR welded version ² others on request								
Diaphragm stainless steel 1.4435 (316L)									
Media wetted parts pressure port, seal, diaphragm									
² welded version only with pressure ports	according to EN 837 and NPT; welded version not available with pressure ranges > 60 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 DX19-DMP 331i DX19-DMP 333i	IBExU 10 ATEX 1068 X / IECEx IBE 12 zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ia IIIC T135 °C I						
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 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 65 °C						
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1µH/m						
Miscellaneous							
Current consumption	signal output current: max. 25 signal output voltage: max. 7 max.						
Weight	approx. 200 g						
Installation position	any ³						
Operational life	100 million load cycles						
CE-conformity	EMC Directive: 2014/30 Pressure Equipment Directive: 2014/68	D/EU B/EU (module A) ⁴					
ATEX Directive	2014/34/EU						
3 Dunana una tura un sustitura aura antibunata di in	and the state of t	1 16 (b) (b)					

³ 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.

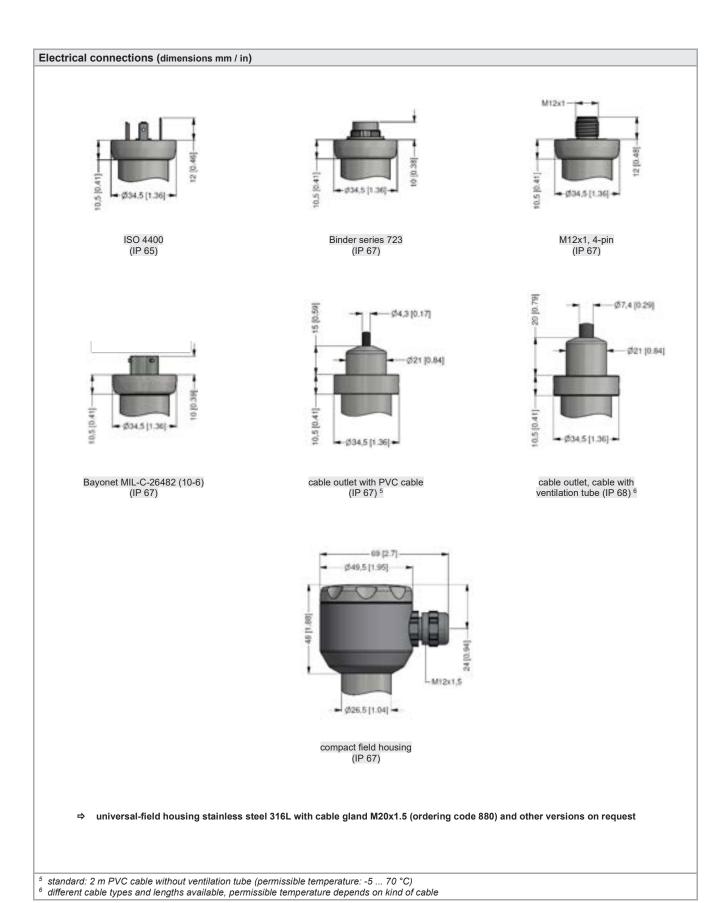
Wiring diagrams

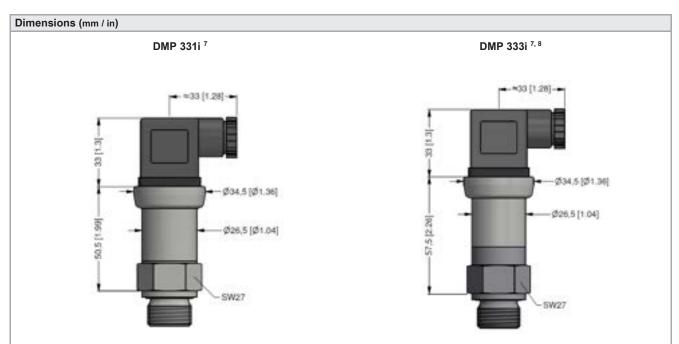




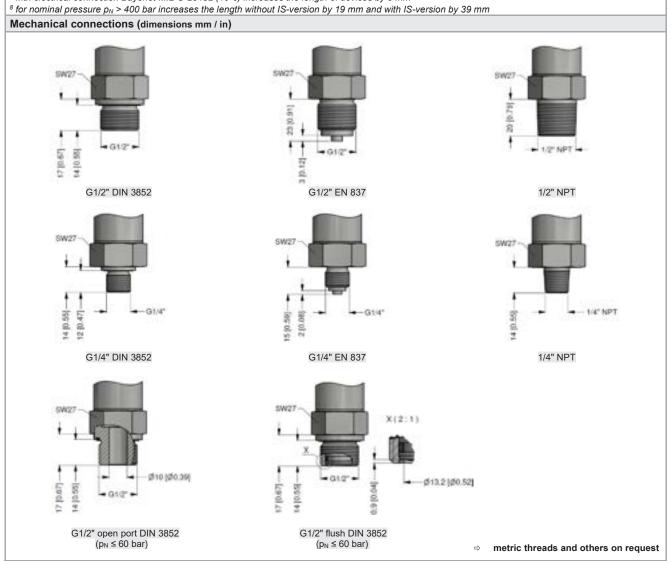
Electrical connections	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	Bayonet MIL-C-	26482 (10-6)	
	3	3		D A		
				2-wire	3-wire	
Supply +	1	3	1	Α	Α	
Supply –	2	4	2	В	D	
Signal + (only for 3-wire)	3	1	3	-	В	
Shield	ground contact 🕀	5	4	pressure	e port	
Electrical connections		field housing V _S . S+ GND	cable colours (IEC 60757)			
Supply +		V _S +	WH (white)			
Supply –		V _S -	BN (brown)			
Signal + (only for 3-wire)		S+	GN (green)			
Shield		GND	GNYE (green-yellow)			

⁴ This directive is only valid for devices with maximum permissible overpressure > 200 bar.

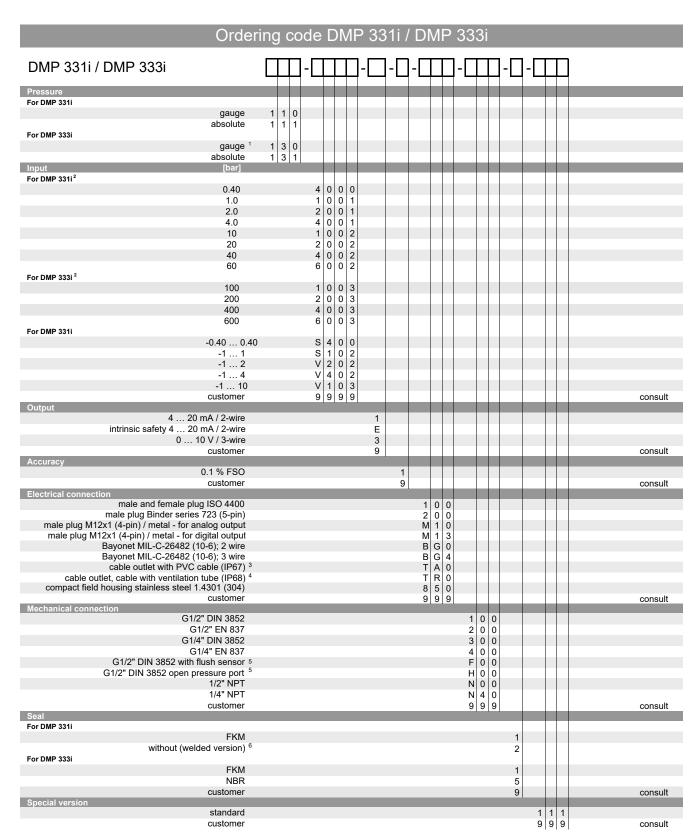




⁷ with electrical connection Bayonet MIL-C-26482 (10-6) increases the length of devices by 5 mm



Ordering code



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 $\,p_{\!N} \le 60$ bar

⁶ welded version only with pressure ports according to EN 837 and NPT; welded version not available with pressure ranges > 60 bar



DMP 334i

Precision-Pressure Transmitter for High Pressure

Thinfilm Sensor

accuracy according to IEC 60770: 0.2 % FSO

Nominal pressure

from 0 ... 600 bar up to 0 ... 2200 bar

Analogue output

2-wire: 4 ... 20 mA others on request

Special characteristics

- welded pressure sensor
- excellent accuracy
- robust and long-term stable

Optional versions

- pressure port M20x1.5 or 9/16 UNF
- different kinds of electrical connections

The precision pressure transmitter DMP 334i is a consistent further development of the approved industrial pressure transmitter DMP 334. Basic element is a thinfilm sensor which is welded with the pressure port.

The integrated digital electronics compensates actively sensor specific deviations like non-linearity and thermal error.

It is therefore possible to offer a high pressure transmitter with excellent metrological qualities.

Preferred areas of use are



Plant and machine engineering
Test benches

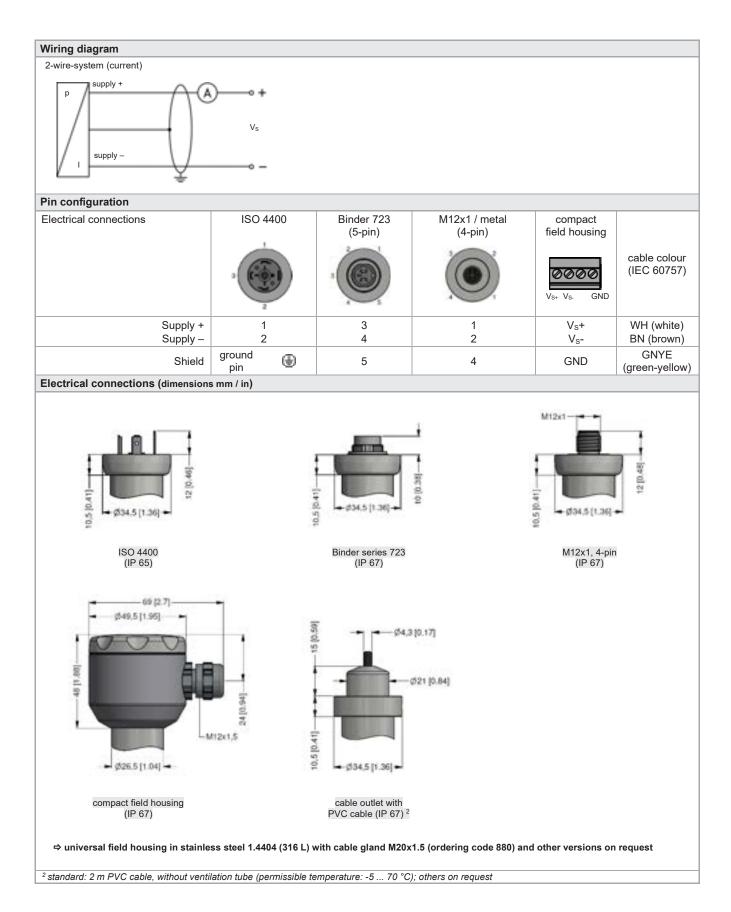


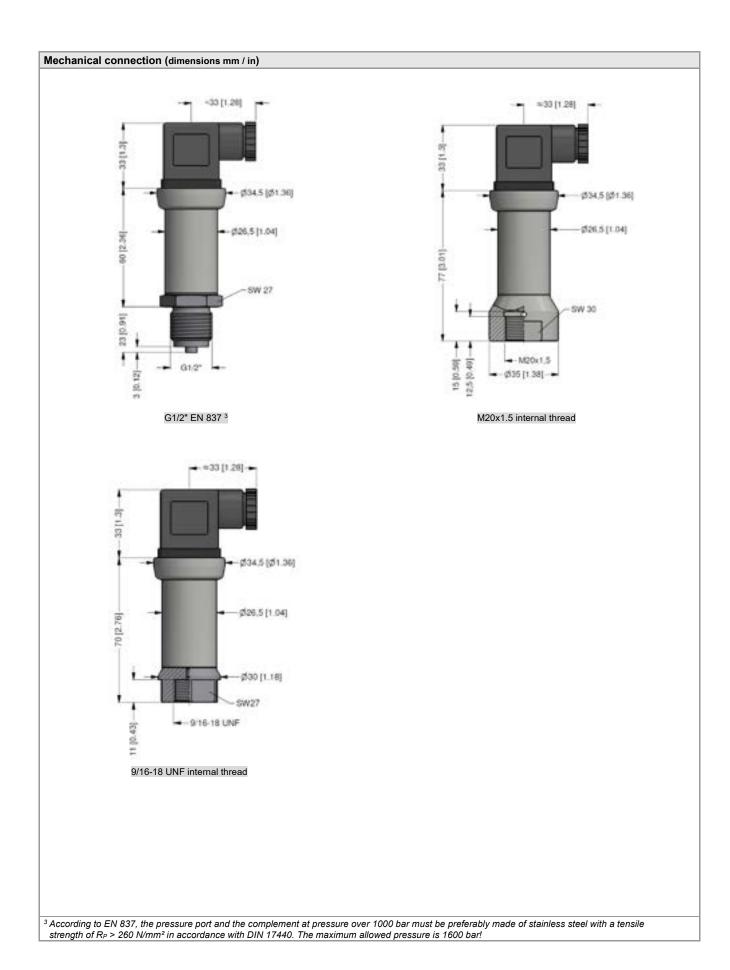
Commercial vehicles and mobile hydraulics

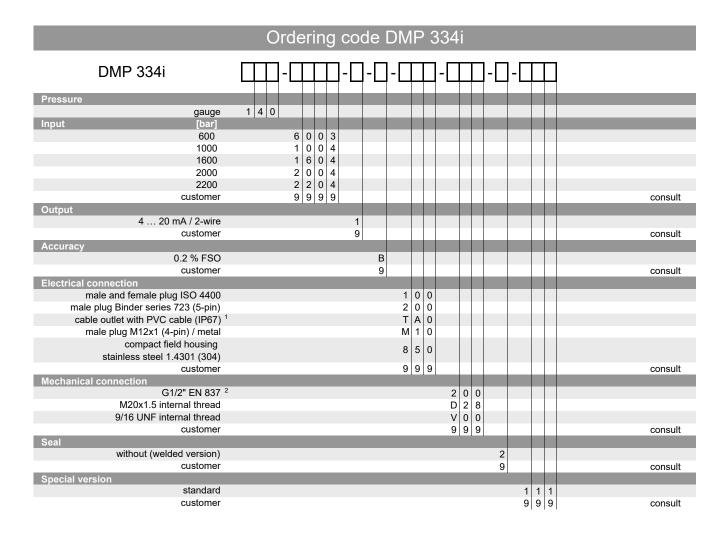


Input pressure range						
Nominal pressure gauge	[bar]	600	1000	1600	2000	2200
Overpressure	[bar]	2000	2000	2800	2800	2800

Output signal / Supply				
Standard	2-wire: 4 20 mA / V _S = 12 36 V _{DC}			
Performance				
Accuracy ¹	≤±0.2 % FSO			
Permissible load	$R_{\text{max}} = [(V_{\text{S}} - V_{\text{S min}}) / 0.02 \text{ A}] \Omega$			
Influence effects	supply: 0.05 % FSO / 10 V			
	load: 0.05% FSO / $k\Omega$			
Long term stability	≤ ± 0.1 % FSO / year at reference conditions			
Response time	approx. 10 msec			
¹ accuracy according to IEC 60770 – limi	it point adjustment (non-linearity, hysteresis, repeatability)			
Thermal effects (offset and span)				
TC, average	< 0.25 % FSO / 10 K			
In compensated range	-20 85 °C			
Permissible temperatures				
Medium	-40 140 °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			
Electromagnetic compatibility	emission and immunity according to EN 61326			
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			
Materials				
Pressure port	stainless steel 1.4542 (17-4 PH)			
Housing	stainless steel 1.4404 (316L)			
Option compact field housing	stainless steel 1.4301 (304)			
	cable gland M12x1.5, brass, nickel plated (clamping range 2 8 mm)			
Seals	none (welded)			
Diaphragm	stainless steel 1.4542 (17-4 PH)			
Media wetted parts	pressure port, diaphragm			
Miscellaneous				
Current consumption	max. 25 mA			
Weight	approx. 300 g			
Installation position	any			
Operational life	p _N = 600 bar: 100 million load cycles p _N > 600 bar: 10 million load cycles			
CE-conformity	EMC Directive: 2014/30/EU			
OL-comorning	Pressure Equipment Directive: 2014/68/EU (module A)			







 $^{^{1}}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C), others on request

² According to EN 837, the pressure port and the complement, at pressure over 1000 bar must be preferably made of stainless steel with a tensile strength of R_p > 260 N/mm² in accordance with DIN 17440. The maximum allowed pressure is 1600 bar!



DMP 331Pi

Precision Pressure Transmitter

Pressure Ports and Process Connections with Flush Welded Stainless Steel Diaphragm

accuracy according to IEC 60770: 0.1 % FSO

Nominal pressure

from 0 ... 400 mbar up to 0 ... 40 bar

Output signals

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

Product characteristics

- excellent temperature response 0.04 % FSO / 10K
- processing of the sensor signal using digital electronics
- process connections suitable for hygienic application
- vacuum resistant

Optional versions

- IS-version
- cooling element for media temperatures up to 300 °C

The precision pressure transmitter DMP 331Pi demonstrates the further development of welltried industrial pressure transmitter DMP 331P.

The signal from the specially designed piezoresistive stainless steel sensor is processed by the newly developed digital electronic system, performing thus an active compensation of sensor-specific deviations such as hysteresis, thermal errors and non-linearity.

The temperature range of -40 ... 125 °C can be extended by the integration of a cooling element up to 300 °C.

Preferred areas of use are



Laboratory techniques



Food and beverage



Pharmaceutical industry















Pressure ranges								
Nominal pressure gauge / absolute ¹	[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
Vacuum resistance $p_N \ge 1$ bar: unlimited vacuum resistance $p_N < 1$ bar: on request								
¹ absolute pressure permissible 1 bar								

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

Output signal / Supply				
Standard	2-wire: 4 20 mA / V _S = 12 36 V _{DC}			
Option IS-version	2-wire: 4 20 mA / V _S = 14 28 V _{DC}			
Option	3-wire: 0 10 V / VS = 14 36 VDC			
Performance				
Accuracy ²	≤±0.1 % FSO			
Permissible load	current 2-wire: $R_{max} = [(V_S - V_{S min}) / 0.02 A] \Omega$ voltage 3-wire: $R_{min} = 10 k\Omega$			
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ			
Long term stability	≤ ± 0.1 % FSO / year at reference conditions			
Response time	current 2-wire: approx. 5 msec voltage 3-wire: 25 msec			
² accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)				
Thermal effects ³ (offset and span)				
Tolerance band [% FSO]	≤±0.35			
TC, average [% FSO / 10 K]	≤ ± 0.035			
In compensated range	0 80 °C			

Thermal enects * (onset and span)					
Tolerance band [% FSO]	≤ ± 0.35				
TC, average [% FSO / 10 K]	≤ ± 0.035				
In compensated range	0 80 °C				
3 on antique localing alament are influence thermal offerte for offert and one of depending an installation position and filling conditions					

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 ⁴	-40 125 °C -10 125 °C		
Medium with cooling element ⁵	overpressure: -40 300 °C vacuum: -40 150 °C ⁶	overpressure: -10 250 °C vacuum: -10 150 °C ⁶	
Electronics / environment	-25 85 °C		
Storage	-40 100 °C		

⁴ max. temperature of the medium for nominal pressure gauge > 0 bar: 150 °C for 60 minutes with a max. environmental temperature of 50 °C

⁵ max. temperature depends on the used sealing material, type of seal and installation

	max. temperature depends on the deed estaining material, type or sear and metallically				
⁶ also for p _a	_{abs} ≤ 1 bar				
Electrical	I protection				
Short-circ	uit protection	permanent			
Reverse p	oolarity protection	no damage, but also no function			
Electroma	agnetic compatibility	emission and immunity according to EN 61326			
Filling flu	Filling fluids				
Standard		silicone oil			
Options food compatible oil according to 21CFR178.3570					
		(Mobil SHC Cibus 32; Category Code: I	H1; NSF Registration No.: 141500)	others on request	
Mechanic	cal stability				
Vibration	according to DIN EN 60068-2-6	G 1/2": 20 g RMS (25 2000 Hz)	others: 10 g RMS (25 20	000 Hz)	
Shock	according to DIN EN 60068-2-27	G 1/2": 500 g / 1 msec	others: 100 g / 1 msec		

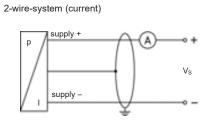
44 DMP 331 Pi

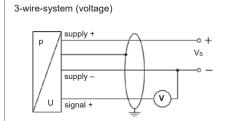
Technical data

Materials						
Pressure port	stainless steel 1.4435 (316 L) others on request	_				
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 (O-ring)	standard: FKM (recommended for medium temperatures ≤ 200 °C)					
	option: FFKM (recommended for medium temperatures < 260 °C) others on request Clamp, dairy pipe, Varivent®: without					
Diaphragm	standard: stainless steel 1.4435 (316L) option: Hastelloy® C-276 (2.4819) and Tantalum on request					
Media wetted parts	pressure port, diaphragm					
Explosion protection (for 4	. 20 mA / 2-wire)					
Approvals	IBEXU 10 ATEX 1068 X / IECEx IBE 12.0027X					
DX19-DMP 331Pi	zone 0: II 1G Ex ia IIC T4 Ga					
	zone 20: II 1D Ex ia IIIC T135 °C Da					
Safety technical maximum	$U_i = 28 \text{ V}, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C_i \approx 0 \text{ nF}, L_i \approx 0 \mu\text{H},$					
values	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/signal line: 1 µH/m					
Miscellaneous						
EHEDG certificate	EHEDG conformity is only ensured in combination with an approved seal. This is e.g. for					
Type EL Class I	- Clamp (C61, C62, C63): T-ring-seal from Combifit International B.V.					
	- Varivent® (P41): EPDM-O-ring which is FDA-listed					
	- dairy pipe (M73, M75, M76): ASEPTO-STAR k-flex upgrade seal by Kieselmann GmbH					
Current consumption	signal output current: max. 25 mA					
	signal output voltage: max. 7 mA					
Surface roughness	pressure port R _a < 0.8 µm (media wetted parts)					
	diaphragm R _a < 0.15 μm					
	weld seam R _a < 0.8 μm					
Weight	approx. 200 g					
Installation position	any ⁷					
Operational life	100 million load cycles					
CE-conformity	EMC Directive: 2014/30/EU					
ATEX Directive	2014/34/EU					

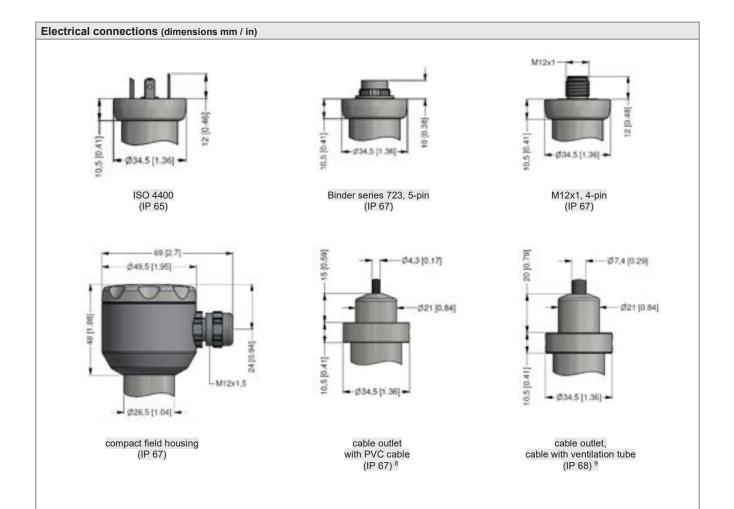
⁷ Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviations in the zero point for pressure ranges p_N ≤1 bar.

Wiring diagrams



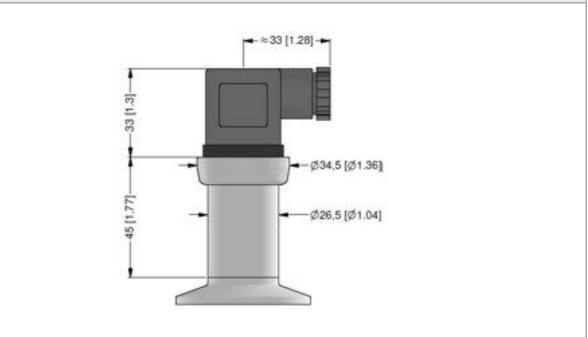


Pin configuration					
Electrical connections	ISO 4400	Binder 723 (5-pin)	M12x1/ metal (4-pin)	compact field housing	cable colours (IEC 60757)
	3 GNO	3		V _{S+} V _{S-} S+ GND	
Supply +	1	3	1	V _{S+}	WH (white)
Supply –	2	4	2	V _{S-}	BN (brown)
Signal + (only for 3-wire)	3	1	3	S-	GN (green)
shield	ground pin 🚇	5	4	GND	GNYE (green-yellow)



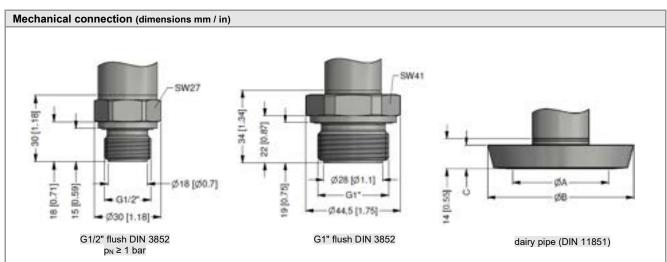
⇒ universal field housing stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request

Dimensions (mm / in)

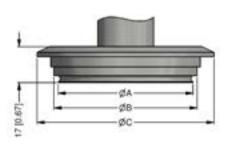


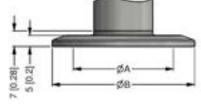
⁸ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C)

⁹ different cable types and lengths available, permissible temperature depends on kind of cable



	dimensions in mm [in]				
size	DN 25	DN 40	DN 50		
Α	23 [0.91]	32 [1.26]	45 [1.77]		
В	44 [1.73]	56 [1.20]	68.5 [2.70]		
С	10 [0.39]	10 [0.39]	11 [0.43]		
p _N [bar]	≤ 40	≤ 40	≤ 25		







Varivent[®] p_N ≤ 25 bar

dimensions in mm [in]				
size	DN 40/50			
Α	64 [2.52]			
В	68 [2.68]			
0	04 [0 04]			

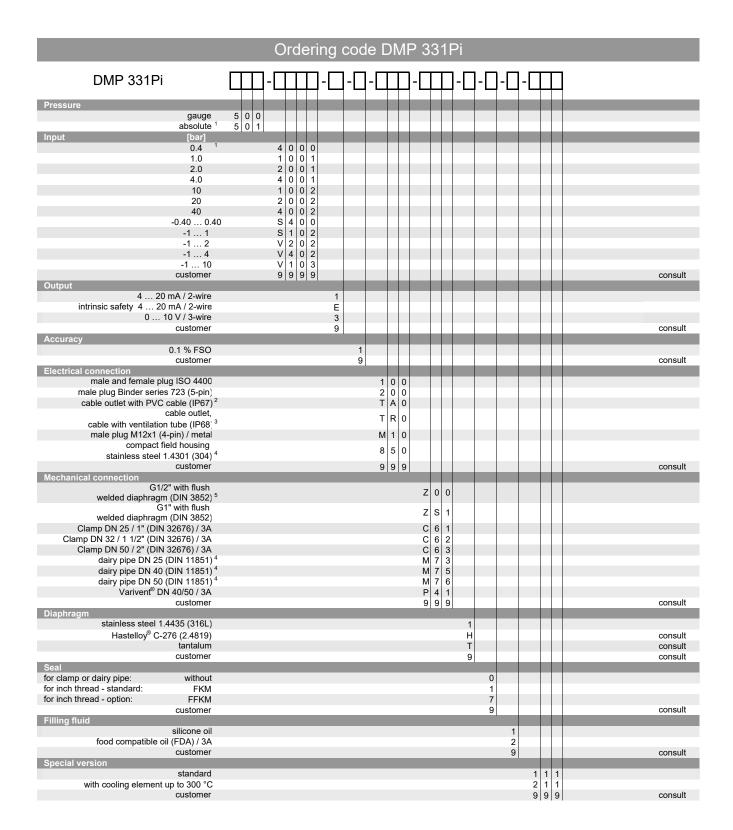
dimensions in mm [in]								
size	DN 25	DN 32	DN 50					
Α	23.0 [0.91]	23.0 [0.91]	45 [1.77]					
В	50.5 [1.99]	50.5 [1.99]	64 [2.52]					
p _N [bar]	0.25 16	≤ 16	≤ 16					

Clamp (DIN 32676)

Cooling element up to 300 °C ⁷ (optionally)

DMP 331 Pi

Ordering code



¹ absolute pressure possible from 1 bar

Hastelloy® is a brand name of Haynes International Inc.; Varivent® is a brand name of GEA Tuchenhagen GmbH

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

 $^{^{3}}$ code TR0 = PVC cable, cable with ventilation tube available in different types and lengths

⁴ The cup nut has to be mounted by production of pressure transmitter with electrical connection field housing and mechanical connection dairy pipe.

The cup nut has to be ordered as separate position.

⁵ possible only for p_N ≥ 1 bar



DMP 321

Industrial **Pressure Transmitter**

Stainless Steel Sensor

accuracy according to IEC 60770: standard: 0.25 % FSO option: 0.1 % FSO

Nominal pressure

from 0 ... 100 mbar up to 0 ... 600 bar

Output signals

2-wire: 4 ... 20 mA

3-wire: 0 ... 20 mA / 0 ... 10 V

others on request

Special characteristics

- perfect thermal behaviour
- excellent long-term stability
- compact design

Optional versions

- IS-version Ex ia = intrinsically safe for gases and dusts
- welded pressure sensor
- customer specific versions

The pressure transmitter DMP 321 is the consistent further development of our in many applications approved DMP 331. It shows an improved signal behaviour and sets new standards in the industrial class.

Its metallic diaphragm made of stainless steel (1.4435 / 316L) offers a good corrosion resistance in many industrial processes.

The modular device concept allows to combine different pressure ranges with a variety of electrical and mechanical connections. Thus, a diversity of variations is created, meeting almost all requirements in industrial applications.

Preferred areas of use are



Plant and machine engineering



Environmental engineering



Energy industry



Mobile hydraulics















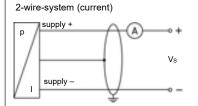
Input pressure range

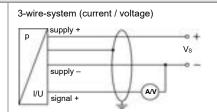
1												
Nominal pressure gauge	[bar]	-10	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6
Nominal pressure absolute	[bar]			-	-	0.40	0.60	1	1.6	2.5	4	6
Overpressure	[bar]	5	0.5	1	1	2	5	5	10	10	20	40
Burst pressure ≥	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50
Nominal pressure		10	16	25	40	6	0	100	160	250	400	600
gauge / absolute	[bar]											
Overpressure	[bar]	40	80	80	105			600	600	1000	1000	1000
Burst pressure ≥	[bar]	50	120	120	210		20	1000	1000	1250	1250	1800
Vacuum resistance			ar: unlimite		m resistar	nce						
		p _N < 1 ba	ar: on requ	Jest								
Output signal / Supply												
Standard		2-wire:	4 20	lmΛ /	V _S = 10	32 \/						
		2-wire:										
Option IS-protection					$V_{\rm S} = 12$							
Options 3-wire		3-wire:			$V_S = 14$. $V_S = 14$.							
Denfermen			0 10	, ,	V _S - 14.	30 V _{DC}						
Performance			J.		0/ 500							
Accuracy 1		standard option:	1 :	$\leq \pm 0.25$ $\leq \pm 0.19$								
Permissible load		current 2	2-wire:		V _S – V _{S m}	.) / 0 02	Δ1.0					
i cittiissibie idau		current 3		$R_{\text{max}} - [($ $R_{\text{max}} = 5$		in) / U.UZ	∪] 22					
		1		$R_{max} - 5$ $R_{min} = 10$								
Influence effects		voltage 3	o-wire.			\ /						
iniliuence ellecis		supply: load:			-SO / 10 ' -SO / kΩ	V						
Long term stability			% FSO / y			onditions						
Response time		2-wire:	70 1 OO 7 y	≤ 10 ms		SHARRONS						
r tosponeo timo		3-wire:		≤ 3 mse								
¹ accuracy according to IEC 607	70 – lim	it point adju	ustment (no	n-linearity	, hysteresi	s, repeata	bility)					
Thermal effects (offset and	d span	1)										
Tolerance band	-	≤ ± 0.75	% FSO									
in compensated range		-20 85	5 °C									
Permissible temperatures												
Medium		-40 12	25 °C									
Electronics / environment		-40 8										
Storage		-40 10										
Electrical protection												
Short-circuit protection		permane	ent									
Reverse polarity protection		<u> </u>	age, but a	lso no fur	nction							
Electromagnetic compatibilit	v		n and imm			FN 6132	26					
Mechanical stability	,	3111100101	. and mill	inty doc	is any to							
Vibration		10 a RM	1S (25 :	2000 Hz)				according	to DIN F	N 60068-2	2-6	
Shock		10 g (10		_500 112)						N 60068-2		
Materials		100 g / 1						20001 UII 10	, to DIN L	00000-2		
		etainless	s stool 1 4	104 (246	1)							
Pressure port			s steel 1.4	•								
Housing Option compact field housing	α		s steel 1.4 s steel 1.4									
Option compact field housing	y		s steel 1.4 and M12x			olated (cl	amping	range 2	8 mm)			
Seals		standard		1.0, 5145	s, moner p	natou (ol	amping	range Z .	0 111111)			
		options:		I (for p _N ≤	160 bar)							
		<u> </u>			² (for p _N			others on	request			
Diaphragm		stainless	s steel 1.4	435 (316	L)							
Media wetted parts		pressure	e port, sea	ıls, diaph	ragm							

Explosion protection (only for 4.	20 mA / 2-wire)					
Approvals	BExU 10 ATEX 1068 X / IECEx IBE 12.0027X					
DX19-DMP 321	zone 0: II 1G Ex ia IIC T4 Ga					
	zone 20: II 1D Ex ia IIIC T135 °C Da					
Safety technical maximum values	$U_i = 28 \text{ V}_{DC}, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C_i \approx 0 \text{ nF}, L_i \approx 0 \mu\text{H},$					
	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 70 °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: 1 μH/m					
Miscellaneous						
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA					
Weight	approx. 140 g					
Installation position	any ³					
Operational life	100 million load cycles					
CE-conformity	EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module A) 4					
ATEX Directive	2014/34/EU					

³ 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.

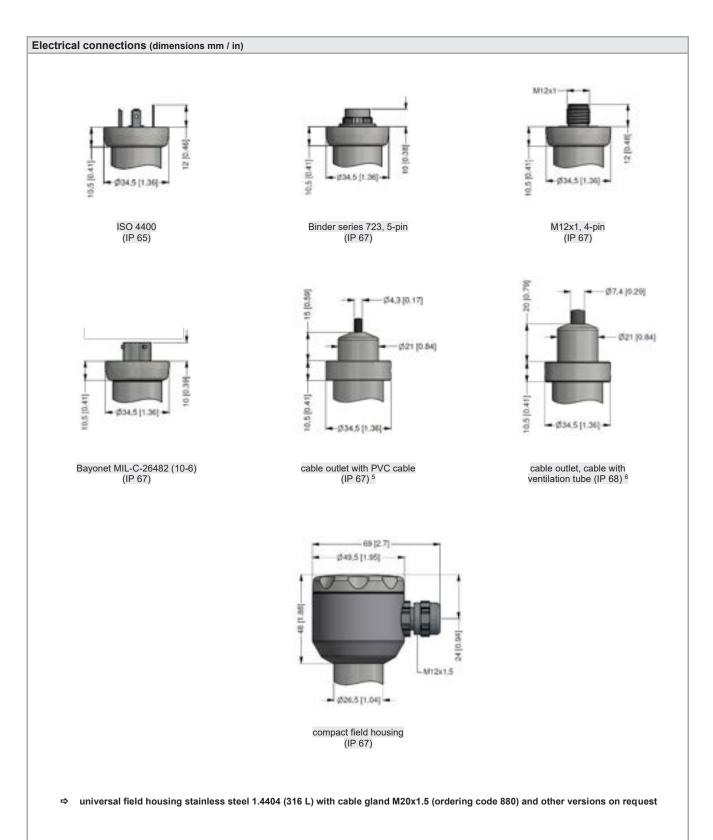
Wiring diagrams





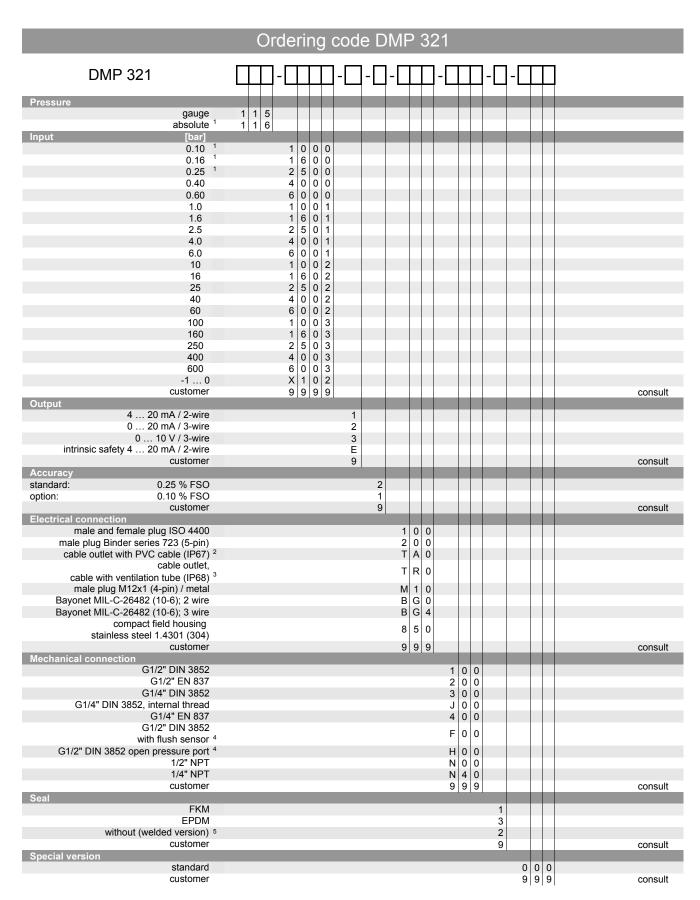
Pin configuration						
Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	Bayonet MIL-C-26482 (10-6)		
	3 GND	3	3	٥	A	
				2-wire	3-wire	
Supply +	1	3	1	Α	Α	
Supply –	2	4	2	В	D	
Signal + (for 3-wire)	3	1	3	-	В	
Shield	ground pin 倒	5	4	pressure port		
Electrical connection	compact field Vs+ Vs-	00	cable colours	s (IEC 60757)		
Supply +	V ₃		WH (white)			
Supply –	V	s -	BN (b	rown)		
Signal + (for 3-wire)	S	+	GN (g	green)		
Shield	GI	ND	GNYE (gre	en-yellow)		

⁴ This directive is only valid for devices with maximum permissible overpressure > 200 bar



standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)
 different cable types and lengths available, permissible temperature depends on kind of cable

Dimensions (mm / in) - ×33 (1.26) --\$34,5 (\$1.36) #25.5 [#1.04] * for nominal pressure p_N > 60 bar increases the length of devices by 9 mm; with electrical connection Bayonet MIL-C-26482 (10-6) increases the length of devices by 5 mm additionally Mechanical connections (dimensions mm / in) 23 [0.91] 17 [0.67] +01/2" G1/2" DIN 3852 G1/2" EN 837 1/2" NPT 14 (0.55) -01/4" 1/4" NPT G1/4" DIN 3852 G1/4" EN 837 1/4" NPT \$10 [\$0.39] g13.2 (g0.52) 14 [0.55] 14 (0.55) G1/2" open port DIN 3852 $(p_N \le 40 \text{ bar})$ G1/4" DIN 3852 G1/2" flush DIN 3852 internal thread $(p_N \le 40 \text{ bar})$ $\ \Rightarrow$ metric threads and other versions on request



¹ absolute pressure possible from 0.4 bar

 $^{^2}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 $^{\circ}$ C); others on request

³ code TR0 = PVC cable, cable with ventilation tube available in different types and lengths

⁴ not possible for nominal pressure p_N > 40 bar

 $^{^{5}}$ welded version only with pressure ports according to EN 837 and NPT, possible for $p_{\rm N} \le 40$ bar



DMP 331

Industrial **Pressure Transmitter** for Low Pressure

Stainless Steel Sensor

accuracy according to IEC 60770: standard: 0.35 % FSO option: 0.25 / 0.1 % FSO

Nominal pressure

from 0 ... 100 mbar up to 0 ... 60 b

Output signals

2-wire: 4 ... 20 mA

3-wire: 0 ... 20 mA / 0 ... 10 V

others on request

Special characteristic

- perfect thermal behaviour
- excellent long term stability
- pressure port G 1/2" flush from 100 mbar

Optional versions

- IS-version Ex ia = intrinsically safe for gases and dusts
- SIL 2-according to IEC 61508 / IEC 61511
- welded pressure sensor
- customer specific versions

The pressure transmitter DMP 331 can be used in all industrial areas when the medium is compatible with stainless steel 1.4404 (316 L) or 1.4435 (316 L). Additional are different elastomer seals as well as a helium tested welded version available.

The modulare concept of the device allows to combine different stainless steel sensors and electronic modules with a variety of electrical and mechanical versions. Thus a diversity of variations is created, meeting almost all requirements in industrial applications.

Preferred areas of use are



Plant and machine engineering



Environmental engineering (water - sewage - recycling)



Energy industry















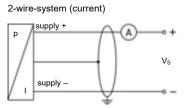
Input pressure range									
Nominal pressure gauge	[bar]	-10	0.10	0.16	0.25	0.40	0.60	1	1.6
Nominal pressure absolute	[bar]	-	-	-	-	0.40	0.60	1	1.6
Overpressure	[bar]	5	0.5	1	1	2	5	5	10
Burst pressure ≥	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15
Nominal pressure gauge / abs.	[bar]	2.5	4	6	10	16	25	40	60
Overpressure	[bar]	10	20	40	40	80	80	105	105
Burst pressure ≥	[bar]	15	25	50	50	120	120	210	210
Vacuum resistance		p _N ≥ 1 bar: ι p _N < 1 bar: ι		uum resistan	ce				

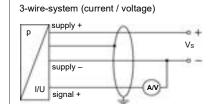
	p _N < 1 bar: on request					
Output signal / Supply						
Standard			SIL-version: V _S = 14 28 V _{DC}			
Option IS-protection			SIL-version: V _S = 14 28 V _{DC}			
Options 3-wire	1	= 14 30 V _{DC} = 14 30 V _{DC}				
Performance						
Accuracy ¹	standard: nominal pressure < 0.4 bar: $\leq \pm 0.50$ % FSO nominal pressure ≥ 0.4 bar: $\leq \pm 0.35$ % FSO option 1: nominal pressure ≥ 0.4 bar: $\leq \pm 0.25$ % FSO option 2: for all nominal pressure ranges: $\leq \pm 0.10$ % FSO					
Permissible load		V _{S min}) / 0.02 A] Ω				
Influence effects	$\begin{array}{llllllllllllllllllllllllllllllllllll$					
Long term stability	≤ ± 0.1 % FSO / year at reference	conditions				
Response time	2-wire: ≤ 10 msec 3-wire: ≤ 3 msec					
¹ accuracy according to IEC 60770 – lin	nit point adjustment (non-linearity, hyster	esis, repeatability)				
Thermal effects (offset and spa	n)					
Nominal pressure p _N [bar]	-1 0	< 0.40	≥ 0.40			
Tolerance band [% FSO]	≤ ± 0.75	≤ ± 1	≤ ± 0.75			
in compensated range [°C]	-20 85	0 70	-20 85			
Permissible temperatures						
Medium	-40 125 °C					
Electronics / environment	-40 85 °C					
Storage	-40 100 °C					
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	10 g RMS (25 2000 Hz)	according to DIN EN 60068-2-6				
Shock	500 g / 1 msec	according t	to DIN EN 60068-2-27			
Materials						
Pressure port	stainless steel 1.4404 (316 L)					
Housing	stainless steel 1.4404 (316 L)					
Option compact field housing	stainless steel 1.4301 (304) cable gland M12x1.5, brass, nicke	el plated (clamping range 2	8 mm)			
Seals	standard: FKM options: EPDM welded version ² (for p others on request	_N ≤ 40 bar)				
Diaphragm	stainless steel 1.4435 (316 L)					
Media wetted parts	pressure port, seals, diaphragm					
² welded version only with pressure poi	ts according to EN 837 and NPT, $p_N \le 40$) bar				

Explosion protection (only for 4	20 mA / 2-wire)					
Approvals	IBExU 10 ATEX 1068 X	BExU 10 ATEX 1068 X / IECEx IBE 12.0027X				
DX19-DMP 331	zone 0: II 1G Ex ia	IIC T4 Ga				
	zone 20: II 1D Ex ia	IIIC T135 °C Da				
Safety technical maximum values		$_{i}$ = 660 mW, $C_{i} \approx 0$ nF, $L_{i} \approx 0 \mu H$,				
	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	J	-40/-20 70 °C				
Connecting cables (by factory)	cable capacitance:	signal line/shield also signal line/signal line: 160 pF/m				
	cable inductance:	signal line/shield also signal line/signal line: 1 μH/m				
Miscellaneous						
Option SIL2 version ³	according to IEC 61508	3 / IEC 61511				
Current consumption	signal output current:					
	signal output voltage:	max. 7 mA				
Weight	approx. 200 g					
Installation position	any ⁴					
Operational life	100 million load cycles					
CE-conformity	EMC Directive: 2014/30)/EU				
ATEX Directive	2014/34/EU					

 $^{^{\}rm 3}$ only for 4 \dots 20 mA / 2-wire, not in combination with accuracy 0.1 %

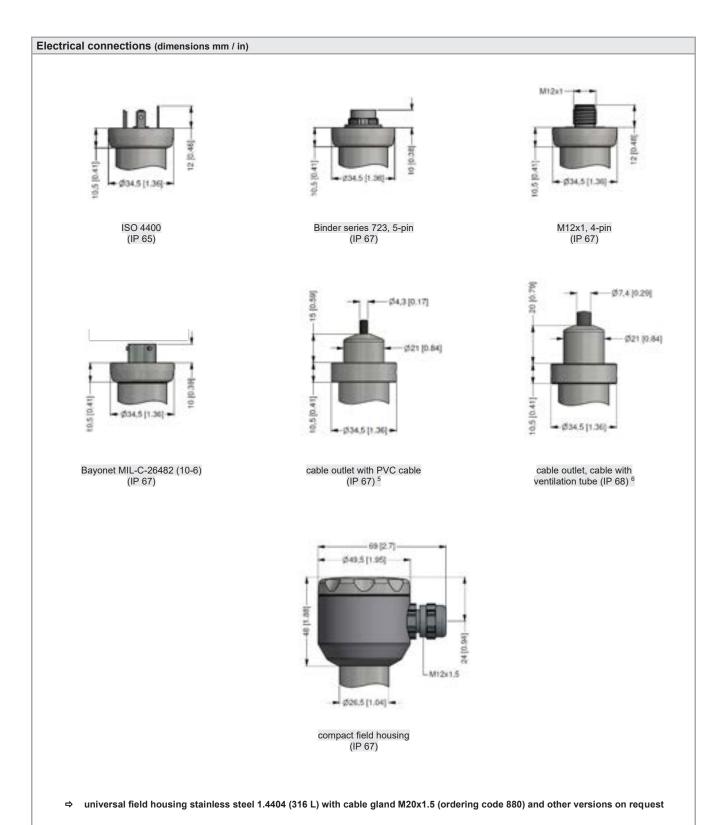
Wiring diagrams





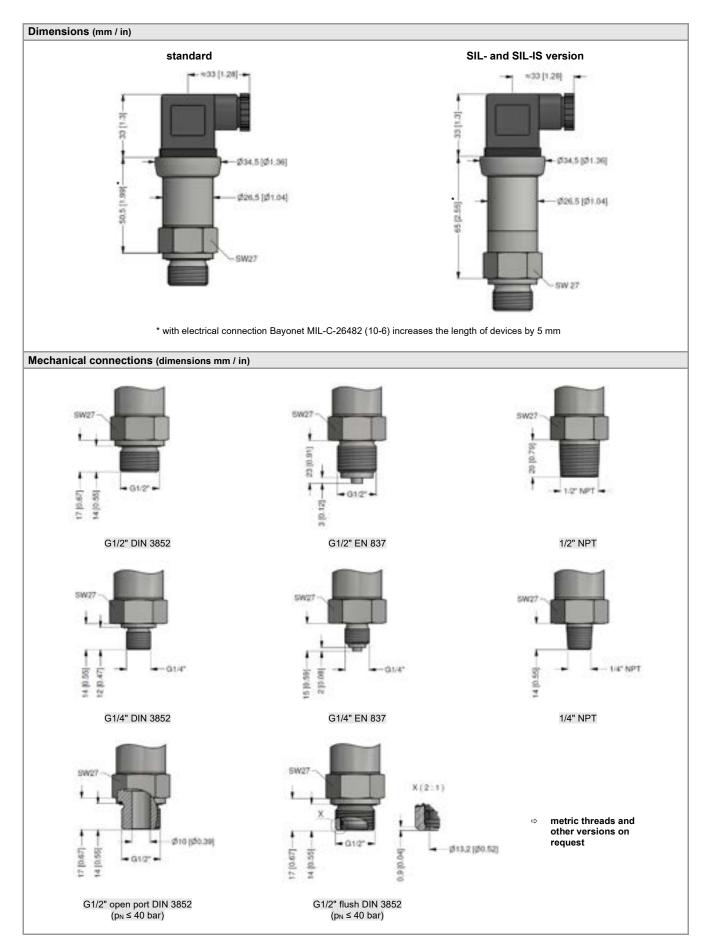
Pin configuration		<u>'</u>				
Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	Bayonet MIL-C-26482 (10-6)		
	3 000 000	3		D C	A A	
				2-wire	3-wire	
Supply +	1	3	1	Α	Α	
Supply –	2	4	2	В	D	
Signal + (for 3-wire)	3	1	3	-	В	
Shield	ground pin 倒	5	4	pressure port		
Electrical connection	compact field Vs+ Vs-	00	cable colou	rs (IEC 60757)		
Supply +	V	5 +	WH	(white)		
Supply –	V			(brown)		
Signal + (for 3-wire)	S	+	GN	(green)		
Shield	G1	ND	GNYE (g	reen-yellow)		

⁴ 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.



⁵ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C) ⁶ different cable types and lengths available, permissible temperature depends on kind of cable

BD SENSORS www.bdsensors.de



	Ordering of	code	DN	/IP 3	31					i	
DMP 331	<u> </u>	- 🔲 -	□-[]-[П]-[]-[
Pressure gauge	1 1 0										
absolute ¹ Input [bar]	1 1 1										
0.10 ¹ 0.16 ¹	1 0 0 0 1 6 0 0 2 5 0 0										
0.25 ¹ 0.40	4 0 0 0										
0.60 1.0	6 0 0 0 1										
1.6 2.5 4.0	1 6 0 1 2 5 0 1 4 0 0 1										
6.0 10	6 0 0 1										
16 25	1 6 0 2										
40 60	2 5 0 2 4 0 0 2 6 0 0 2										
-1 0 customer	X 1 0 2 9 9 9 9										consult
Output 4 20 mA / 2-wire	3 3 6 0	1				-					General
0 20 mA / 3-wire 0 10 V / 3-wire		2				Н					
intrinsic safety 4 20 mA / 2-wire SIL2 4 20 mA / 2-wire		E 1S									
SIL2 with intrinsic safety 4 20 mA / 2-wire		ES									
Accuracy		9									consult
standard for $p_N \ge 0.4$ bar: 0.35 % FSO standard for $p_N < 0.4$ bar: 0.50 % FSO			3 5								
option 1 for $p_N \ge 0.4$ bar: 0.25 % FSO option 2: 0.10 % FSO ²			2								
Electrical connection		_	9								consult
male and female plug ISO 4400 male plug Binder series 723 (5-pin)				1 0 0							
cable outlet with PVC cable (IP67) 3 cable outlet,				T A C							
cable with ventilation tube (IP68) 4 male plug M12x1 (4-pin) / metal				M 1 C							
Bayonet MIL-C-26482 (10-6); 2 wire Bayonet MIL-C-26482 (10-6); 3 wire				B G 4							
compact field housing stainless steel 1.4301 (304) customer				8 5 C 9 9 9							consult
Mechanical connection G1/2" DIN 3852				5 3 8	1	0	0				Consuit
G1/2" EN 837 G1/4" DIN 3852					2	2 0	0				
G1/4" EN 837 G1/2" DIN 3852					4	0	0				
with flush sensor ⁵ G1/2" DIN 3852 open pressure port ⁵					F	1 0	0				
1/2" NPT 1/4" NPT					N	1 0	0				
Seal		-			9	9	9				consult
FKM EPDM							1	3			
without (welded version) 5, 6 customer							2	2			consult
Special version standard									0	0	
customer								9	9	9	consult

¹ absolute pressure possible from 0.4 bar

² not in combination with SIL

 $^{^3\,}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 \dots 70°C), others on request

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

⁵ only for p_N ≤ 40 bar

 $^{^{\}rm 6}\,$ welded version only with pressure ports according to EN 837 and NPT



DMP 333

Industrial **Pressure Transmitter** for High Pressure

Stainless Steel Sensor

accuracy according to IEC 60770: standard: 0.35 % FSO option: 0.25 / 0.1 % FSO

Nominal pressure

from 0 ... 100 bar up to 0 ... 600 bar

Output signals

2-wire: 4 ... 20 mA

3-wire: 0 ... 20 mA / 0 ... 10 V

others on request

Special characteristics

- excellent long-term stability, also with high dynamic pressure loads
- insensitive to pressure peaks
- high overpressure capability

Optional versions

- **IS-version** Ex ia = intrinsically safe for gases and dusts
- SIL 2 version according to IEC 61508 / IEC 61511
- customer specific versions

The pressure transmitter type DMP 333 has been especially designed for use in hydraulic applications with high static and dynamic pressure. The transmitter is characterized by an excellent long term stability, also under fast changing pressure as well as positive and negative pressure peaks.

The modular concept of the device allows to combine different stainless steel sensors and electronic modules with a variety of electrical and mechanical versions. Thus a diversity of variations is created, meeting almost all requirements in hydraulic applications.

Preferred areas of use are

Plant and machine engineering

Machine tools Hydraulic presses Injection moulding machine Handling equipment Elevated platforms Test benches



Mobile hydraulics















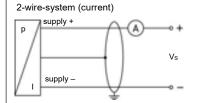
Input pressure range						
Nominal pressure gauge / abs.	[bar]	100	160	250	400	600
Overpressure	[bar]	210	600	1000	1000	1000
Burst pressure ≥	[bar]	1000	1000	1250	1250	1800

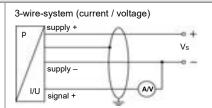
Output signal / Supply		
Standard	2-wire: 4 20 mA / V _S = 8 32 V _{DC}	SIL-version: V _S = 14 28 V _{DC}
Option IS-protection	2-wire: 4 20 mA / V _S = 10 28 V _{DC}	SIL-version: V _S = 14 28 V _{DC}
Options 3-wire	3-wire: 0 20 mA / V _S = 14 30 V _{DC}	
	$0 \dots 10 \text{ V}$ / $V_S = 14 \dots 30 \text{ V}_{DC}$	
Performance		
Accuracy 1	standard: ≤ ± 0.35 % FSO	
	option 1: ≤ ± 0.25 % FSO	
Darmingible load	option 2: ≤ ± 0.10 % FSO	
Permissible load	current 2-wire: $R_{max} = [(V_S - V_{S min}) / 0.02 \text{ A}] \Omega$ current 3-wire: $R_{max} = 240 \Omega$	3.2
	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	≤ ± 0.1 % FSO / year at reference conditions	
Response time	2-wire: ≤ 10 msec	
	3-wire: ≤ 3 msec	
¹ accuracy according to IEC 60770 – lim	nit point adjustment (non-linearity, hysteresis, repeatability	y)
Thermal effects (offset and span)	
Tolerance band	≤ ± 0.75 % FSO	
in compensated range	0 70 °C	
Permissible temperatures		
Medium	-40 125 °C	
Electronics / environment	-40 85 °C	
Storage	-40 100 °C	
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	10 g RMS (25 2000 Hz)	according to DIN EN 60068-2-6
Shock		according to DIN EN 60068-2-27
Materials		<u> </u>
Pressure port	stainless steel 1.4404 (316 L)	
Housing	stainless steel 1.4404 (316 L)	
Option compact field housing	stainless steel 1.4301 (304)	
	cable gland M12x1.5, brass, nickel plated (clamp	ping range 2 8 mm)
Seals	standard: FKM	
	options: EPDM (for $p_N \le 160$ bar)	
Dianhragm	others on request	
Diaphragm Modia wetted parts	stainless steel 1.4435 (316 L)	
Media wetted parts	pressure port, seals, diaphragm	
Explosion protection (only for 4		V
Approvals DX19-DMP 333	IBExU 10 ATEX 1068 X / IECEx IBE 12.00277 zone 0: II 1G Ex ia IIC T4 Ga	X
DA 19-DIVII 000	zone 20: II 1D Ex ia IIIC T135 °C Da	
Safety technical maximum values	$U_i = 28 \text{ V}_{DC}$, $I_i = 93 \text{ mA}$, $P_i = 660 \text{ mW}$, $C_i \approx 0 \text{ nF}$,	L _i ≈ 0 uH.
	the supply connections have an inner capacity of	
Permissible temperatures for	in zone 0: -20 60 °C with p _{atm} 0.8 b	
environment	in zone 1 or higher: -40/-20 70 °C	
Connecting cables (by factory)		nal line/signal line: 160 pF/m
	cable inductance: signal line/shield also sign	nai line/signal line: 1 μH/m

Miscellaneous	
Option SIL2 version ²	according to IEC 61508 / IEC 61511
Current consumption	signal output current: max. 25 mA
-	signal output voltage: max. 7 mA
Weight	approx. 140 g
Installation position	any ³
Operational life	100 million load cycles
CE-conformity	EMC Directive: 2014/30/EU
·	Pressure Equipment Directive: 2014/68/EU (module A) 4
ATEX Directive	2014/34/EU

² only for 4 ... 20 mA / 2-wire, not in combination with accuracy 0.1 %

Wiring diagrams

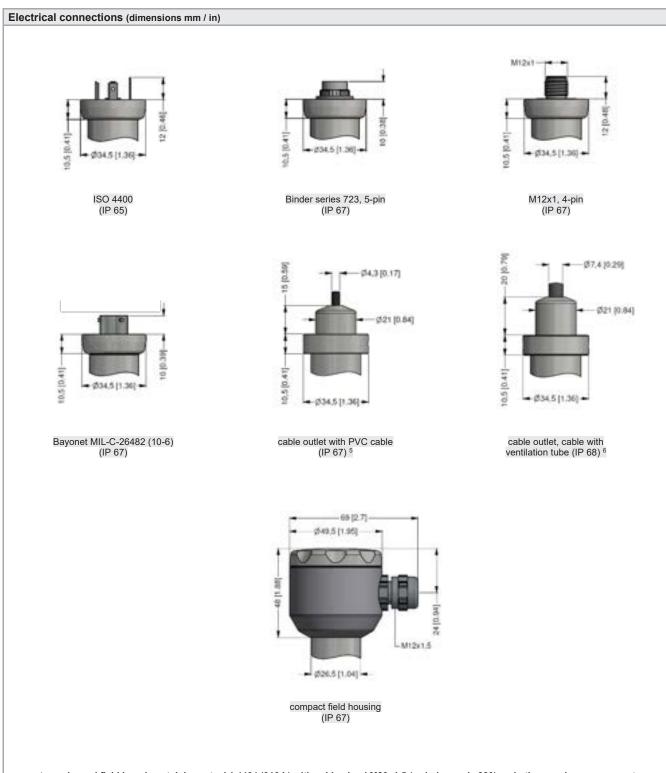




Pin configuration						
Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	Bayonet MIL-C-26482 (10-6)		
	3 (GNO	3	3	D C N		
				2-wire	3-wire	
Supply +	1	3	1	Α	Α	
Supply –	2	4	2	В	D	
Signal + (for 3-wire)	3	1	3	-	В	
Shield	ground pin 🕙 5		4	pressure port		
Electrical connection	compact field V_{S+} V_{S-}	00	cable colours (IEC 60757)			
Supply +	Vs	ş +	WH (white)			
Supply –	V:		BN (brown)			
Signal + (for 3-wire)	S	+	GN (green)			
Shield	GN	ND	GNYE (gr	een-yellow)		

³ Pressure transmitters are calibrated in a vertical position with the pressure connection down.

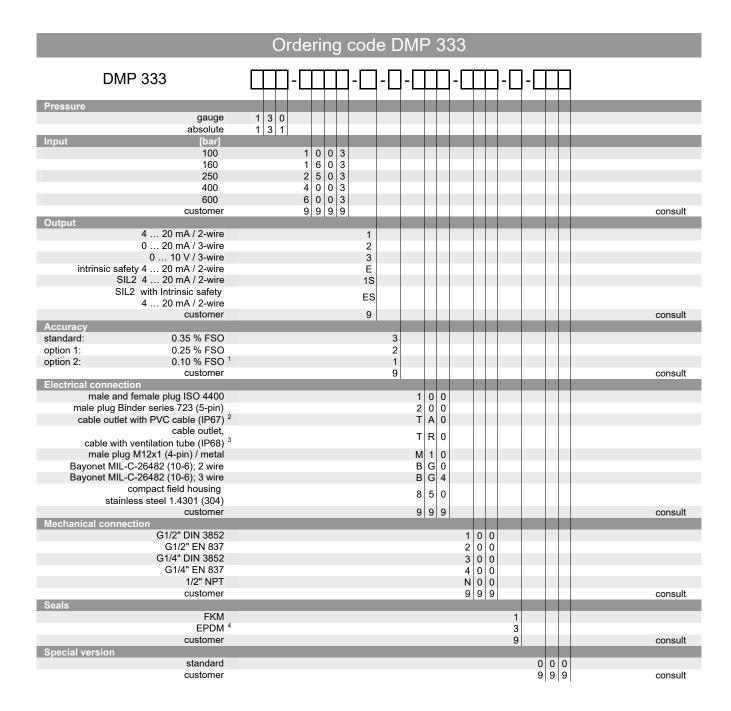
 $^{^{\}rm 4}$ This directive is only valid for devices with maximum permissible overpressure > 200 bar.



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

 $^{^5}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C) 6 different cable types and lengths available, permissible temperature depends on kind of cable

Dimensions (mm / in) standard SIL- and SIL-IS-version → ≈33 [1.28] **→** \$34,5 [\$1.36] Ø34,5 [Ø1.36] Ø26.5 [1.04] g26.5 [g1.04] 84 (3.3) SW 27 * with electrical connection Bayonet MIL-C-26482 (10-6) increases the length of devices by 5 mm Mechanical connections (dimensions mm / in) 23 [0.91] - 20 [0.79] - 01/2" -G1/2" DIN 3852 G1/2" EN 837 1/2" NPT G1/4" DIN 3852 G1/4" EN 837 metric threads and other versions on request



¹ not in combination with SIL

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

³ code TR0 = PVC cable, cable with ventilation tube available in different types and lengths

 $^{^4}$ possible for nominal pressure ranges $p_N \le 160$ bar



DMP 334

Industrial Pressure Transmitter for High Pressure

Thinfilm Sensor

accuracy according to IEC 60770: 0.35 % FSO

Nominal pressure

from 0 ... 600 bar up to 0 ... 2200 bar

Analogue output

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

Special characteristics

- extremely robust and excellent long-term stability
- welded pressure sensor

Optional versions

- IS-version Ex ia = intrinsically safe for gases and dusts
- pressure port: M20 x 1.5 or 9/16 UNF
- adjustability of span and offset
- different kinds of electrical connections

The industrial pressure transmitter DMP 334 has been especially designed for use in hydraulic systems up to 2200 bar. The base element of DMP 334 is a thinfilm sensor, which is welded with the pressure port and meets high demands of operational safety and reliability.

These characteristics and the excellent measurement data of DMP 334 as well as distinguished offset stability offer a pressure transmitter with easy handling, reliability, and robustness for hydraulic user. The DMP 334 is deliverable with standard HP connections.

Preferred areas of use are



Plant and machine engineering



Commercial vehicles and mobile hydraulics







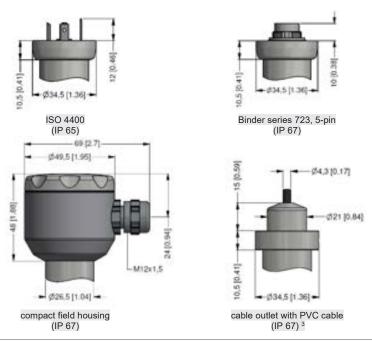






	1		,		1 '			
Nominal pressure gauge		600	1000	1600	2000	2200		
Overpressure		2000	2000	2800	2800	2800		
Burst pressure ≥	[bar]	3000	4000	6000	6000	6000		
Output signal / Supply								
Standard	2-wire:	4 20 m	A / V _S = 12 36	V _{DC}				
Option IS-protection	2-wire:	4 20 m						
Option 3-wire	3-wire:	010 V	/ V _S = 14 30	V _{DC}				
Performance								
Accuracy ¹	≤ ± 0.35	5 % FSO						
Permissible load	current	2-wire: R _{max} =	= [(V _S – V _S min) / 0.0	02 A] Ω	voltage 3-wire: R _{min} =	10 kΩ		
nfluence effects		0.05 % FSO			load: 0.05 % FSO / kg	Ω		
₋ong term stability	≤ ± 0.2	% FSO / year	r at reference condi	tions				
Response time	< 5 mse	ec						
Adjustability ²	please	adjustment of offset and span is possible within ± 5 % of the nominal pressure range; please select "041" as a special version in the order code						
¹ accuracy according to IEC 6077 ² adjustable version is not possib								
Thermal effects (offset and				,				
Thermal error	<u> </u>	5 % FSO / 10	K					
n compensated range	-20 8							
Permissible temperatures								
Medium	-40 1	40 °C						
Electronics / environment	-40							
Storage	-40 1							
Electrical protection								
Short-circuit protection	perman	ent						
Reverse polarity protection		age, but also	no function					
Electromagnetic compatibility			ity according to EN	61326				
Mechanical stability	, ormoore	ir and imman	ity docording to Err	01020				
Vibration	10 a RM	ИS (20 200	0 Hz)		according to DIN EN	60068-2-6		
Shock		11 msec.	0 1 12)		according to DIN EN			
Materials	111191							
Pressure port	stainles	s steel 1.4542	2 (17 ₋ 4 PH)					
Housing		s steel 1.4404						
Option compact field housing				d M12x1.5 brass r	nickel plated (clamping	range 2 8 m		
Seals		elded versior	<u> </u>	a 111 12x 1.0, brace, 1	nottor platou (olamping	j rango z o m		
Diaphragm	,		<u> </u>					
Media wetted parts		stainless steel 1.4542 (17-4 PH) pressure port, diaphragm						
Explosion protection (only								
Approvals			8 X / IECEx IBE	12.0027X				
DX19-DMP 334	zone 0:	II 1G Ex ia II	C T4 Ga		zone 20: II 1D Ex ia II	IC T135 °C Da		
Safety technical maximum va		$U_i = 28 \text{ V}_{DC}$, $I_i = 93 \text{ mA}$, $P_i = 660 \text{ mW}$, $C_i \approx 0 \text{ nF}$, $L_i \approx 0 \text{ μH}$, the supply connections have an inner capacity of max. 27 nF to the housing						
Damada dibla tayan sa taya f								
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 (by factor		apacitance:			ignal line: 160 pF/m			
		cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1μH/m						
Miscellaneous								
Current consumption	signal	utput current:	max. 25 mA	signal output	voltage: max. 8.5 mA			
Neight	approx.	арргох. 240 g						
nstallation position	any							
Operational life		$p_N = 600$ bar: 100 million load cycles $p_N > 600$ bar: 10 million load cycles						
CE-conformity		EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module						
ATEX Directive	2014/34	1/EU						
Wiring diagrams								
2-wire-system (current)			3-wire-	system (current / volta	ige)			

Pin configuration					
Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	compact field housing	
	3	3		V _{S+} V _{S-} S+ GND	cable colours (IEC 60757)
Supply +	1	3	1	V _S +	WH (white
Supply –	2	4	2	V _S -	BN (brown)
Signal + (only for 3-wire)	3	1	3	S+	GN (green)
Shield	ground pin 🕕	5	4	GND	GNYE (green-yellow)
Electrical connections (dimensions mm / in)					





9/16-18 UNF internal thread

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

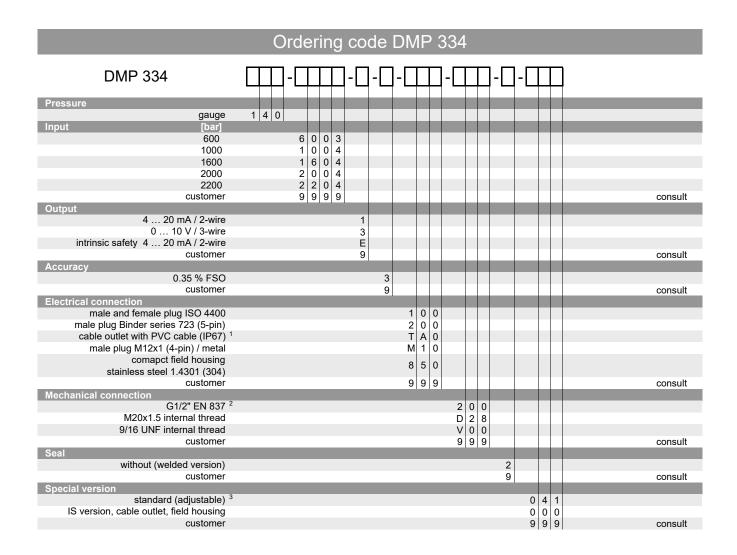
≈33 [1.28] -33 [1.28] → ≈33 [1.28] → Ø34.5 [Ø1.36] \$34,5 (\$1.36) Ø34,5 [Ø1.36] Ø26,5 [1.04] gl26.5 [1,04] 60 (2.36) gi26,5 [1.04] 70[2.76] 77 [3.01] SW 27 Ø30 [1.18] 23 [0.91] SW27 - 9/16-18 UNF 11 [0.43] 15 |0.59|-■ M20x1.5 612" - Ø35 [1.38] -+ 햠

M20x1.5 internal thread

G1/2" EN 837 4

Mechanical connection (dimensions mm / in)

⁴ According to EN 837, the pressure port and the complement at pressure over 1000 bar must be preferably made of stainless steel with a tensile strength of R_P > 260 N/mm² in accordance with DIN 17440. The maximum allowed pressure is 1600 bar!



 $^{^1}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 $^{\circ}\text{C}$); others on request

² According to EN 837, the pressure port and the complement, at pressure over 1000 bar must be preferably made of stainless steel with a tensile strength of R_P > 260 N/mm² in accordance with DIN 17440. The maximum allowed pressure is 1600 bar!

³ not possible in combination with IS-version, compact field housing and cable outlet with PVC cable



DMP 335

Industrial **Pressure Transmitter**

Welded, Dry Stainless Steel Sensor

accuracy according to IEC 60770: 0.5 % FSO

Nominal pressure

from 0 ... 16 bar up to 0 ... 600 bar

Output signals

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

Special characteristics

- suitable for oxygen applications
- insensitive to pressure peaks
- high overpressure capability

Optional versions

- IS-version Ex ia = intrinsically safe for gases and dusts
- customer specific versions

The industrial pressure transmitter DMP 335 is based on a welded stainless steel pressure sensor without fluid.

This characteristic has a special advantage with applications where silicone oil or elastomeric seals cannot be used.

Preferred areas of use are



Medical technology



Plant and machine engineering



Commercial vehicles and mobile hydraulics



Refrigeration



Oxygen application









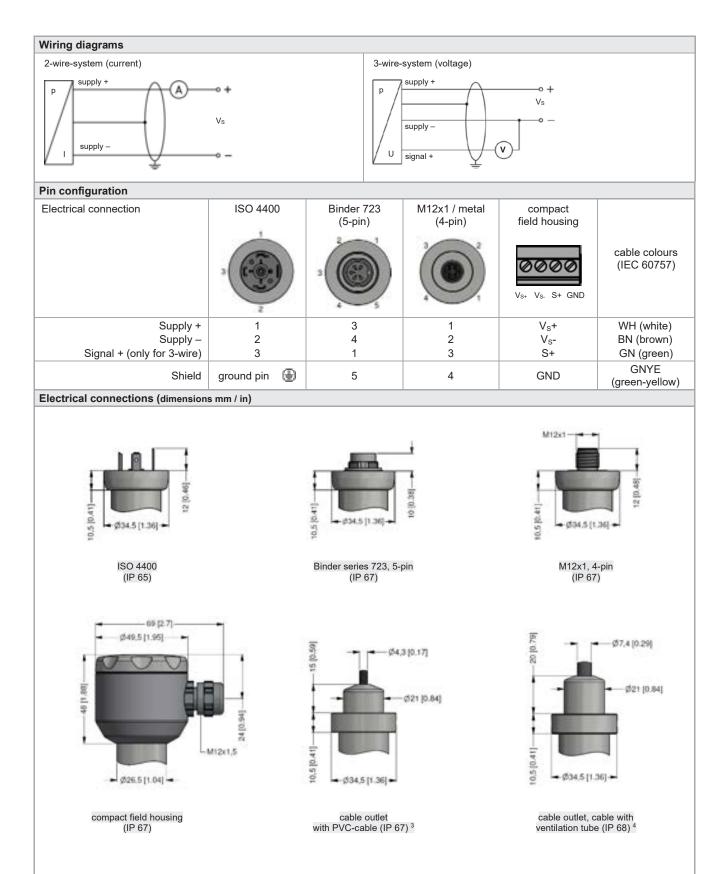






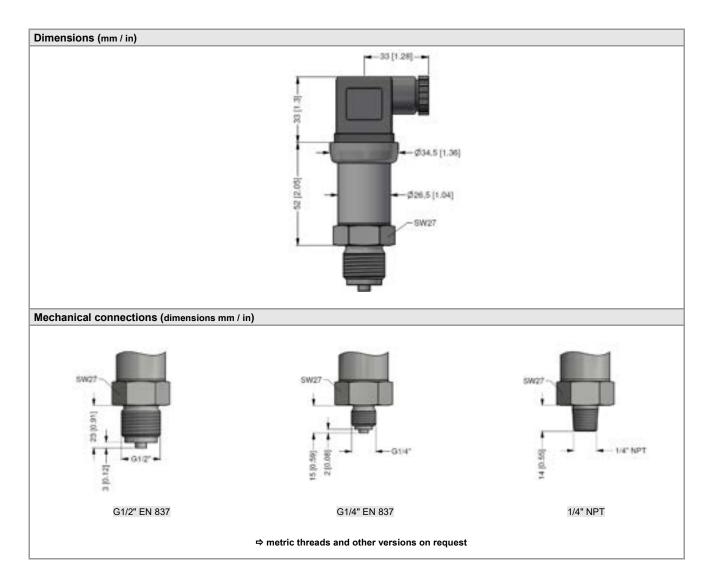
Input pressure range										
Nominal pressure gauge	[bar]	16	25	40	60	100	160	250	400	600
Overpressure	[bar]	32	50	80	120	200	320	500	800	1200
Burst pressure ≥	[bar]	80	125	200	300	500	800	1400	2000	3000
Vacuum resistance		unlimited								

Output signal / Supply							
Standard	2-wire: 4 20 mA / V _S = 8 32 V _{DC}						
Option IS-version	2-wire: 4 20 mA / V _S = 10 28 V _{DC}						
Option 3-wire	3-wire: 0 10 V / V _S = 14 30 V _{DC}						
Performance	υ mio. υ m 10 ν η νς 14 m ου νμι						
	4 · 0 F 0/ F00						
Accuracy ¹	≤±0.5 % FSO						
Permissible load	current 2-wire: $R_{\text{max}} = [(V_{\text{S}} - V_{\text{S min}}) / 0.02 \text{ A}] \Omega$						
1 0 0	voltage 3-wire: $R_{min} = 10 \text{ k}\Omega$						
Influence effects	supply: 0.05 % FSO / 10 V						
1 4 4 . 1. 204 .	load:						
Long term stability	≤ ± 0.2 % FSO / year at reference conditions						
Response time	2-wire: ≤ 10 msec						
1	3-wire: ≤ 3 msec						
	it point adjustment (non-linearity, hysteresis, repeatability)						
Thermal effects (offset and span)							
Thermal error	± 0.3 % FSO / 10 K						
In compensated range	0 70 °C						
Permissible temperatures							
Medium	-40 125 °C						
Electronics / environment	-40 85 °C						
Storage	-40 100 °C						
Electrical protection	- 10 100 C						
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 (25 2000 Hz) according to DIN EN 60068-2-6						
Shock	500 g / 1 msec according to DIN EN 60068-2-27						
Materials							
Pressure port	stainless steel 1.4571 (316 Ti)						
Housing	stainless steel 1.4404 (316 L)						
Option compact field housing	stainless steel 1.4301 (304)						
option compact hold hodding	cable gland M12x1.5, brass, nickel plated (clamping range 2 8 mm)						
Seals	none (welded)						
Diaphragm	stainless steel 1.4542 (17-4PH)						
Media wetted parts	pressure port, diaphragm						
Explosion protection (only for 4.	· · · · · · · · · · · · · · · · · · ·						
Approvals DX19-DMP 335	IBEXU 10 ATEX 1068 X / IECEx IBE 12.0027X						
DA 19-DIVIP 333	zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ia IIIC T135 °C Da						
Safety technical maximum values	U _i = 28 V _{DC} , I _i = 93 mA, P _i = 660 mW, C _i ≈ 0 nF, L _i ≈ 0 μ H,						
Salety technical maximum values	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 70 °C						
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m						
Cormoding dubies (by factory)	cable inductance: signal line/shield also signal line/signal line: 1 µH/m						
Miscellaneous	organi moralista discongridi moralista in primi						
	signal output current: max. 25 mA						
Current consumption	signal output current.						
Weight	approx. 140 g						
Weight							
Installation position	any						
Operational life	100 million load cycles						
CE-conformity	EMC Directive: 2014/30/EU						
ATEV D: "	Pressure Equipment Directive: 2014/68/EU (module A) ²						
ATEX Directive	2014/34/EU						
² This directive is only valid for devices w	vith maximum permissible overpressure > 200 bar.						



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

standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)
 different cable types and lengths available, permissible temperature depends on kind of cable



Accessories



	Ord	erii	ng	CO	de	DN	ЛF) (335	5									
DMP 335	<u> </u>		Ш	-[]- <u></u>]- <u></u>			-[-[]- <u>[</u>	П					
Pressure																			
gauge	2 1 0																		
Input [bar]																			
16	1	6 C 5 C	2																
25	2	5 0	2 2																
40	4	0 0	2																
60	6	0 0																	
100	1	0 0	3																
160	1	6 0	3																
250	2	6 C 5 C	3																
400	4	0 0	3																
600 customer	6	0 0	3																
Output	9	9 5	9	_					_			_				_	_	СО	nsult
4 20 mA / 2-wire				1				_											
0 10 V / 3-wire				3															
intrinsic safety 4 20 mA / 2-wire				E															
customer				9														CO	nsult
Accuracy				ŭ															
0.5 % FSO					5						П			П					
customer					9													со	nsult
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) 1						Т	Α	0											
cable outlet,						Т	R	0											
cable with ventilation tube (IP68) ²						N 4													
male plug M12x1 (4-pin) / metal compact field housing						М													
stainless steel 1.4301 (304)						8	5	0											
customer						q	9	a										co	nsult
Mechanical connection								J											i i Juli
G1/2" EN 837									2	0	0								
G1/4" EN 837									4	0	0								
1/4" NPT									N	4	0								
customer									9	9	9							со	nsult
Seal																			
without (welded version)												2							
customer												9						СО	nsult
Special version																			
standard customer													0	9	0				noult
customer													9	9	9			CO	nsult

 $^{^{\}rm 1}$ standard: 2 m PVC cable without ventilation tube (permissible temperatur: -5 ... 70 $^{\rm o}\text{C})$

 $^{^{2}}$ code TR0 = PVC cable, cable with ventilation tube available in different types and lengths



DMP 336

Industrial **Pressure Transmitter** for Technical Gases and H₂ Applications

Welded, Dry Stainless Steel Sensor

accuracy according to IEC 60770: 0.5 % FSO

Nominal pressure

from 0 ... 16 bar up to 0 ... 1000 bar

Output signal

2-wire: 4 ... 20 mA others on request

Special characteristics

- media wetted parts of special stainless steel
- insensitive to pressure peaks
- high overpressure capability
- oil and grease free according to ISO 15001 (e.g. for oxygen applications)

Optional version

- IS-version zone 0 Ex ia = intrinsically safe for gases and dusts
- SIL 2-according to IEC 61508 / IEC 61511

The industrial pressure transmitter DMP 336 was especially developed for hydrogen applications and can also be used with other technical gases (e.g. oxygen).

This is achieved by using an alloy based on 316L which prevents hydrogen embrittlement of the media-wetted parts. Level of hydrocarbon and particle contamination are significantly reduced by special treatment during production and cleaning.

An IS- version is optionally available for explosionprotected applications zone 0 / 20.

Preferred areas of use are



Technical gases



Hydrogen



Fuel cell



Medical technology











76 DMP 336

Technical data

Input pressure range											
Nominal pressure gauge	[bar]	16	25	40	60	100	160	250	400	600	1000
Overpressure	[bar]	50	50	80	120	200	320	500	800	1200	1500
Burst pressure ≥	[bar]	125	125	200	300	500	800	1250	2000	2000	3000 ¹
Vacuum resistance		unlimited									
¹ UL confirmed max. burst pressu	ıre 2420 ba	ar									

Output signal / Supply		
Standard	2-wire: 4 20 mA / V _S = 8 32 V _{DC}	
Option IS-protection	2-wire: 4 20 mA / V _S = 10 28 V _{DC}	
Performance		
Accuracy ²	≤±0.5 % FSO	
Permissible load	$R_{\text{max}} = [(V_{\text{S}} - V_{\text{S} \text{min}}) / 0.02 \text{ A}] \Omega$	
Influence effects	supply: 0.05 % FSO / 10 V	
	load: $0.05 \% FSO / k\Omega$	
Long term stability	≤ ± 0.2 % FSO / year at reference conditions	
Response time	≤ 10 msec	
² accuracy according to IEC 60770 – limit p	pint adjustment (non-linearity, hysteresis, repeatability)	
Thermal effects (offset and span)		
Thermal error	± 0.2 % FSO / 10 K	
in compensated range	-25 85 °C	
Permissible temperatures		
Permissible temperatures	medium: -40 125 °C	
'	electronics / environment: -40 100 °C	
	storage: -40 85 °C	
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 (25 2000 Hz) according to DIN	EN 60068-2-6
Shock	500 g / 1 msec according to DIN	EN 60068-2-27
Materials		
Housing	stainless steel 316L (1.4404)	
Pressure port, sensor, diaphragm	stainless steel 316L (1.4435)	
Seals	none (welded)	
Media wetted parts	pressure port, sensor, diaphragm	
Explosion protection		
Approvals DX19-DMP 336	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 T 135°C Da	
Safety technical maximum values	$U_i = 28 \text{ V}_{DC}$, $I_i = 93 \text{ mA}$, $P_i = 660 \text{ mW}$, $C_i \approx 0 \text{ nF}$, $L_i \approx 10 \text{ inner capacity of max}$. 27 nF	e 0 μH, the supply connections have an
Permissible temperatures for environment	in zone 0: -20 60 °C with p _{atm} 0.8 I in zone 1 or higher: -20 70 °C	par up to 1.1 bar
Connecting cables (by factory)		al line/signal line: 160 pF/m
Miscellaneous		9
Option SIL2 version	according to IEC 61508 / IEC 61511	
Current consumption	max. 25 mA	
Weight	approx. 140 g	
Installation position	any	
Operational life	p _N ≤ 600 bar: 100 million load cycles	p _N > 600 bar: 10 million load cycles
CE-conformity	EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module	· · · · · · · · · · · · · · · · · · ·
ATEX Directive	2014/34/EU	- · · · ·
	maximum permissible overpressure > 200 bar.	
Purity regarding residual particles		
	-	sad on 10 dm²)
Oil and grease free version		
	residual greases: residual grease content <	u.z my/am-



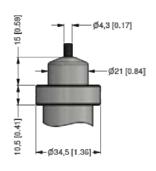
Pin configuration M12x1 / metal cable colours Electrical connections (4-pin) (IEC 60757) supply + 1 WH (white) supply -2 BN (brown) Shield 4 GNYE (green-yellow)

Electrical connections (dimensions mm / in)

standard option

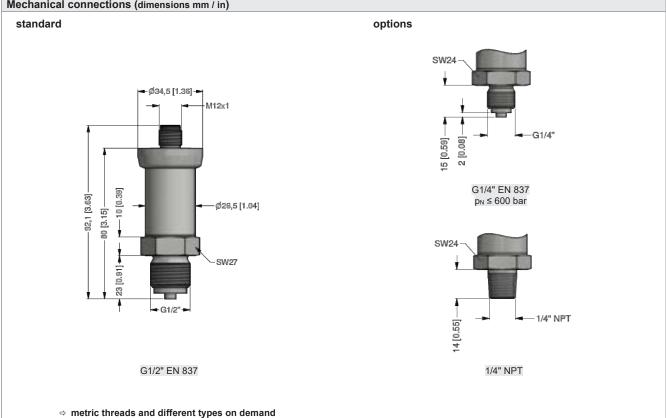


M12x1 4-pin (IP 67)



cable outlet with PVC cable (IP 67) 4

Mechanical connections (dimensions mm / in)



⁴ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)

	Order	ing cod	e D	MF	9	36					
DMP 336	Ш-Ш	∏-□-	- 🗆 -	Щ	П	-Ц		-	-Ц		
Pressure											
gauge	2 1 5										
Input [bar]											
16		0 2									
25	2 5	0 2 0 2									
40	4 0	0 2									
60	6 0	0 2 0 3									
100	1 0	0 3									
160	1 6	0 3									
250		0 3									
400		0 3									
600		0 3									
1000		0 4									
customer	9 9	9 9		-			-				consult
Output		1									
4 20 mA / 2-wire intrinsic safety 4 20 mA / 2-wire		1 E									
SIL2: 4 20 mA / 2-wire		1S									
SIL2: intrinsic safety 4 20 mA / 2-wire		ES									
customer		9									consult
Accuracy											
0.5 % FSO			5		П		П			П	
customer			9								consult
Electrical connection											
male plug M12x1 (4-pin) / metal				M 1	0						
cable outlet with PVC cable (IP67) 1				ТА	0						
customer				9 9	9						consult
Mechanical connection											
G1/2" EN 837						2 (
$p_N \le 600 \text{ bar}$ G1/4" EN 837						4 (0 (
1/4" NPT						N 4	0				
customer						9 9	9				consult
Seal											
without (welded version)								2			
customer								9			consult
Special version											
oil-and grease free -oxygen										0 7	
customer									9	9 9	consult

 $^{^{\}rm 1}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C); others on request



DMP 343

Industrial **Pressure Transmitter**

Without Media Isolation

accuracy according to IEC 60770: 0.35 % FSO

Nominal pressure

from 0 ... 10 mbar up to 0 ... 1000 mbar

Product characteristics

- excellent linearity
- small thermal effect
- excellent long term stability

Optional versions

- IS-version: Ex ia = intrinsically safe for gases and dusts
- different electrical and mechanical connections
- customer specific versions

The pressure transmitter DMP 343 has been especially designed for the measurement of very low gauge pressure and for vacuum applications. Permissible media are nonaggressive, dry gases and non-aggressive, low viscos oils.

The DMP 343 features excellent thermal behaviour and outstanding long term stability. A variety of standard output signals as well as mechanical and electrical connections make the DMP 343 covering a wide field of applications.

Preferred areas of use are



Plant and machine engineering



Heating and air conditioning









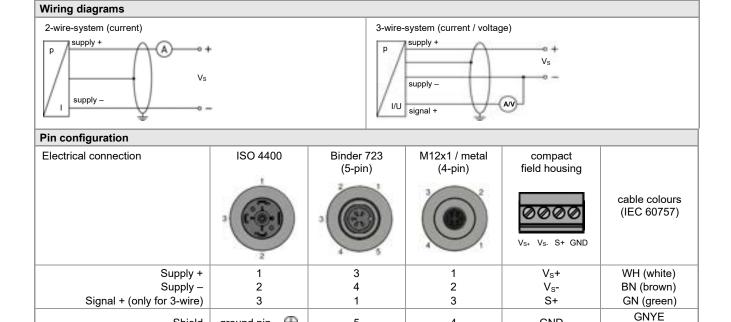






Input pressure range													
Nominal pressure gauge	[mbar]	-1000 0	10	16	25	40	60	100	160	250	400	600	1000
Overpressure	[bar]	3	0.2	0.2	0.2	0.5	0.5	1	2	3	3	3	3
Permissible vacuum	[bar]	-1		-0.2		-C	.5			-	1		
Burst pressure	[bar]	5	0.3	0.3	0.3	0.75	0.75	1.5	3	5	5	5	5
Output signal / Supply													
Standard		2-wire: 4	. 20 mA	/ Vs	s = 8	32 V _{DC}							

Output signal / Supply								
Standard		2-wire: 4 20 mA	/ V _S = 8 32 V _{DC}					
Option IS-version			/ V _S = 10 28 V _{DC}					
Options 3-wire		3-wire: 0 20 mA						
		0 10 V	/ V _S = 14 30 V _{DC}					
Performance								
Accuracy ¹		standard: nominal pressure ≤ 100	$\leq \pm 0.35 \% F_{0}^{2}$ 0 mbar: $\leq \pm 0.50 \% F_{0}^{2}$					
Permissible load			$_{\text{ax}} = [(V_{\text{S}} - V_{\text{S min}}) / 0.02 \text{ A}] \Omega$					
T CITIIOSIDIC IOCC			$ax = [(VS - VS min) / 0.02 A] $ $ax = 240 \Omega$	•				
			$_{in}$ = 10 k Ω					
Influence effects			05 % FSO / 10 V					
			05 % FSO / kΩ					
Response time		2-wire: ≤ 10 msec						
Long torm atability		3-wire: ≤ 3 msec	at reference conditions, for a	2 100 mbor				
Long term stability			at reference conditions, for p at reference conditions, for p					
¹ accuracy according to IEC	60770 – limi		arity, hysteresis, repeatability)	DN = 100 mbai				
Thermal effects (offset								
Nominal pressure p _N	[mbar]	-1000 0	≤ 100	≤ 400	> 400			
Tolerance band	[% FSO]	≤ ± 0.75	≤ ± 1.5	≤ ± 1	≤ ± 0.75			
in compensated range	[°C]	-20 85	0 50	0 70	-20 85			
Permissible temperatu	res							
Medium		-40 125 °C						
Electronics / environmer	nt	-40 85 °C						
Storage		-40 100 °C						
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		10 g RMS (25 2000	Hz) accord	ling to DIN EN 60068-2-6				
Shock		500 g / 1 msec		ling to DIN EN 60068-2-27	7			
Materials		, occ 9,						
Pressure port		stainless steel 1.4404	(316L)					
Housing		stainless steel 1.4404	,					
Option compact field hou	ısina		(304); cable gland M12x1.5	5. brass. nickel plated (clar	mping range 2 8 mm)			
Seals		FKM	(), 5	, , , , ,	1 3 3 - 7			
Sensor		stainless steel 1.4404	(316L), silicon, epoxy or RT	V, mineral glass				
Media wetted parts		pressure port, seals, se	ensor	-				
Explosion protection (only for 4.	20 mA / 2-wire)						
Approvals		IBExU 10 ATEX 1068	X / IECEx IBE 12.0027X					
DX19-DMP 343			ia IIC T4 Ga					
Safaty tachnical maximus	ım valusa		ia IIIC T135 °C Da P _i = 660 mW, C _i ≈ 0nF, L _i ≈ (7L				
Safety technical maximu	iii values		s have an inner capacity of r		ousina			
Permissible temperature environment	s for	in zone 0: in zone 1 or higher:	-20 60 °C with p _{atm} 0.8 ba		odomig			
Connecting cables			signal line/shield also signa	al line/signal line: 160 pF/n	n			
(by factory)			signal line/shield also signal		••			
Miscellaneous				<u> </u>				
Current consumption		signal output current:						
Weight		approx. 140 g	max. / m/					
Installation position		any						
Operational life		100 million load cycles						
CE-conformity		EMC Directive: 2014/3						
ATEX Directive		2014/34/EU						



5

4

GND

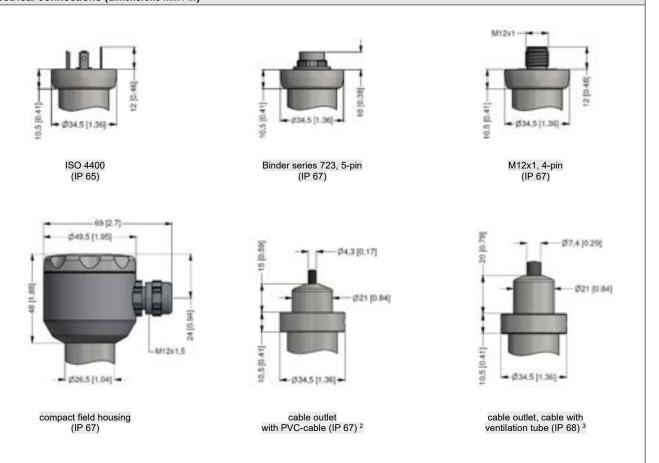
(green-yellow)

Electrical connections (dimensions mm / in)

Shield

ground pin

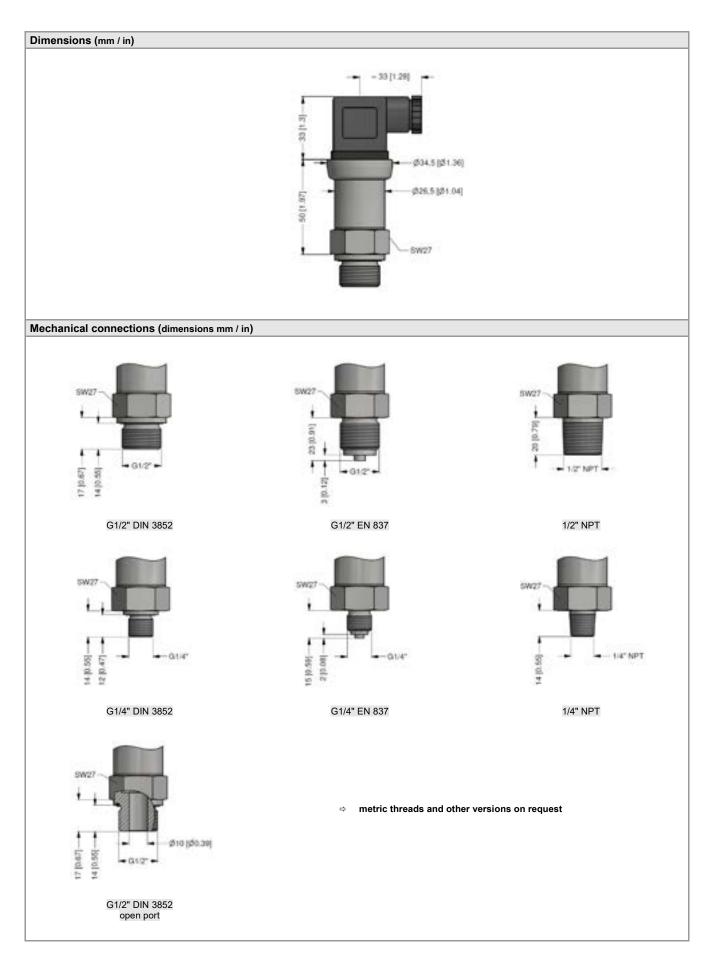
1

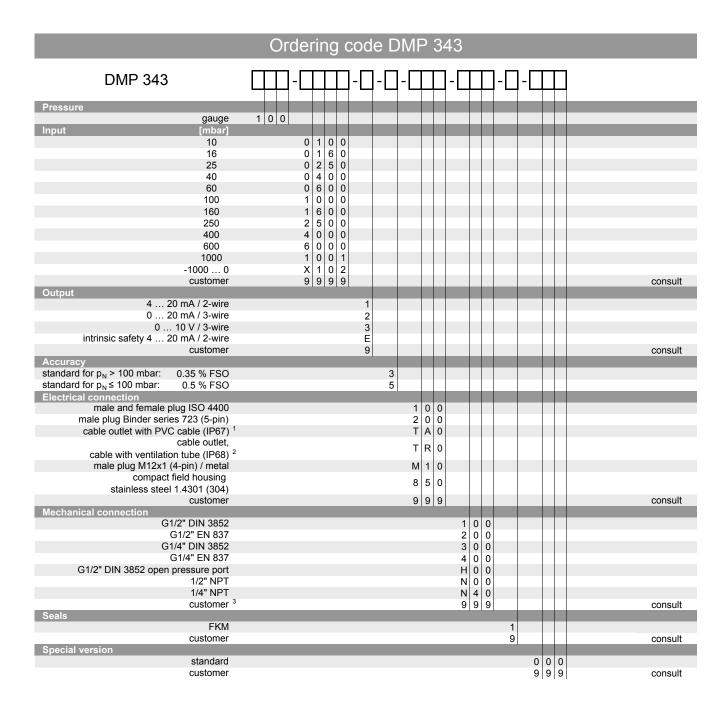


universal field housing stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request

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

³ different cable types and lengths available, permissible temperature depends on kind of cable





 $^{^{\}rm 1}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C); others on request

² code TR0 = PVC cable, cable with ventilation tube available in different types and lengths

 $^{^{\}rm 3}$ metric threads and others on request



DMP 457

Pressure Transmitter for Shipbuilding and Offshore

Stainless Steel Sensor

accuracy according to IEC 60770: standard: 0.35 % FSO option: 0.25 % FSO

Nominal pressure

from 0 ... 100 mbar up to 0 ... 600 bar

Output signals

2-wire: 4 ... 20 mA others on request

Special characteristics

- ▶ LR-certificate (Lloyd's Register)
- DNV-approval (Det Norske Veritas)
- ABS-certificate (American Bureau of Shipping)
- CCS-certificate (China Classification Society)
- flush pressure port
 G 1/2" from 100 mbar
- excellent thermal behaviour

Optional versions

- IS-versionEx ia = intrinsically safe for gases and dusts
- ▶ welded pressure port

The pressure transmitter DMP 457 has been especially designed for rough conditions occurring especially in shipbuilding and offshore applications. All gaseous and liquid media, which are compatible with stainless steel 1.4404 (316L) respectively can be used.

Sensor element is a piezoresistive stainless steel sensor with high accuracy and excellent long-term stability. In order to meet the special requirements for shipbuilding and offshore applications extensive tests had to be passed to get the Lloyd's Register (LR), Det Norske Veritas (DNV) and China Classification Society (CCS) approvals.

Preferred areas of use are

Diesel engines, drives Compressors, pumps



Boiler

Hydraulic and pneumatic control systems



Fuel and oil















Input pressure range 1

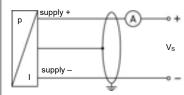
Input pressure range '															
Nominal pressure gauge	[bar]	-1 0	0.10	0.16	0.25	0.40	0.60	0 1	1.6	3 2.5	4	6			
Nominal pressure absolute	[bar]	-	-	-	-	0.40	0.60	0 1	1.6	3 2.5	4	6			
Level gauge / abs. [m	1H ₂ O]	-	1	1.6	2.5	4	6	10) 16	25	40	60			
Overpressure	[bar]	5	0.5	1	1	2	5	5	10	10	20	40			
Burst pressure ≥	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.	5 15	15 15 25 50					
·															
Nominal pressure gauge	[bar]	10	16	25	40)	60	100	160	250	400	600			
Nominal pressure abs.	[bar]	10	16	25	40)	60 100		160	250	400	600			
Level gauge / abs. [m	1H ₂ O]	100	160	250	40	0	-	-	-	-	-	-			
Overpressure	[bar]	40	40 80 80 105 210 600 600 1000 1000												
Burst pressure ≥	[bar]	50	120	120	21		420	1000	1000	1250	-	1000			
Vacuum resistance	[bui]		ır: unlimit				120		bar: on re						
¹ from 60 bar: measurement start	's with			eu vacuu	111 1631316	IIICC		PN - II	bai. Oil le	quest					
		ш р. с													
Output signal / Supply															
Standard		2-wire:	4 20 ı	mA / '	V _S = 8.	32 Vpc									
Option IS-version		2-wire:	4 20 1		$V_{\rm S} = 10$.										
Performance		Z-WIIC.	7 201	11/1 /	vs – 10 .	20 v DC	;								
Accuracy ²		standard	: nominal												
				pressure											
		option:		pressure		ar: ≤±0	.25 % F	so							
Permissible load			$I_S - V_{S mir}$												
Influence effects		supply:		FSO / 10											
		load:	0.05 %	FSO / $k\Omega$											
Long term stability		≤ ± 0.1 %	FSO / y	ear by ref	ference c	ondition	s								
Response time		< 10 mse	ec												
² accuracy according to IEC 6077	70 – Iim	nit point adju	ıstment (no	on-linearity	, hysteres	is, repeat	ability)								
Thermal effects (offset and	span)													
Nominal pressure p _N	[bar]	-	-1	0			< 0.	4			≥ 0.40				
	FSO]		≤ ± 0.								± 0.75				
in compensated range	[°C]		-20				0				20 85				
Permissible temperatures	[-]						<u> </u>								
•		-40 12	F°C												
Medium															
Electronics / environment		-40 8													
Storage		-40 10	0°C												
Electrical protection															
Short-circuit protection		permane	nt												
Reverse polarity protection		no dama	ge, but al	so no fun	ction										
Electromagnetic compatibility	,	emission	and imm	unity acc	ording to	ı									
		- EN 6	1326	•	•										
		- DNV	(Det Nors	ske Verita	ıs)										
Mechanical stability															
Vibration		4 g (acco	ording to [DNV: clas	s B. cur	/e 2 / ba	sis: IEC	60068-2	2-6)						
Materials) J (g		,				,						
			-4144	404 (240)	1.\										
Pressure port			steel 1.4				24 (040)	`							
Housing		standard			inless ste		`	,							
		-	ld housin						able gland						
Cable sheath		TPE -U								tance again	st oil and	gasoline,			
					istant ag	aınst sal	t, sea w	ater, hea	avy oil)						
Seals (media wetted)		standard	:	FK											
		option:			lded vers	sion ³				0	thers on re	equest			
Diaphragm			steel 1.4												
Media wetted parts			port, sea												
³ welded version only with pressu	re port	s according	to EN 837	and NPT;	possible f	or nomina	al pressur	re ranges	p _N ≤ 40 bar						
Category of the environme	nt														
Lloyd's Register (LR)		EMV1. E	MV2, EM	V3, EMV	4				numl	per of certific	cate: 13/2	0055			
Det Norske Veritas (DNV)		temperat		,•		D				per of certific					
(=,		humidity				В									
		vibration				В									
				o mo m = 4! l= !!!	4										
			agnetic c	ompatibili	ıy.	В									
		enclosur	e:			D									

Explosion protection								
Approvals	IBExU 10 ATEX 1068 X / IECEx IBE 12.0027X							
DX19-DMP 457	zone 0: II 1G Ex ia IIB T4 Ga							
	zone 20: II 1D Ex ia IIIC T135 °C Da							
Safety technical maximum values	$U_i = 28 \text{ V}, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, L_i \approx 0 \mu\text{H}$							
	with field housing: $C_i = 105 \text{ nF}$							
	with cable outlet: $C_i = 84.7 \text{ nF}$							
	with ISO 4400: $C_i = 62.2 \text{ nF}$							
	the supply connections have an inner capacity of max. 90 nF (140 nF with field housing)							
	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 70 °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	max. 25 mA							
Weight	approx. 140 g (with ISO 4400)							
Installation position	any ⁴							
Operational life	100 million load cycles							
CE-conformity	EMC Directive: 2014/30/EU							
	Pressure Equipment Directive: 2014/68/EU (module A) ⁵							
ATEX Directive	2014/34/EU							

⁴ 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. ⁵ This directive is only valid for devices with maximum permissible overpressure > 200 bar

Wiring diagram

2-wire-system (current)



Pin configuration			
Electrical connection	ISO 4400	field housing (clamp section: 2.5 mm²)	
	3 ONO	Vs+ Vs. GND	cable colours (IEC 60757)
Supply +	1	VS+	WH (white)

VS-

GND

2

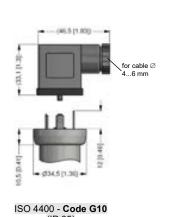
ground pin

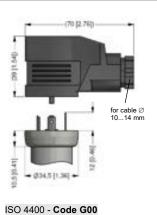
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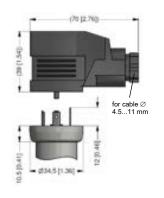
Electrical connections ⁶ (dimensions mm / in)

Supply -

Shield







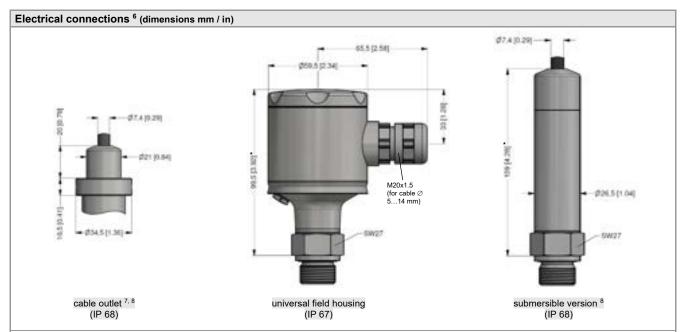
BN (brown)

GNYE (green-yellow)

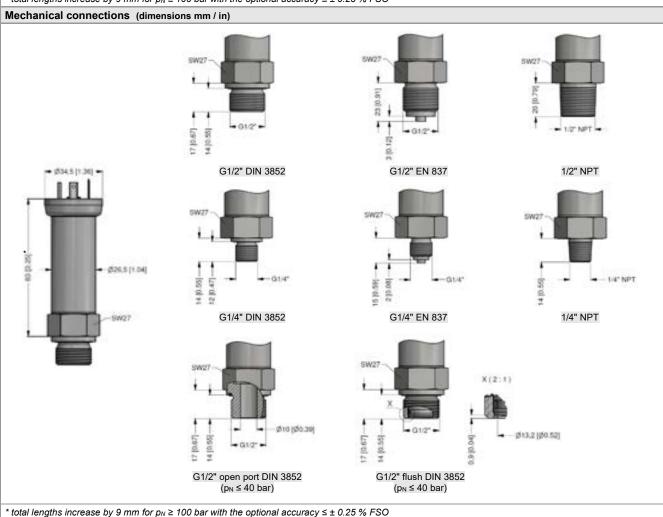
ISO 4400 - Code G01

(IP 65)

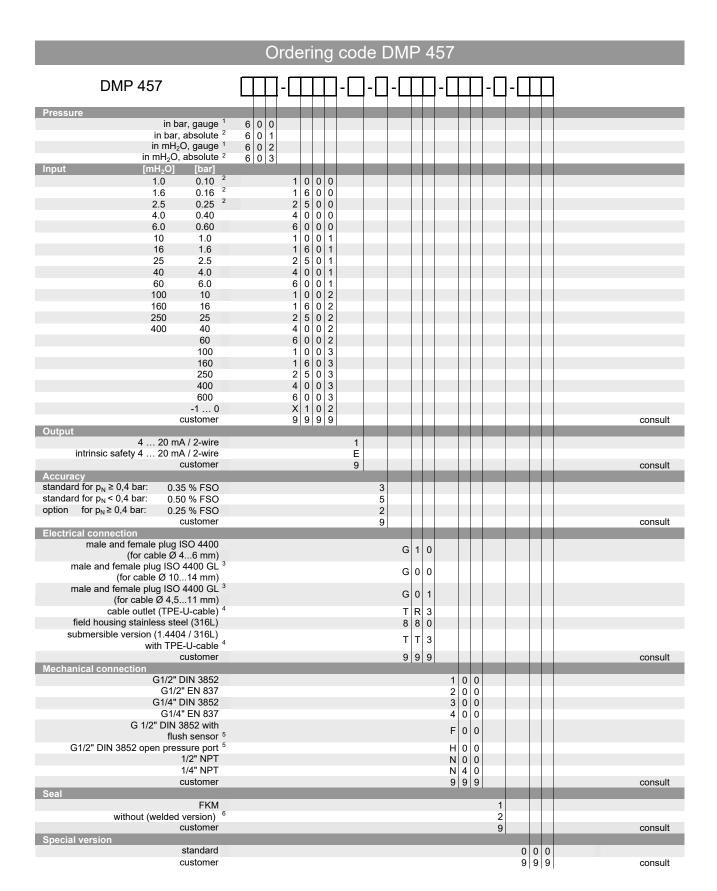
⁶ Generally shielded cable has to be used! Cable versions are delivered with shielded cable. For ISO 4400 the use of shielded cable is compulsory.



- ⁶ Generally shielded cable has to be used! Cable versions are delivered with shielded cable. For ISO 4400 the use of shielded cable is compulsory. ⁷ tested at 4 bar or 40 mH₂O for 24 hours
- ⁸ shielded cable with integrated air tube for atmospheric reference (for nominal pressure ranges absolute, the air tube is closed); different lengths available * total lengths increase by 9 mm for $p_N \ge 100$ bar with the optional accuracy $\le \pm 0.25$ % FSO



Ordering code



¹ from 60 bar: measurement starts with ambient pressure

² absolute pressure possible from 0.4 bar

³ cable socket is GL-approbated

⁴ shielded TPE-U-cable with ventilation tube available in different lengths

 $^{^{5}}$ only for $p_{N} \le 40$ bar possible

 $^{^6}$ welded version only with pressure ports according to EN 837 and NPT; possible with pressure ranges $p_N \le 40$ bar



Industrial **Pressure Transmitter**

Ceramic Sensor

accuracy according to IEC 60770: 0.5 % FSO

Nominal pressure

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

Output signals

2-wire: 4 ... 20 mA

3-wire: 0 ... 20 mA / 0 ... 10 V

others on request

Special characteristics

- pressure port G 1/2" flush for pasty and polluted media
- pressure port G 1/2" open port PVDF for aggressive media
- oxygen application

Optional versions

- IS-version Ex ia = intrinsically safe for gases and dusts
- SIL 2 according to IEC 61508 / IEC 61511
- customer specific versions

The industrial pressure transmitter DMK 331 with ceramic sensor has been especially designed for pasty, polluted or aggressive media and for oxygen applications at low pressure range.

As with all industrial pressure transmitters made by BD|SENSORS, you may choose between various electrical and mechanical connections also on DMK 331.

Preferred areas of use are



Plant and machine engineering



Energy industry



Environmental engineering (water - sewage - recycling)



Medical technology











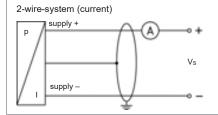


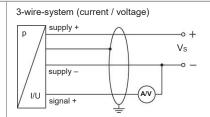


Input pressure range ¹															
Nominal pressure gauge [bar]	-10 0.4	0.6 1	1,6	2,5	4	6	10 16	3 25	40	60	100	160	250	400	600
Nominal pressure absolute[bar]		0.6 1	1,6	-	4	6	10 16	_	40	60	100	160	250	400	600
Overpressure [bar]	4 1	2 2	4	4	10	10	20 40	_	100	100	200	400	400	600	800
Burst pressure ≥ [bar]	7 2	4 4	5	7,5	12	18	30 50	_	120	180	300	500	750	1000	
Vacuum resistance	p _N ≥ 1 bar: un						00 00	_	< 1 ba						
¹ PVDF pressure port possible for nor								FIN							
	, , , , , , , , , , , , , , , , , , ,														
Output signal / Supply															
Standard	2-wire: 4							IL-versi							
Option IS-protection		. 20 mA /					S	IL-versi	on: V _s	= 14	28	V_{DC}			
Options 3-wire		. 20 mA /													
Performance	$0 \dots 10 \text{ V} / \text{ V}_S = 14 \dots 30 \text{ V}_{DC}$ Performance														
Accuracy ²	≤ ± 0.5 % FS	SO													
Permissible load	current 2-wire		= [(V _s	– Vs m	_{in}) / 0.	02 A1 9	Ω								
		current 2-wire: $R_{max} = [(V_S - V_{S min}) / 0.02 \text{ A}] \Omega$ current 3-wire: $R_{max} = 240 \Omega$													
	voltage 3-wire: $R_{min} = 10 \text{ k}\Omega$														
Influence effects															
	load: 0.05 % FSO / kΩ														
	ong term stability ≤ ± 0.3 % FSO / year at reference conditions														
Response time	time 2-wire: ≤ 10 msec 3-wire: ≤ 3 msec														
² accuracy according to IEC 60770 – I			nearity	hvster	esis. r	epeatal	bilitv)								
² accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability) Thermal effects (offset and span)															
Thermal error	≤ ± 0.2 % FS	SO / 10 K													
in compensated range	0 85 °C	707 1010													
Permissible temperatures	7 00 0														
Medium ³	-40 125 °C	<u> </u>													
Electronics / environment	-40 85 °C														
Storage	-40 100 °C														
³ for pressure port in PVDF the mediu			°C												
Electrical protection															
Short-circuit protection	permanent														
Reverse polarity protection	no damage,	but also no	o func	tion											
Electromagnetic compatibility	emission and				o EN	61326									
Mechanical stability	1														
Vibration	10 g RMS (2	5 2000	Hz)				ac	cording	a to DI	N EN	60068	3-2-6			
Shock	500 g / 1 ms		,					ccording							
Materials								•	<u> </u>						
Pressure port	standard: sta	inless ste	el 1.44	104 (3°	16 L)										
	optional for C			`	,	bar): P	VDF					(others	on req	uest
Housing	stainless stee														
Option compact field housing	stainless stee		(304);	cable	gland	M12x	1.5, bras	s, nicke	el plate	ed (cla	mping	range	e 2	8 mm))
Seals	standard: Fk														
B		PDM (for p	_N ≤ 16	0 bar)								(others	on req	uest
Diaphragm	ceramic Al ₂ C														
Media wetted parts	pressure por		aphra	gm											
Explosion protection (only for	1		, ,	-		0.000	- >/								
Approval DX19-DMK 331	IBExU 10 AT				IBE 1	2.002	/X								
DV 13-DIMIV 22 I	stainless stee	•	•												
		II 1G E: : II 1D E:)a									
	plastic press		1111	J 1 10											
	zone 1:	II 2G E	x ia IIC	C T4 G	b										
	zone 21	: II 2D Ex	k ia III	C T85°	C Db										
Safety technical maximum val-	U _i = 28 V _{DC} ,														
ues	the supply co									ousin	g				
Permissible temperatures for	in zone 0:					_{atm} 0.8	bar up to	1.1 ba	ır						
environment	in zone 1 or l			70		aa -!:-	nal li /	lanciii	400) = F /:					
Connecting cables (by factory)	cable capaci						nal line/s nal line/s				I				
(by factory)	Japic Hiducta	a1100. S	ıgı iai i	10/311	ioiu ai	oo siyi	1101 III IC/S	ıgı idi ili	ιο. ιμι	7111					

Miscellaneous											
Option SIL2 version ⁴	according to IEC 61508 / IEC 61511	0									
Option oxygen application		or p _N ≤ 25 bar: O-ring in FKM Vi 567 (with BAM-approval); permissible maximum values are 25 bar / 150° C									
Current consumption	signal output current: max. 25 mA	signal output voltage: max. 7 mA									
Weight	approx. 140 g										
Installation position	any										
Operational life	100 million load cycles										
CE-conformity	EMC Directive: 2014/30/EU	Pressure Equipment Directive: 2014/68/EU (module A) 5									
ATEX Directive	2014/34/EU										

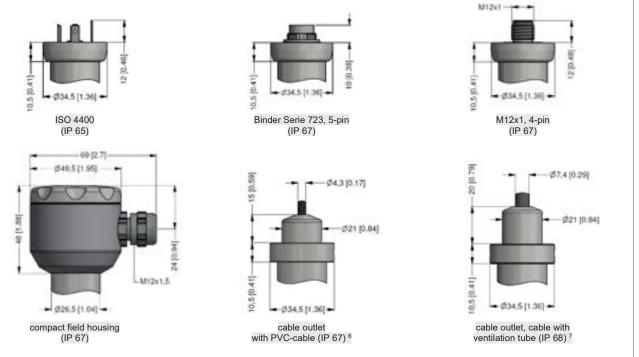
Wiring diagrams





Pin configuration						
Electrical connection	ISO 4400		Binder 723 (5-pin)	M12x1 / metal (4-pin)	compact field housing	
	3		3		V _{S+} V _{S-} S + GND	cable colour (IEC 60757)
Supply +	1		3	1	V _S +	WH (white)
Supply –	2		4	2	V _S -	BN (brown)
Signal + (only for 3-wire)	3		1	3	S+	GN (green)
Shield	ground pin	⊕	5	4	GND	GNYE (green-yellow)

Electrical connections (dimensions mm / in)

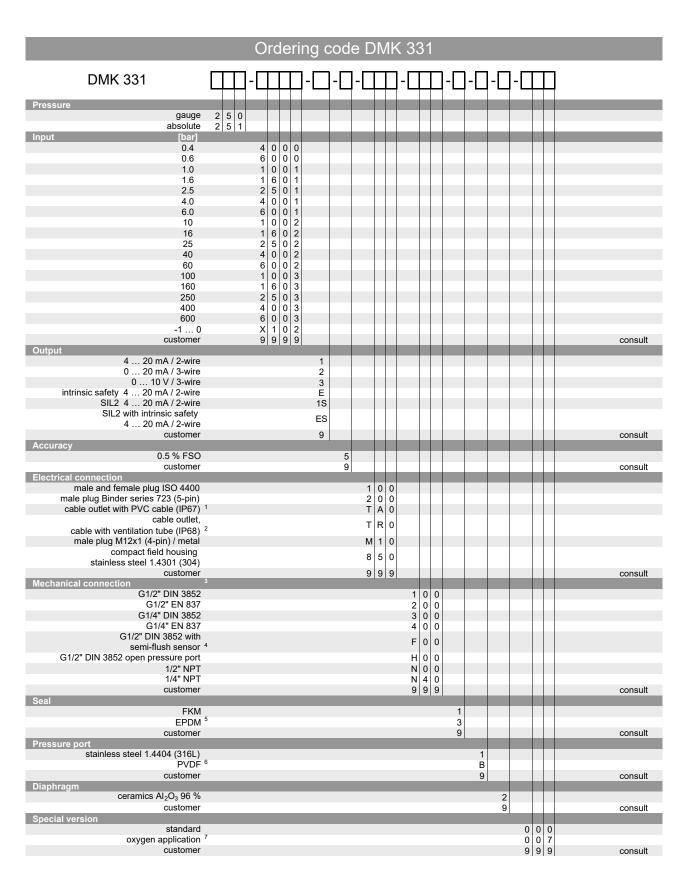


universal field housing stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request

⁴ only for 4 ... 20 mA / 2-wire ⁵ this directive is only valid for devices with maximum permissible overpressure > 200 bar

⁶ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)

⁷ different cable types and lengths available, permissible temperature depends on kind of cable



 $^{^{1}}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 $^{\circ}$ C); others on request

 $^{^{\}rm 2}$ code TR0 = PVC cable, cable with ventilation tube available in different types and lengths

³ metric threads and others on request

 $^{^4}$ possible for nominal pressure ranges p $_{\rm N}$ ≤ 60 bar; absolute pressure ranges on request

⁵ possible for nominal pressure ranges p_N ≤ 160 bar

 $^{^6}$ PVDF only with G1/2" DIN 3852 open pressure port (up to 60 bar); permissible medium temperature: -30 \dots 60 $^\circ$ C

⁷ oxygen application with FKM-seal up to 25 bar possible



Pressure Transmitter

Ceramic Sensor

accuracy according to IEC 60770: standard: 0.35 % FSO option: 0.25 % FSO

Nominal pressure

from 0 ... 40 mbar up to 0 ... 20 bar

Output signal

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

Product characteristics

high media resistance

Optional versions

- IS-version (temperature class T4) Ex ia = intrinsically safe for gases and dusts
- IS-version (temperature class T6)
- diaphragm 99.9 % Al₂O₃
- customer specific versions

The pressure transmitter DMK 351 has been specially designed for applications in plant and machine engineering as well as laboratory techniques and is suitable for measuring small system pressure and filling heights.

By using our own-developed capacitive sensor, optionally available as Al₂O₃ 99.9%, the DMK 351 offers a high overpressure resistance and a high temperature and media resistance. The pressure transmitter is available in an intrinsically safe version for a use in explosive environments.

Preferred areas of use are



Plant and machine engineering



Laboratory techniques

Preferred used for



Fuel and oil



Water



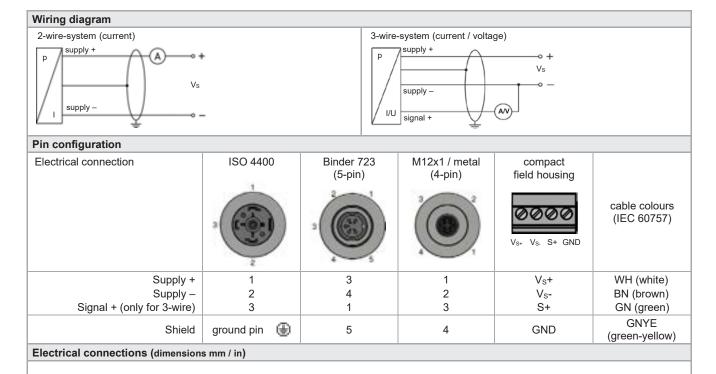








Pressure ranges																
Nominal pressure 1	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	20
Level	[mH ₂ O]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	200
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35	45	45
Permissible vacuum	[bar]	-0.	2	-0).3		-0	.5					-1			
¹ available in gauge and abso	olute; nom	inal pres	sure ran	ges ab	solute fr	om 1 ba	r and no	t in com	binatior	with ou	tput 0	10 V /	3-wire			
Output signal / Supply																
Standard		2-wire	: 4	4 20	mA /	Vs =	9 3	32 V _{DC}								
Option IS-version		2-wire			mA /											
Option 3-wire		3-wire	: () 10	V /	V _S =1	2.5 3	$32 V_{DC}$								
Performance																
Accuracy ²		standa		> 0 6 h	or:		35 % F									
Permissible load		curren	pption for $p_N \ge 0.6$ bar: $\le \pm 0.25$ % FSO current 2-wire: $R_{max} = [(V_S - V_{Smin}) / 0.02 \text{ A}] \Omega$													
Influence effects		voltage supply		e:			10 kΩ 6 FSO	/ 10 V								
Long term stability		load:	1 % FS	O / ve	ar at re		6 FSO									
Turn-on time		700 m		- , y S			- 2. IGH									
Mean measuring rate		5/sec														
Response time			respon	se tim	e: < 20	0 msec	;		m	ax. res	ponse f	time: 3	80 mse			
² accuracy according to IEC	60770 - lin		<u> </u>					peatabili								
Thermal effects (offset			.,	. ,		, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, . 9		,,							
Tolerance band	a opai	יי ≤±19	% FSO													
in compensated range		-20														
Permissible temperatur	es		30 0													
Medium ³	63	40	125 °C													
Electronics / environment			85 °C													
Storage		-40														
³ for pressure port in PVDF th	ne oneratio			erature	is -30	. 60 °C ±	and in P	P-HT 0	60 °C	;						
Electrical protection	.s operation		tomp	- atur C	.5 50	. 55 5 6		0	50 C							
Short-circuit protection		perma	nent													
Reverse polarity protection	nn	·	nage, b	ut ale	no fur	nction										
Electromagnetic compati			on and				to FN	31326								
Mechanical stability	~·····y	01111331	on and	ammu	y acc	Jianig		71020								
Vibration		10 a P	MS (20) 20	UU H-/				20	cording	n to DIA	I EN 6	0068 3	-6		
Shock			/ 1 mse		∪∪ I⊐Z)					cording						
		100 g /	1 11150						ac	corunt	יום טו נ	A LIN O	0000-2	-21		
Materials			al4. '			4404 /	1401			4 : 4	דו חח	D) (D)				
Pressure port			ırd: stai							otion ⁴ :						
Housing Ontion course tield beau	-1		ırd: stai					N440- 4		otion ⁴ :						\
Option compact field hou	sing				JT (304); cabl	e giand	M12x1				ed (cla	mping	range 2	2 8 r	nm)
Seal			rd: FKI		AI O O	G 0/				tion: E			00.0.0	<u>'</u>		
Diaphragm Media wetted parts		standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 %										AI ₂ U ₃	99.9 %	0		
Media wetted parts		preser		0001-	diant	moon										
4 only with much connection	G1/2" DIA	pressu	re port				ar and	without o	vnlosio	n nrotes	tion non	sible				
4 only with mech. connection		l 3852 o _l	re port	bore 1	2 mm, p	_N ≤ 10 b				n protec	tion pos	sible				
Explosion protection (o	nly for 4	√ 3852 oµ · 20 n	re port pen port, n A / 2 -	bore 1	2 mm, p	_N ≤ 10 b				n protec	tion pos	sible				
	nly for 4	3852 op 20 n IBExU zone 0	ne port pen port nA / 2- 05 ATI 0: II	bore 1 wire w EX 107 1G Ex	2 mm, p rith sta 70 X ia IIC T	i nless 4 Ga	steel v)	n protec			6 Ga			
Explosion protection (o Approval DX 14-DMK 35	nly for 4 1	20 n IBExU zone 0 zone 2	nre port pen port, mA / 2-1 05 ATI 0: II 20: II	bore 1 wire w EX 107 1G Ex 1D Ex	2 mm, p ith sta 70 X ia IIC T ia IIIC	n ≤ 10 b inless -4 Ga T110 °(steel v C Da	ersion	opt	on: II 1	G Ex ia	a IIC T	6 Ga			
Explosion protection (o Approval DX 14-DMK 35 Safety technical maximur	nly for 4 1 n values	20 r IBExU zone 0 zone 2 U _i = 28	oen port, oen port, on A / 2-v 05 ATI 0: II 20: II	bore 1 wire w EX 107 1G Ex 1D Ex	2 mm, p rith sta 70 X ia IIC 1 ia IIIC mA, P _i =	inless 4 Ga T110 °C 660 m	Steel v C Da nW, C _i	ersion	opt , L _i ≈ 0	ion: II 1 μΗ, C _ε	G Ex ia	a IIC T	6 Ga			
Explosion protection (o Approval DX 14-DMK 35	nly for 4 1 n values	3852 op 20 n IBExU zone 0 zone 2 U _i = 28 in zone	nA / 2- 05 ATI 05 ATI 0: II 20: II 3 V _{DC} , I _i e 0: e 1 and	bore 1 wire w EX 107 1G Ex 1D Ex = 93 r	2 mm, p rith sta 70 X ia IIC 1 ia IIIC mA, P _i = -20 r: -25	inless 4 Ga T110°0 = 660 m 60°	C Da nW, C _i : C for p _i	ersion	opt , L _i ≈ 0	ion: II 1 μΗ, C _ε	G Ex ia	a IIC T	6 Ga			
Explosion protection (o Approval DX 14-DMK 35 Safety technical maximur Max. permissible tempera	nly for 4 1 n values	IBEXU zone 0 zone 2 U _i = 28 in zone for T6: cable 0	nA / 2- 05 ATI 05 ATI 0: II 20: II 3 V _{DC} , I _i e 0: e 1 and	wire w EX 107 1G Ex 1D Ex = 93 r highe	2 mm, p ith sta 70 X ia IIC 1 ia IIIC 1 nA, P _i = -20 r: -25 -25 sigr	inless 4 Ga Γ110 °C = 660 m 60 °C 70 °C	C Da nW, Ci C for pa C C	= 14 nF	opt , L _i ≈ 0 par up f	ion: II 1 μΗ, C _s to 1.1 b	G Ex ia gnd = 27 ar nal line	a IIC T6 'nF : 220 p	F/m			
Explosion protection (o Approval DX 14-DMK 35 Safety technical maximur Max. permissible tempera for environment Connecting cables	nly for 4 1 n values	IBEXU zone 0 zone 2 U _i = 28 in zone for T6: cable 0	nre port, nA / 2-1 05 ATI 0: II a V _{DC} , I _i a O: a 1 and	wire w EX 107 1G Ex 1D Ex = 93 r highe	2 mm, p ith sta 70 X ia IIC 1 ia IIIC 1 nA, P _i = -20 r: -25 -25 sigr	inless 4 Ga T110 °C = 660 m 60 °C 70 °C 60 °C al line	C Da nW, Ci C for pa C C	= 14 nF	opt , L _i ≈ 0 par up f	ion: II 1 μΗ, C _s to 1.1 b	G Ex ia gnd = 27 ar nal line	a IIC T6 'nF : 220 p	F/m			
Explosion protection (o Approval DX 14-DMK 35: Safety technical maximur Max. permissible tempera for environment Connecting cables (by factory) Miscellaneous	nly for 4 1 n values	J 3852 op 20 n IBEXU zone 0 zone 2 U _i = 28 in zone in zone for T6: cable 0 cable i	nre port, nA / 2-1 05 ATI 0: II a V _{DC} , I _i a O: a 1 and	wire w EX 107 1G Ex 1D Ex = 93 r highe	2 mm, p ith sta 70 X ia IIC 1 ia IIIC 1 nA, P _i = -20 r: -25 -25 sigr	inless 4 Ga T110 °C = 660 m 60 °C 70 °C 60 °C al line	C Da nW, Ci C for pa C C	= 14 nF	opt , L _i ≈ 0 par up f	ion: II 1 μΗ, C _s to 1.1 b	G Ex ia gnd = 27 ar nal line	a IIC T6 'nF : 220 p	F/m			
Explosion protection (o Approval DX 14-DMK 35- Safety technical maximur Max. permissible tempera for environment Connecting cables (by factory)	nly for 4 1 n values	J 3852 op 20 n IBExU zone 0 zone 2 U _i = 28 in zone in zone for T6: cable 0 cable i	re port poen port. mA / 2-1 05 ATI 0: II 0: II 3 V _{DC} , I _i 0: 0: a 1 and capacitinducta output	wire w EX 107 1G Ex 1D Ex = 93 r highe y: nce:	2 mm, prith star 70 X ia IIC 1 ia IIIC 1 nA, Pr = -20 r: -25 -25 sigr sigr	T4 Ga T110 °C = 660 m 60 °C 60 °C al line tal line	C Da NW, Ci C for pa C C Shield A	= 14 nF	opt , L _i ≈ 0 par up f	ion: II 1 μΗ, C _s to 1.1 b	G Ex ia gnd = 27 ar nal line	a IIC T6 'nF : 220 p	F/m			
Explosion protection (o Approval DX 14-DMK 35- Safety technical maximur Max. permissible tempera for environment Connecting cables (by factory) Miscellaneous Installation position Current consumption	nly for 4 1 n values	J 3852 op 20 n IBExU zone 0 zone 2 Ui = 28 in zone in zone for T6: cable 0 cable i any signal signal	re port per port per port per port. nA / 2-1 05 ATI 0: II 0	wire w EX 107 1G Ex 1D Ex = 93 r highe y: nce:	2 mm, prith star 70 X ia IIC 1 ia IIIC 1 nA, Pr = -20 r: -25 -25 sigr sigr	T4 Ga T110 °C = 660 m 60 °C 60 °C al line tal line	C Da NW, Ci C for pa C C Shield A	= 14 nF	opt , L _i ≈ 0 par up f	ion: II 1 μΗ, C _s to 1.1 b	G Ex ia gnd = 27 ar nal line	a IIC T6 'nF : 220 p	F/m			
Explosion protection (o Approval DX 14-DMK 35- Safety technical maximur Max. permissible tempera for environment Connecting cables (by factory) Miscellaneous Installation position Current consumption Weight	nly for 4 1 n values	J 3852 op 20 n IBExU zone 0 zone 2 Ui = 28 in zone in zone for T6: cable 0 cable i any signal signal min. 20	re port per	wire week and the wire week and the week and	2 mm, prith star 70 X ia IIC 1 ia IIIC 1 nA, Pi = -20 r: -25 rigr sigr	T4 Ga T110 °C = 660 m 60 °C 60 °C al line tal line	C Da NW, Ci C for pa C C Shield A	= 14 nF	opt , L _i ≈ 0 par up f	ion: II 1 μΗ, C _s to 1.1 b	G Ex ia gnd = 27 ar nal line	a IIC T6 'nF : 220 p	F/m			
Explosion protection (o Approval DX 14-DMK 35- Safety technical maximur Max. permissible tempera for environment Connecting cables (by factory) Miscellaneous Installation position Current consumption	nly for 4 1 n values	J 3852 op 20 n IBExU zone 0 zone 2 U _i = 28 in zone for T6: cable 0 cable i any signal signal min. 20 100 m	re port per port per port per port. nA / 2-1 05 ATI 0: II 0	bore 1 wire w EX 107 1G EX 1D EX = 93 r highe y: nce: curren voltage	2 mm, prith star 70 X ia IIC 1 ia IIIC 1 nA, P ₁ = -20 r: -25 -25 sign sign t: max	inless 4 Ga 1110 °C 660 m 60 °C 60 °C al line lal line c. 21 m c. 5 mA	C Da NW, Ci C for pa C C Shield A	= 14 nF	opt , L _i ≈ 0 par up f	ion: II 1 μΗ, C _s to 1.1 b	G Ex ia gnd = 27 ar nal line	a IIC T6 'nF : 220 p	F/m			



Ø34.5 [1.36]

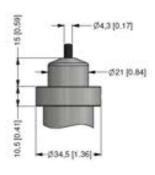




compact field housing (IP 67)



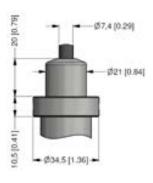
Binder series 723, 5-pin (IP 67)



cable outlet with PVC-cable (IP 67) 5



M12x1, 4-pin (IP 67)

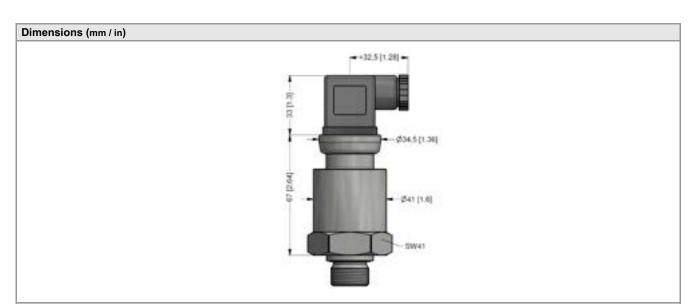


cable outlet, cable with ventilation tube (IP 68) 6

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

 $^{^{5}}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)

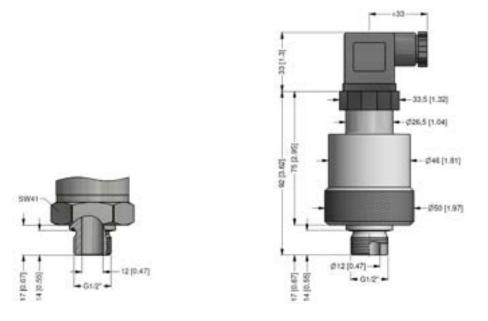
⁶ different cable types and lengths available, permissible temperature depends on kind of cable



Mechanical connection (dimensions mm / in)

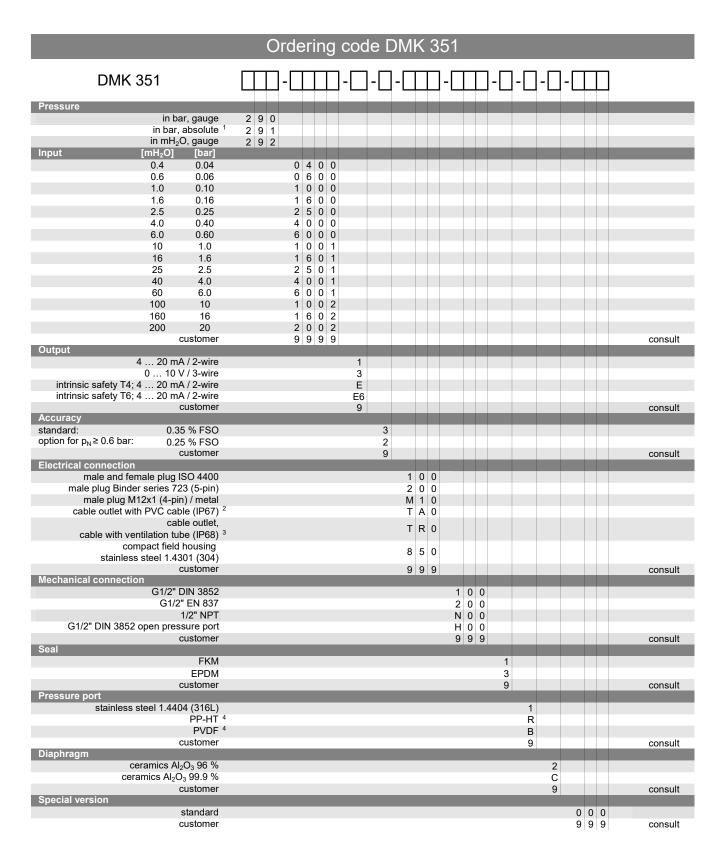


G1/2" DIN 3852 open port, bore 12 mm:



housing and pressure port in PP-HT / PVDF for $p_N \le 10$ bar, without explosion protection

housing and pressure port in stainless steel



 $^{^{\}rm 1}$ nominal pressure ranges absolute from 1 bar and not in combination with output 0 ... 10 V / 3-wire

 $^{^2}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 $^{\circ}\text{C}$); others on request

³ code TR0 = PVC cable, cable with ventilation tube available in different types and lengths

 $^{^4}$ PP-HT / PVDF possible only with G1/2" DIN 3852 open pressure port, $p_N \le 10$ bar and without explosion protection; for pressure port in PVDF the operation medium temperature is -30 ... 60 °C and in PP-HT 0 ... 60 °C



Pressure Transmitter

Ceramic sensor

accuracy according to IEC 60770: standard: 0.35 % FSO option: 0.25 % FSO

Nominal pressure

from 0 ... 100 mbar up to 0 ... 40 bar

Output signal

2-wire: 4 ... 20 mA 3-wire and others on request

Product characteristics

- diaphragm ceramics 99.9 % Al₂O₃
- high long-term stability

Optional versions

IS-version Ex ia = intrinsically safe for gases and dust

- different kinds of inch threads
- pressure port in PVDF or PP-HT for aggressive media

The pressure transmitter DMK 387 has been specially designed for applications in plant and machine engineering as well as laboratory techniques and is suitable for measuring small system pressure and filling heights.

By using our own-developed capacitive sensor, available in Al₂O₃ 99.9%, the DMK 387 offers a high overpressure resistance and a high temperature and media resistance. The pressure transmitter is available in an intrinsically safe version for usage in explosive environments.

Preferred areas of use



Plant and machine engineering



Laboratory techniques



Water



Aggressive media







Input pressure range															
Nominal pressure gauge	[bar]	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40
Level	[mH ₂ O]	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400
Overpressure	[bar]	3	4	5	5	5	7	7	12	12	20	20	20	40	70
Burst pressure ≥	[bar]	4	6	8	8	8	9	9	18	18	25	30	30	45	80
Permissible vacuum [bar] -0.2 -0.3 -0.5 -1															

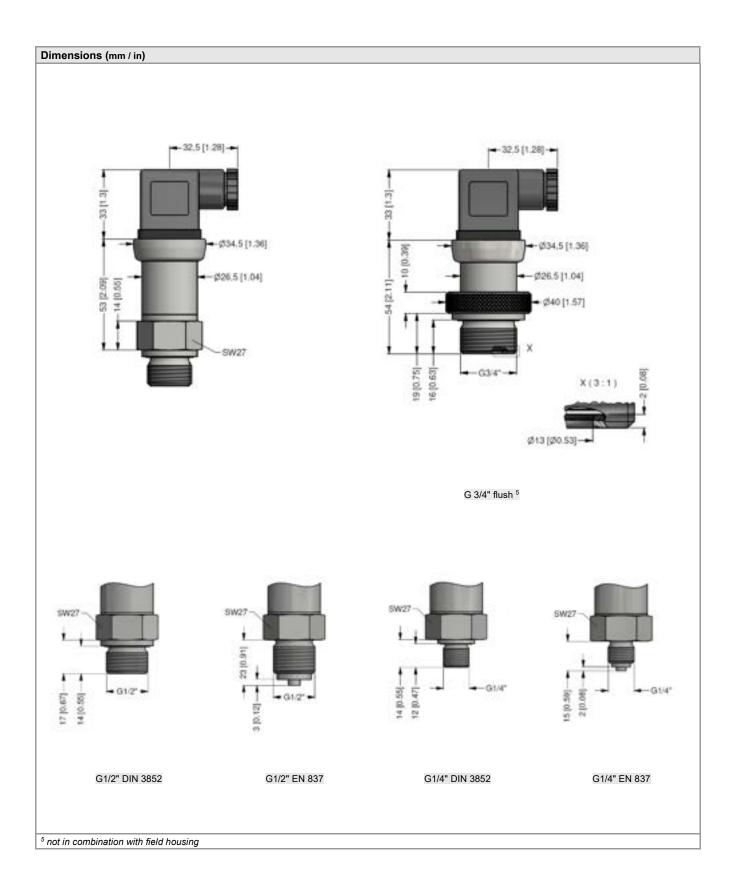
Output signal / Supply			
Standard	2-wire: 4 20 mA / V _S = 14 3	6 V _{DC}	
Option IS-version	2-wire: 4 20 mA / V _S = 14 2		
On request	3-wire: 0 10 V / V _S = 14 3		
Performance			
Accuracy ¹	standard: ≤ ± 0.35 % FSO		
/ tocaracy	option: ≤ ± 0.25 % FSO		others on request
Permissible load	current 2-wire: $R_{\text{max}} = [(V_S - V_{S \text{ min}})]$	/ 0.02 Al Ω	'
	voltage 3-wire: $R_{min} = 10 \text{ k}\Omega$		
Influence effects	supply: 0.05 % FSO / 10 V		
	load: 0.05 % FSO / kΩ		
Long term stability	≤ ± 0.1 % FSO / year		
Turn-on time	450 msec		
Mean response time	≤ 70 msec		
Measuring rate	80 Hz		
¹ accuracy according to IEC 60770 - limit	point adjustment (non-linearity, hysteresis	repeatability)	
Thermal effects (offset and span)			
Tolerance band	≤ ± 1 % FSO		
In compensated range	-20 80 °C		
Permissible temperatures			
Medium ²	-40 125 °C		
Electronics / environment	-40 85 °C		
Storage	-40 85 °C		
	n medium temperature is -30 60 °C and i	n PP-HT 0 60 °C	
Electrical protection			
Short-circuit protection	permanent		
Reverse polarity protection	no damage, but also no function		
Electromagnetic compatibility	emission and immunity according to	FN 61326	
Mechanical stability	composite and minimum by according to		
Vibration	10 g RMS (25 2000 Hz)	according to DIN EN 60069 2	<u> </u>
	10 g RW3 (25 2000 HZ)	according to DIN EN 60068-2-	0
Materials			
Pressure port / housing	-t dd-	pressure port	housing
	standard:	stainless steel 1.4404 (316 L)	stainless steel 1.4404 (316 L)
	options for G3/4" flush:	PVDF (p _{max} = 20 bar)	PVDF PP-HT
Option compact field housing	stainless steel 1.4301 (304)	PP-HT (p _{max} = 10 bar)	1 1 -111
Option compact liefu flousing	cable gland M12x1.5, brass, nickel p	olated (clamping range 2 8 mm	1)
Seals (O-rings)	FKM, EPDM, FFKM	mateu (eramping range = m e min	others on request
Diaphragm	ceramics Al ₂ O ₃ 99.9 %		others on request
Media wetted parts	pressure port, seals, diaphragm		· · · · · · · · · · · · · · · · · · ·
Explosion protection (only for 4.			
Approval DX14B-DMK 387	IBEXU 15 ATEX 1066 X / IECEX IBE	18 0010Y	
Approval DA 146-DIVIN 367		16.00197	
	pressure port: stainless steel zone 0: II 1G Ex ia IIC T4 Ga	l	
	pressure port: PVDF or PP-HT zone 1: II 2G Ex ia IIC T4 Gb	1	
	for all pressure ports		
	zone 20: II 1D Ex ia IIIC T13	5 °C Da	
Safety technical maximum values	U _i = 28 V, I _i = 93 mA, P _i = 660 mW, the supply connections have an inne		ousing
Permissible temperatures for	111	th p _{atm} 0.8 bar up to 1.1 bar	
environment	in zone 1 or higher: -25 65 °C		. E/
Connecting cables (by factory)	cable capacitance: signal line/shie cable inductance: signal line/shie	ld also signal line/signal line: 160 ld also signal line/signal line: 1 բl) pF/m H/m

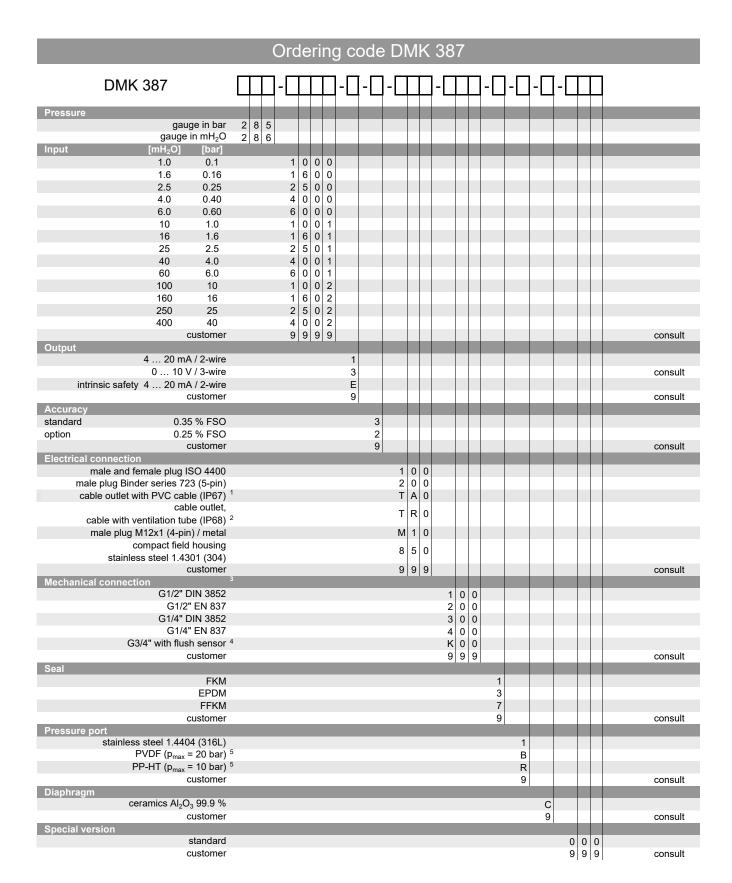
Miscellaneous												
Current consumption	max. 22 mA											
Weight	approx. 180 g											
Operational life	100 million load cycles	.										
CE-conformity	EMC Directive: 2014/30/EU											
ATEX Directive	2014/34/EU	50/LO										
Wiring diagrams												
2-wire-system (current) 3-wire-system (voltage) p supply +												
Vs vs supply – U signal + V												
Pin configuration												
Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	compact field housing								
	3 OND	3		V _{S+} V _{S-} S+ GND	cable colours (IEC 60757)							
supply +	1	3	1	V _S +	WH (white)							
supply – signal + (only 3-wire)	2 3	4 1	2 3	V _s - S+	BN (brown) GN (green)							
Shield	ground pin 🕕	5	4	GND	GNYE (green-yellow)							
Electrical connections (dimension	ns mm / in)				(green-yellow)							
(Sp O) (S	Trois or	## ## ## ## ## ## ## ## ## ## ## ## ##		M12x1	12 [0.48]							
ISO 4400 (IP 65)	I	Binder series 723, 5-pin (IP 67)		M12x1, 4-pii (IP 67)	n							
69 [2.7] 649.5 [1.95] 67.4 [0.29] 67.4 [0.29] 67.4 [0.29] 67.4 [0.29] 67.4 [0.29] 67.4 [0.29]												
compact field housing (IP 67)	V	cable outlet with PVC-cable (IP 67) 3		cable outlet, cabl ventilation tube (II	e with P 68) ⁴							

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

³ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)
⁴ different cable types and lengths available, permissible temperature depends on kind of cable

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 $^{^{1}}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 $^{\circ}$ C); others on request

² code TR0 = PVC cable, cable with ventilation tube available in different types and lengths

³ metric threads and others on request

⁴ not in combination with field housing

⁵ only for mechanical connection G3/4"; for pressure port in PVDF the operation medium temperature is -30 ... 60 °C and in PP-HT 0 ... 60 °C



Pressure Transmitter for Shipbuilding and Offshore

Ceramic Sensor

accuracy according to IEC 60770: 0.5 % FSO

Nominal pressure

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

Output signals

2-wire: 4 ... 20 mA others on request

Special characteristics

- LR-certificate (Lloyd's Register)
- DNV-approval (Det Norske Veritas)
- ► ABS-certificate (American Bureau of Shipping)
- CCS-certificate (China Classification Society)
- pressure port in CuNiFe (sea water resistant)
- oxygen application

Optional versions

IS-versionEx ia = intrinsically safe for gases and dusts The pressure transmitter DMK 457 with ceramic sensor has been designed for typical applications in shipbuilding and offshore constructions as alternative to our pressure transmitter DMP 457 with piezoresistive stainless steel sensor.

In combination with the copper-nickel-alloy the DMK 457 is suitable for seawater, e.g. level measurement in ballast tanks, etc.

Preferred areas of use are

Drives



Compressors
Boiler
Pneumatic control systems
Oxygen applications



Fuel and oil



Water and sea water

















Input pressure range																			
Nominal pressure gauge	[bar]	-1 0	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400	600
Nominal pressure abs.	[bar]	-	-	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400	600
Level gauge / abs.	[mH ₂ O]	-	-	6	10	16	25	40	60	100	160	250	400	600	-	-	-	-	-
Overpressure	[bar]	4	1	2	2	4	4	10	10	20	40	40	100	100	200	400	400	600	800
Burst pressure ≥	[bar]	7	2	4	4	5	5	12	12	25	50	50	120	120	250	500	500	650	880
Vacuum resistance		p _N ≥ 1 k					m res	istand	ce										
		$ p_N < 1 $	oar: c	n req	uest														
0 (() 1/0 1																			
Output signal / Supply		1																	
Standard		2-wire:					= 8												
Option IS-version 2-wire: 4 20 mA / V _S = 10 28 V _{DC}																			
Performance																			
Accuracy 1		IEC 60																	
Permissible load		R _{max} =																	
Influence effects		supply																	
Long term stability		load: ≤ ± 0.3		05 %				0.000	ditio	20									
Response time		< 10 m		y	cai a	at 1016	SIGIIC	C 0011	aitiOl	13									
¹ accuracy according to IEC 6	60770 – lim			ent (n	on-lin	earity	hvste	resis	renea	atability	/)								
Thermal effects (offset a			,	J (11)	1111	y,	,, 0.0	. 55.6,	. 5,500		,								
Thermal error	ina span	<i>y</i> ≤±0.2	0/. =	SO /	10 K														
		0 85		307	10 K														
in compensated range		0 60	, ,																
Permissible temperature	es	10	1050																
Medium		-40																	
Electronics / environment			40 85°C 40 100°C																
Storage		-40	100-0	J															
Electrical protection																			
Short-circuit protection		perma																	
Reverse polarity protection		no dan																	
Electromagnetic compatib	oility	emissi			muni	ty acc	cordin	g to											
		- EN 6			(a \/	aritae'	١												
Mechanical stability		DITT	(DUI	140101		Jiilao,	,												
Vibration		4 g (ac	oord	ina to	DNI	/: ala	00 P	OUR (C	2/1	ooio:	IEC 6	റ്റെ	2.6)						
Materials		4 g (ac	coru	ing to	DIN	/. Cla	SS D,	curve	: Z / L	Jasis.		JU00-	2-0)						
						-4-1		-4	1 4 4	104 (2	401.)								
Pressure port		standa								404 (3	,	. 4 4\	¢	- 10	00 l				
		option	- :								er resis 352, G							inical	
											552, G EN 837		-14 057	, G 1/2	z ope	п роп	٠,		
											using		Ni10F	e1Mn	(not w	vith fie	ld hou	ısing)	-
Housing		standa	rd:							404 (3					`				
J		option								,	er resis	stant)	- in co	mbina	ation v	vith pr	essur	е	
		'					t in C					,							
		option	field	housi	ng:	sta	inless	stee	11.4	404 (3	16L);	with c	able g	land ((CuNi	10Fe1	Mn no	t pos	sible)
Cable sheath		TPE -U				(fla	me-re	esista	nt, ha	aloger	rfree, a wate	increa	ased r	esista					
Seals (media wetted)		standa	rd:			FKI	М												
•		option:				FF	KM (o	nly fo	or p _N	≤ 100	bar)					oth	ners o	n requ	ıest
Diaphragm		cerami	c Al ₂	O ₃ 96	%														
Media wetted parts		pressu				diaph	ragm												
² IS-version on request																			
Category of the environ	ment																		
Lloyd's Pagister (LD) 3		EM/\/1		/2 E	11/2		//						n	mbor	of oc	ificata	. 12/2	OOEE	

number of certificate: 13/20055

number of certificate: TAA00001GR

D

В

В

В

D

EMV1, EMV2, EMV3, EMV4

electromagnetic compatibility:

temperature:

humidity:

vibration:

enclosure:

Lloyd's Register (LR) 3

³ for p_N ≤ 160 bar

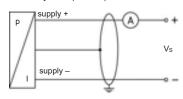
Det Norske Veritas (DNV)

Explosion protection										
Approvals	IBExU 10 ATEX 1068 X / IECEx IBE 12.0027X									
DX19-DMK 457	zone 0: II 1G Ex ia IIB T4 Ga									
	zone 20: II 1D Ex ia IIIC T135 °C Da									
Safety technical maximum	$U_i = 28 \text{ V}, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, L_i \approx 0 \mu\text{H}$									
values	with field housing: C _i = 105 nF									
	with cable outlet: $C_i = 84.7 \text{ nF}$									
	with ISO 4400: $C_i = 62.2 \text{ nF}$									
	the supply connections have an inner capacity of max. 90 nF (140 nF with field housing) 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 70 °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										
Option oxygen application	for p _N ≤ 25 bar: O-ring in FKM Vi 567 (with BAM-approval)									
	permissible maximum values are 25 bar/150° C									
Current consumption	max. 25 mA									
Weight	approx. 140 g (with ISO 4400)									
Installation position	any									
Operational life	100 million load cycles									
CE-conformity	EMC Directive: 2014/30/EU									
	Pressure Equipment Directive: 2014/68/EU (module A) ⁴									
ATEX-directive	2014/34/EU									
1										

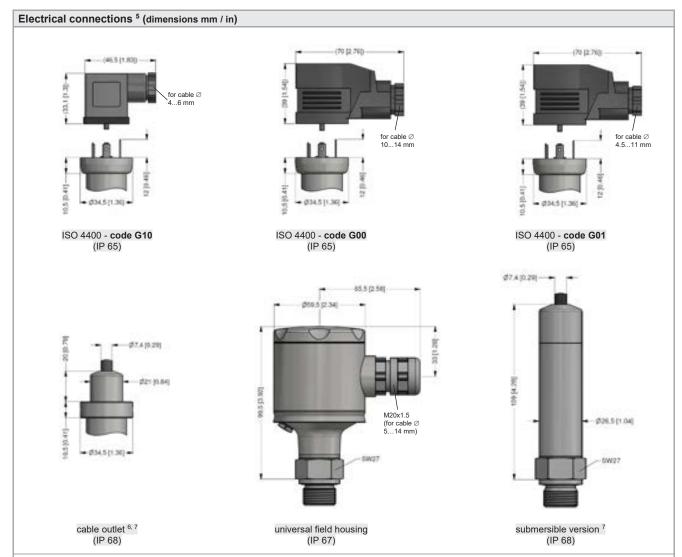
⁴ This directive is only valid for devices with maximum permissible overpressure > 200 bar

Wiring diagram

2-wire-system (current)



Pin configuration	Pin configuration											
Electrical connection	ISO 4400	field housing (clamp_section: 2.5 mm²)										
	3 040	V _{S+} V _{S-} S+ GND	cable colours (IEC 60757)									
Supply +	1	VS+	WH (white)									
Supply –	2	VS-	BN (brown)									
Shield	ground pin	GND	GNYE (green-yellow)									



- ⁵ Generally shielded cable has to be used! Cable versions are delivered with shielded cable. For ISO 4400 the use of shielded cable is compulsory.
- ⁶ tested at 4 bar or 40 mH₂O for 24 hours

Mechanical connection (dimensions mm / in) \$10 [\$0.39] TRACT. - NE 214 10° MPT → +010°+ G1/2" open port DIN 3852 (≤ 40 bar) G1/2" DIN 3852 G1/2" EN 837 1/2" NPT (00.6 [1.04] 14 [0.55] 12 D.47 G1/4" DIN 3852 G1/4" EN 837 1/4" NPT

⁷ shielded cable with integrated air tube for atmospheric reference (for nominal pressure ranges absolute, the air tube is closed); different lengths available

	Order	ing code	DMK 4	57					
DMK 457			7_[
DIVIN 431					-山-山	-H-	Ή-		
Pressure in bar, gauge	5 9 0								
in bar, absolute ¹ in mH ₂ O, gauge	5 9 0 5 9 1 5 9 2 5 9 3								
in mH ₂ O, absolute ¹	5 9 3								
Input $[mH_2O]$ [bar] 4 0.4 1	4 0	0 0							
6 0.6	6 0	0 0							
10 1.0 16 1.6	1 0 1 6	0 1							
25 2.5 40 4.0	2 5 4 0	0 1 0 1							
60 6.0	6 0	0 1							
100 10 160 16	1 0 1 6								
250 25	2 5	0 2							
400 40 600 60	4 0 6 0	0 2							
100	1 0 1 6	0 2 0 3 0 3							
160 250	2 5	0 3							
400 600	4 0 6 0								
-1 0	X 1	0 2							
Output	9 9	9 9				_			consult
4 20 mA / 2-wire intrinsic safety 4 20 mA / 2-wire		1 E						П	
customer		9							consult
Accuracy 0.5 % FSO			5						
customer			9			_	_		consult
Electrical connection male and female plug ISO 4400			G 1 0						
(for cable Ø 46 mm) male and female plug ISO 4400 GL $^{ m 2}$									
(for cable Ø 1014 mm)			G 0 0						
male and female plug ISO 4400 GL ² (for cable Ø 4.511 mm)			G 0 1						
cable outlet with TPE-U-cable ³			T R 3						
field housing stainless steel 1.4404 (316L) submersible version in 1.4404 (316L)			8 8 0 T T 3						
with TPE-U-cable ³ submersible version in CuNiFe									
with TPE-U-cable ³			T S 3						
customer Mechanical connection			9 9 9						consult
G1/2" DIN 3852				1 0 0					
G1/2" EN 837 G1/4" DIN 3852				1 0 0 2 0 0 3 0 0					
G1/4" EN 837 G1/2" DIN 3852 open pressure port ⁴				4 0 0 H 0 0					
1/2" NPT				N 0 0					
1/4" NPT customer				N 4 0 9 9 9					consult
Seals				5,5,5	4				Contract
FKM FFKM ⁵					7				
Pressure port customer				_	9				consult
stainless steel 1.4404 (316L)					1				
copper-nickel-alloy (CuNi10Fe1Mn) ⁶ customer					K 9				consult
Diaphragm					3				Sonoak
ceramics Al ₂ O ₃ 96 % customer						9			consult
Special version standard							0 0	0	
oxygen application ⁷							0 0 0 0 9 9	7	
customer							9 9	9	consult

¹ absolute pressure possible from 0.6 bar

² cable socket is GL-approbated

³ shielded TPE-U-cable with ventilation tube available in different lengths

 $^{^4}$ only for $p_N \le 40$ bar possible

 $^{^{5}}$ only for $p_{N} \le 100$ bar possible

⁶ optionally for nominal pressure ranges up to 400 bar and mechanical connections G1/2" DIN 3852, G1/2" EN 837, G1/2" open pressure port,

G1/4" DIN 3852, G1/4" EN837 in combination with housing in CuNi10Fe1Mn (not with field housing)

⁷ oxygen application with FKM seal possible up to 25 bar



Pressure Transmitter for Marine and Offshore

Ceramic Sensor

accuracy according to IEC 60770: standard: 0.25 % FSO option: 0.1 % FSO

Nominal pressure

from 0 ... 40 mbar up to 0 ... 20 bar

Output signals

2-wire: 4 ... 20 mA others on request

Product characteristics

- LR-certificate (Lloyd's Register)
- DNV-approval (Det Norske Veritas)
- **ABS-certificate** (American Bureau of Shipping)
- **CCS-certificate** (China Classification Society)
- high overpressure resistance
- excellent long term stability

Optional versions

- **IS-version** Ex ia= intrinsically safe for gases
- diaphragm Al₂O₃ 99.9 %
- pressure port in CuNiFe (sea water resistant)

The pressure transmitter DMK 458 has been developed for marine and offshore applications. In addition to thread connections, different flush versions are available, which are especially suitable for pasty, viscous, and polluted media.

Due to the capacitive ceramic sensor developed by BD|SENSORS, which is optionally available in Al₂O₃ 99.9 %, the DMK 458 shows an outstanding accuracy as well as a high overload and temperature resistance.

Preferred areas of use are



Monitoring of pressure during loading and unloading processes



Monitoring of a ship's position and draught Use in anti-heeling systems

Water and sea water



Level measurement in ballast and storage tanks











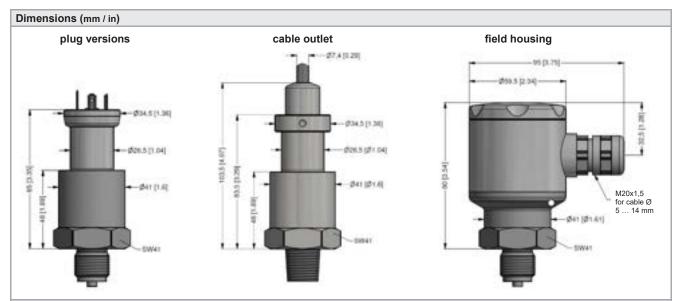


Pressure ranges																
Nominal pressure 1	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	20
Level	[mH ₂ O]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	200
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35	45	45
Permissible vacuum	[bar]	-0	.2	-(0.3		-0	.5					-1			
¹ available in gauge and absolute; nominal pressure ranges absolute from 1 bar																

Output signal / Supply		
Standard	2-wire: 4 20 mA / V _S = 9 32 V _{DC}	$V_{S \text{ rated}} = 24 V_{DC}$
Option IS-version	2-wire: 4 20 mA / V _S = 14 28 V _{DC}	$V_{S \text{ rated}} = 24 V_{DC}$
Performance		
Accuracy ²	standard: ≤ ± 0.25 % FSO	option for $p_N \ge 0.6$ bar ³ : $\le \pm 0.1$ % FSO
Permissible load	$R_{\text{max}} = [(V_{\text{S}} - V_{\text{S min}}) / 0.02 \text{ A}] \Omega$	
Long term stability	≤ ± 0.1 % FSO / year at reference conditions	
Influence effects	supply: 0.05 % FSO / 10 V	load: 0.05 % FSO / kΩ
Turn-on time	700 msec	
Mean response time	< 200 msec	mean measuring rate 5/sec
Max. response time	380 msec	
	it point adjustment (non-linearity, hysteresis, repeatability) at according to EN 61000-4-4 (2004) +2 kV accuracy decre	
Thermal effects (offset and span)		
Tolerance band	≤±1% FSO	
in compensated range	-20 80 °C	
Permissible temperatures		
Medium	-40 125 °C	
Electronics / environment	-25 85 °C	
Storage	-40 100 °C	
Electrical protection	10 100 0	
Short-circuit protection	permanent	
Reverse polarity protection	no damage, but also no function	
Electromagnetic compatibility	emission and immunity according to	
	, ,	Det Norske Veritas)
Mechanical stability		
Vibration	4 g (according to DNV: Class B, curve 2 / basis: I	IEC 60068-2-6)
Materials		
Pressure port		nt) - only for G1/2" open pressure port and in 10Fe1Mn (not possible with field housing) -
Housing	standard: stainless steel 1.4404 (316 L) option: CuNi10Fe1Mn (sea water resistar in CuNi10Fe1Mn -	nt) - only in combination with pressure port
Option field housing (not possible with CuNi10Fe1Mn)		, nickel plated mide (with integrated pressure reference)
Cable sheath for option cable outlet		reased resistance against oil and gasoline,
Seals (media wetted)	FKM	others on request
Diaphragm	standard: ceramics Al ₂ O ₃ 96 %	option: ceramics Al ₂ O ₃ 99.9 %
Media wetted parts	pressure port, seals, diaphragm	serannes i azes sero in
Category of the environment	F F,,	
Lloyd's Register (LR)	EMV1, EMV2, EMV3 ⁴ , EMV4	number of certificate: 13/20055
Det Norske Veritas (DNV)	temperature: D vibration: B humidity: B enclosure: D electromagnetic compatibility: B	number of certificate: TAA00001GR
⁴ not valid for IS-version (DX14A-DMK 4	, , ,	
Explosion protection		
Approval DX14A-DMK 458	, ,	Ex ia IIC T4 Ga Ex ia IIB T4 Ga
Safety technical maximum values	U_i = 28 V; I_i = 93 mA; P_i = 660 mW; L_i = 0 μ H field housing: C_i = 52.3 nF;	90.2 nF opposite GND 140 nF opposite GND
Permissible temperatures for environment	in zone 0: -20 60 °C with p _{atm} 0.8 bazone 1 and higher: -25 70 °C	
Permissible temperatures for medium	-40 85 °C	

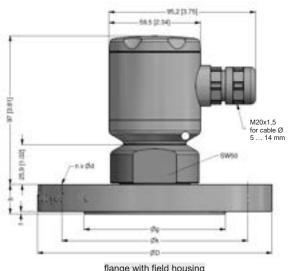
Miscellaneous									
Ingress protection	IP 65, IP 67, IP 68								
Installation position	any								
Current consumption	max. 21 mA								
		an hausing and machania	al connection)						
Weight		. 400 g (depending on housing and mechanical connection)							
Operational life	100 million load cycles								
CE conformity		MC Directive: 2014/30/EU							
ATEX Directive	2014/34/EU								
Wiring diagram									
2-wire-system (current) p supply + Vs supply –									
Pin configuration									
Electrical connection	ISO 4400	field housing (clamp section: 2.5 mm ²)	M12x1 (4-pin), metal	cable colours (IEC 60757)					
Supply + Supply –	1 2	V _S + V _S -	1 2	WH (white) BN (brown)					
Shield	ground pin	GND	4	GNYE (green-yellow)					
Electrical connections (dimension				(0)/					
for cable Ø 46 mm for cable Ø 1014 mm									
ISO 4400 - code G01 (IP 65) ISO 4400 - code G01 (IP 65)									
M12x1 4-pin (IP 67)	cab	ole outlet ⁵ (IP 68)	field housing (IP 67)	ı					

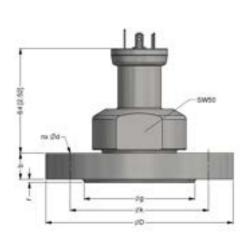
⁵ cable versions are delivered with shielded cable (different lengths available); for gauge pressure cable with ventilation tube required; tested at 4 bar or 40 mH₂O for 24 hours



Mechanical connections (dimensions mm / in)

flanges



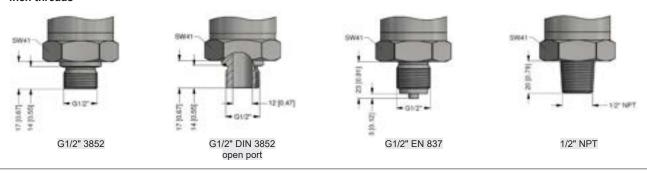


flange with field housing

flange with plug version and cable outlet

	dimensions in mm								
size	DIN 2501 ANSI								
Size	DN25/PN40	DN40/PN40	DN50/PN40	DN80/PN16	2"/150 lbs	3"/150 lbs			
b	18	18	20	20	19.1	23.9			
d	14	18	18	18	19.1	19.1			
D	115	150	165	200	152.4	190.5			
f	2	3	3	3	2	2			
g	68	88	102	138	91.9	127			
k	85	110	125	160	120.7	152.4			
n	4	4	4	8	4	4			
p _N [bar]	≤ 40	≤ 40	≤ 40	≤ 16	≤ 10	≤ 10			

inch threads



	Oı	rderi	ng	cod	e D	MK	45	8							
DMK 458	Ш]-[П]-[]-[- []-[]-	□-[]-[]-[]
Pressure in bar, gauge in bar, absolute ¹ in mH ₂ O, gauge in mH ₂ O, absolute ¹	5 9 A 5 9 E 5 9 C 5 9 D	3													consult
In mH ₂ O, absolute 1 Input [mH ₂ O] [bar] 0.4 0.04 0.6 0.06 1.0 0.1 1.6 0.16 2.5 0.25 4.0 0.40 6.0 0.60 10 1.0 16 1.6 25 2.5 40 4.0 60 6.0 100 10 100 10 160 16	5 9 L	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 1 1 1 1 1 1											consult
200 20 customer			0 0	9											consult
Output 4 20 mA / 2-wire intrinsic safety 4 20 mA / 2-wire customer Accuracy				1 E	:										consult
standard: 0.25 % FSO option for p _N ≥ 0,6 bar: 0.1 % FSO customer					2 1 9		I				T				consult
Electrical connection male and female plug ISO 4400 (for cable Ø 4 6 mm) male and female plug ISO 4400 GL 2 (for cable Ø 10 14 mm) male and female plug ISO 4400 GL 2 (for cable Ø 4.5 11 mm) male plug M12x1 (4-pin) / metal version cable outlet with TPE-U-cable 3 (with ventilation tube) field housing stainless steel 1.4404 (316L)						T 8	1 0 0 0 0 1 1 0 R 3 8 0								
Customer G 1/2" DIN 3852 G 1/2" EN 837 1/2" NPT G1/2" DIN 3852 open pressure port flange DN 25 / PN 40 (DIN 2501) flange DN 40 / PN 40 (DIN 2501) flange DN 50 / PN 40 (DIN 2501) flange DN 80 / PN 16 (DIN 2501) flange DN 80 / PN 16 (ANSI B 16.5) 4						9	9 9	; ; ;	1 0 2 0 N 0 H 0 F 2 F 2 F 2 F 3	0 0 0 0 2 3 4					consult
flange DN 3" / 150 lbs (ANSI B 16.5) 4 customer Seals	_	_						9	F 3 F 3	3 9					consult
FKM andere											1 9				consult
Pressure port stainless steel 1.4404 (316L) copper-nickel-alloy (CuNi10Fe1Mn) 5 customer												8 K 9		I	consult
Diaphragm ceramics Al ₂ O ₃ 96 % ceramics Al ₂ O ₃ 99.9 % customer												2	;		consult
Special version standard customer BD SENSORS www.bdsensors.de													0	0 0 9 9	consult



DMP 331P

Industrial **Pressure Transmitter**

Process Connections with Flush Welded Stainless Steel Diaphragm

accuracy according to IEC 60770: standard: 0.35 % FSO option: 0.25 % FSO

Nominal pressure

from 0 ... 100 mbar up to 0 ... 40 bar

Output signals

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

Special characteristics

- hygienic version
- diaphragm with low surface roughness
- CIP / SIP cleaning up to 150 °C
- vacuum resistant

Optional versions

- IS-version Ex ia = intrinsically safe for gases and dust
- SIL 2 version according to IEC 61508 / IEC 61511
- diaphragm in Hastelloy® or Tantalum
- cooling element for media temperatures up to 300 °C

The pressure transmitter DMP 331P was designed for use in the food / beverage and pharmaceutical industry. The compact design with hygienic versions makes it possible to achieve an outstanding performance in terms of accuracy, temperature behaviour and long term stability.

The modular construction concept allows a combination of various process connections with different filling fluids and a cooling element. Several electrical connections complete the profile of DMP 331P.

Preferred areas of use are



Food and beverage



Pharmaceutical industry

Material and test certificates

- Inspection certificate 3.1 according to EN 10204
- Test report 2.2 according to EN 10204











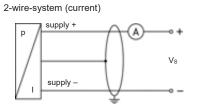






Input pressure range ¹									
Nominal pressure gauge	[bar]	-10	0.10	0.16	0.25	0.40	0.60	1	1.6
Nominal pressure absolute	[bar]	-	-	-	-	0.40	0.60	1	1.6
Overpressure	[bar]	5	0.5	1	1	2	5	5	10
Burst pressure ≥	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15
Nominal pressure gauge / absolute	[bar]	2.5	4	6	10)	16	25	40
Overpressure	[bar]	10	20	40	4	<u> </u>	80	80	105
Burst pressure ≥	[bar]	15	25	50	50)	120	120	210
Vacuum resistance		p _N > 1 bar: ı	unlimited vac	uum resistar	nce				
¹ consider the pressure resistance	ce of fitting	p _N ≤ 1 bar: 0							
Output signal / Supply		•							
Standard		2-wire: 4	20 mA /	\/_ = 8 '	R2 \/	SII -versio	on: V _S = 14	28 \/	
Option IS-version			20 mA /				on: V _S = 14		
Options 3-wire			20 mA /			SIL-VEISIC	лі. v _S – 14	. 20 V _{DC}	
Options 5-wife				V _S = 14 3					
Performance									
Accuracy ²		standard: option:	nominal pre nominal pre nominal pre	ssure ≥ 0.4 l	oar: ≤±().5 % FSO).35 % FSO).25 % FSO			
Permissible load		current 2-wi current 3-wi voltage 3-w	re: R _{max} =		/ 0.02 A] Ω				
Influence effects		supply: 0.	05 % FSO / 1	10 V	load	0.05 % FS	SO / kΩ		
Long term stability			SO / year at		nditions				
Response time		2-wire: < 10				re: ≤3 mse	c		
² accuracy according to IEC 607	70 – limit	point adjustme	nt (non-linearit	y, hysteresis, ı					
Thermal effects (offset and	d span) ³								
Nominal pressure p _N	[bar]		-1 0		< (.40		≥ 0.40)
Tolerance band [%	6 FSO]		≤ ± 0.75		≤ ±	1.5		≤ ± 0.7	5
in compensated range	[°C]		20 85		0	. 50		-20 8	35
³ an optional cooling element ca	n influence	e thermal effec	ts for offset and	d span depend	ling on installa	tion position	and filling cond	ditions	
Permissible temperatures									
Filling fluid			silicor	ne oil			food cor	npatible oil	
Medium ⁴			-40 1	125 °C			-10	. 125 °C	
Medium with cooling elemen	nt ⁵		rpressure: uum:	-40 300 °C -40 150 °C			verpressure: acuum:	-10 250 -10 150	°C ⁶
Electronics / environment					-40	85 °C			
Storage					-40	100 °C			
4 max. temperature of the mediu 5 max. temperature depends on 6 also for $p_{abs} ≤ 1$ bar						max. enviro	nmental tempe	rature of 50 °C	;
Electrical protection									
Short-circuit protection		permanent							
Reverse polarity protection		no damage, but also no function							
Electromagnetic compatibilit	у	emission ar	d immunity a	according to	EN 61326				
Mechanical stability									
Vibration according to DIN EN 60068-	2-6	G 1/2": 20 g RMS (25 2000 Hz) others: 10 g RMS (25 2000 Hz)							
Shock according to DIN EN 60068-	2-27	G 1/2": 500	g / 1 msec			others: 10	0 g / 1 msec		
Filling fluids									
Standard		silicone oil							
Option							No.: 141500)	

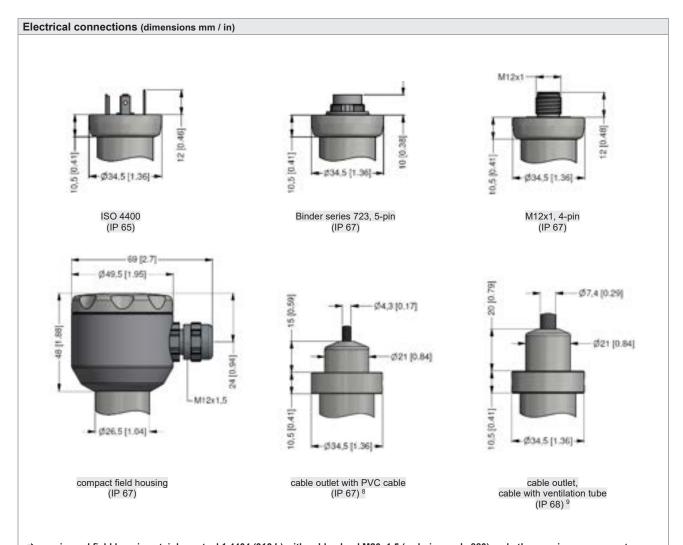
Materials		
Pressure port	stainless steel 1.4435 (316 L)	others on request
Housing	stainless steel 1.4404 (316 L)	
Option compact field housing	stainless steel 1.4301 (304); cable gland M12x1.5, brass,	
	nickel plated (clamping range 2 8 mm)	
Seals	standard: FKM (recommended for medium temperatures ≤ 200 °C) option: FFKM (recommended for medium temperatures < 260 °C) Clamp, dairy pipe, Varivent®: without	others on request
Diaphragm	standard: stainless steel 1.4435 (316 L) option: Hastelloy® C-276 (2.4819)	Tantalum on request
Media wetted parts	pressure port, seal, diaphragm	
Explosion protection (only for	4 20 mA / 2-wire)	
Approvals DX19-DMP 331P	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
Safety technical maximum values	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, C_i ≈ 0 nF, L_i ≈ 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 (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/r cable inductance: signal line/shield also signal line/signal line: 1 µH/m	n
Miscellaneous		
EHEDG certificate Type EL Class I	EHEDG conformity is only ensured in combination with an approved seal. T - Clamp (C61, C62, C63): T-ring-seal from Combifit International B.\ - Varivent\(^{\text{S}}\) (P41): EPDM-O-ring which is FDA-listed - dairy pipe (M73, M75, M76): ASEPTO-STAR k-flex upgrade seal by Ki	V.
Option SIL2 version 7	according to IEC 61508 / IEC 61511	
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA	
Surface roughness	pressure port $R_a < 0.8 \ \mu m$ (media wetted parts) diaphragm $R_a < 0.15 \ \mu m$ weld seam $R_a < 0.8 \ \mu m$	
Weight	min. 200 g (depending on process connection)	
Installation position	any (standard calibration in a vertical position with the pressure port connect differing installation position for $p_N \le 2$ bar have to be specified in the order)	
Operational life	100 million load cycles	
CE-conformity	EMC Directive: 2014/30/EU	
ATEX Directive	2014/34/EU	
⁷ only for 4 20 mA / 2-wire		
Wiring diagrams		





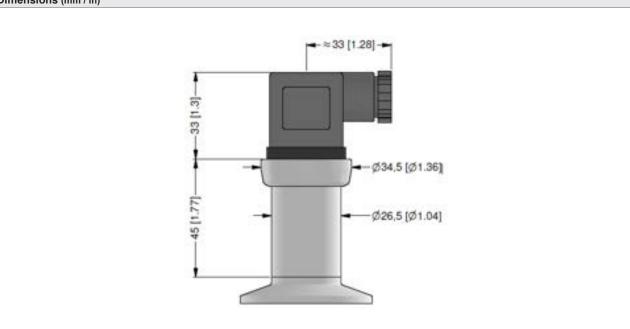
	supply +	_		
p /	117	$\overline{}$		
		1 1		Vs
	supply –			—
/ 1/U		$\downarrow \downarrow$	_AV	
/ 1/0	signal +	¥		

Pin configuration					
Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	compact field housing	cable colours (IEC 60757)
	3 CMD	3		V _{S+} V _{S-} S+ GND	
Supply +	1	3	1	V _{S+}	WH (white)
Supply –	2	4	2	V _{S-}	BN (brown)
Signal + (only 3-wire)	3	1	3	S+	GN (green)
Shield	ground pin 📵	5	4	GND	GNYE (green-yellow)



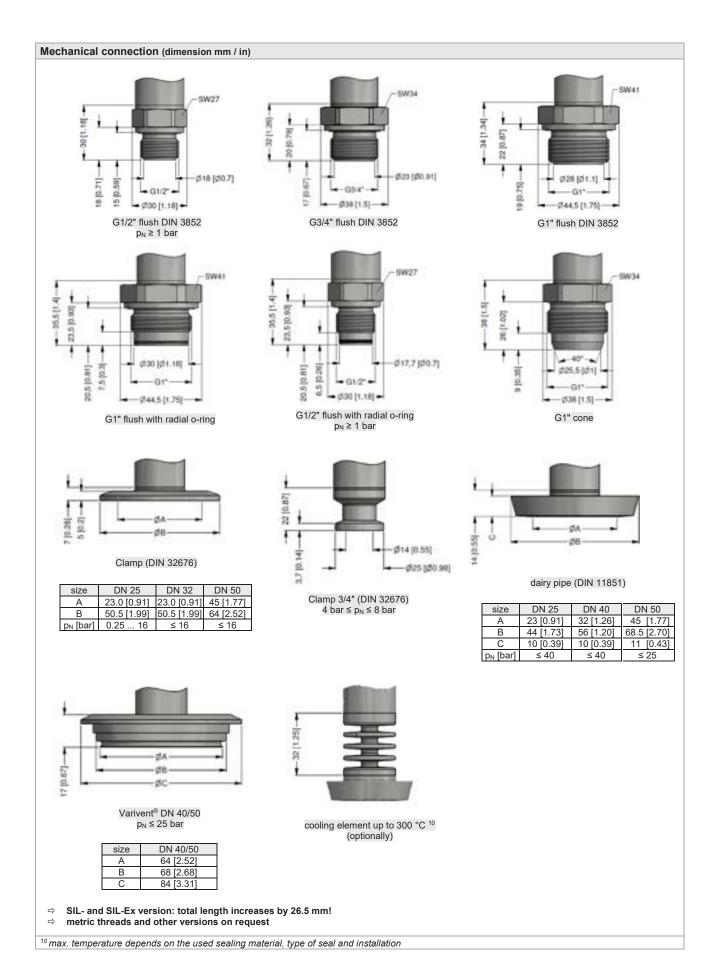
universal field housing stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request

Dimensions (mm / in)



 $^{^8}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C)

⁹ different cable types and lengths available, permissible temperature depends on kind of cable



Ordering code

	Ordering co	de DN	лР З	331	1P									-
DMP 331P		ш-П	-[П	-∏	П	-∏·	-П-	П.	-П	T	l		
Pressure gauge	5 0 0													
absolute [bar]	5 0 1		-			_		-					-	_
0.10 ¹ 0.16 ¹	1 0 0 0 1 6 0 0													
0.25 ¹ 0.40	2 5 0 0 4 0 0 0 6 0 0 0													
0.60 1.0 1.6	6 0 0 0 1 0 0 1 1 6 0 1													
2.5 4.0	2 5 0 1 4 0 0 1													
6.0 10	6 0 0 1													
16 25	1 6 0 2 2 5 0 2													
40 -1 0	4 0 0 2 X 1 0 2													
Output Customer	9 9 9 9													consult
4 20 mA / 2-wire 0 20 mA / 3-wire 0 10 V / 3-wire		1 2 3												
intrinsic safety 4 20 mA / 2-wire SIL2 4 20 mA / 2-wire		E 1S												
SIL2 with intrinsic safety 4 20 mA / 2-wire customer		ES 9												consult
Accuracy standard for $p_N \ge 0.4$ bar: 0.35 % FSC		3												
standard for $p_N < 0.4$ bar: 0.50 % FSC option for $p_N \ge 0.4$ bar: 0.25 % FSC customer		5 2 9												consult
Electrical connection male and female plug ISO 4400		9	1 0	0										Consuit
male plug Binder series 723 (5-pin) cable outlet with PVC cable (IP67) ²			2 0 T A	0		П								
cable outlet, cable with ventilation tube (IP68) ³			T R											
male plug M12x1 (4-pin) / metal compact field housing			M 1											
stainless steel 1.4301 (304) ⁴ customer			9 9											consult
Mechanical connection G1/2" with flush welded diaphragm (DIN 3852) 5	i				Z	0 0		_						
G3/4" with flush welded diaphragm (DIN 3852)					z s	S 0								
G1" with flush welded diaphragm (DIN 3852)					Z S	S 1								
G1" DIN 3852 with rad. o-ring and flush diaphragm					Z S	S 7								
G1/2" DIN 3852 with rad. o-ring and flush diaphragm ⁵ G 1" cone					Z									
Clamp DN 25 / 1" (DIN 32676) / 3A Clamp DN 32 / 1 1/2" (DIN 32676) / 3A					C	S 1 6 1 6 2 6 3								
Clamp DN 50 / 2" (DIN 32676) / 3A Clamp 3/4" (DIN 32676) / 3A					CIE	6 9								
dairy pipe DN 25 (DIN 11851) ⁴ dairy pipe DN 40 (DIN 11851) ⁴					M 7	7 3 7 5								
dairy pipe DN 50 (DIN 11851) ⁴ Varivent [®] DN 40/50 / 3A customer					P 4	7 6 4 1 9 9								consult
Diaphragm stainless steel 1.4435 (316L)					9 (J 9	1							CONSUIT
tantalum Hastelloy [®] C-276 (2.4819)							T H							consult consult
Seal							9	0						consult
for clamp, dairy pipe, Varivent®: without for inch thread - standard: FKM								0						
for inch thread - option: FFKM customer Filling fluid								7 9						consult
silicone oil food compatible oil (FDA) / 3A									1 2					
Special version customer									9					consult
standard with cooling element up to 300°C / 3A										2	0 0 0 0			
customer										9	9 9			consult

¹ absolute pressure possible from 0.4 bar
2 standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C), others on request
3 code TR0 = PVC cable, cable with ventilation tube available in different types and lengths
4 The cup nut has to be mounted by production of pressure transmitter with electrical connection field housing and mechanical connection dairy pipe. The cup nut has to be ordered as separate position.
5 possible only for p_N ≥ 1 bar

■ Various in the description is a brand name of Haynes International Inc.



DMP 333P

Industrial **Pressure Transmitter**

Pressure Ports with Flush Welded Stainless Steel Diaphragm

accuracy according to IEC 60770: standard: 0.35 % FSO option: 0.25% FSO

Nominal pressure

from 0 ... 60 bar up to 0 ... 600 bar

Output signals

2-wire: 4 ... 20 mA 3-wire: 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 (in preparation)
- gold-plated process connection for hydrogen applications
- customer specific versions

The The pressure transmitter DMP 333P is suitable for measuring the pressure of viscous, pasty or gaseous media and for applications that require a front-flush, dead space-free process connection. Especially for hydrogen applications there is the possibility to use the process connection with gold plating. A wide range of electrical connection variants are available to enable the DMP 333P to be integrated easily and quickly in the various system configurations.

Preferred areas of use are



Plant and machine engineering



Hydrogen

Preferred used for



Viscous and pasty media





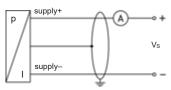


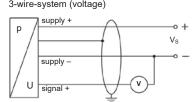


Input pressure range								
Nominal pressure gauge 1	[bar]	60	100	-	-	-	-	
Nominal pressure absolute	[bar]	60	100	160	250	400	600	
Overpressure	[bar]	210	210	600	1000	1000	1000	
Burst pressure ≥	[bar]	1000	1000	1000	1250	1250	1800	
¹ measurement starts with ambient pressure								

Output signal / Supply	
Standard	2-wire: 4 20 mA / V _S = 8 32 V _{DC}
Option IS-protection	2-wire: 4 20 mA / $V_S = 10$ 28 V_{DC} (in preparation)
Options 3-wire	3-wire: 0 10 V / V _S = 14 30 V _{DC}
Performance	
Accuracy ²	standard: ≤ ± 0.35 % FSO
	option: ≤ ± 0.25 % FSO
Permissible load	current 2-wire: $R_{max} = [(U_B - U_{B min}) / 0.02 \text{ A}] \Omega$ voltage 3-wire: $R_{min} = 10 \text{ k}\Omega$
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
Long term stability	≤ ± 0.1 % FSO / year at reference conditions
Response time	2-wire: ≤ 10 msec 3-wire: ≤ 3 msec
² accuracy according to IEC 60770 – limit	t point adjustment (non-linearity, hysteresis, repeatability)
Thermal effects (Offset and Span)	
Tolerance band	≤±0.75 % FSO
In compensated range	-20 80 °C
Permissible temperatures	medium: -40 125 °C
•	electronics / environment: -40 85 °C
	storage: -40 100 °C
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 according to DIN EN 60068-2-6	20 g RMS (25 2000 Hz)
Shock according to DIN EN 60068-2-27	500 g / 1 msec
Filling fluids	
Standard	silicone oil
	others on request
Materials	
Housing	stainless steel 1.4404 (316 L)
Option compact field housing	stainless steel 1.4301 (304);
Dura a contract	cable gland M12x1.5, brass, nickel plated (clamping range 2 8 mm)
Pressure port	standard: stainless steel 1.4404 (316 L) option: stainless steel 1.4404 (316 L), golden
	others on request
Diaphragm	standard: stainless steel 1.4435 (316 L)
1	option: stainless steel 1.4435 (316 L), golden
	others on request
Seals	FKM
	others on request
Media wetted parts	pressure port,
·	seal,
	diaphragm

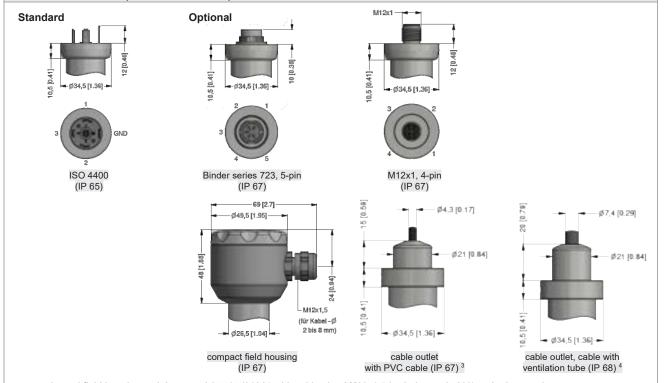
Explosion protection (only for 4 20 mA / 2-wire) in preparation							
Approvals	IBExU 10 ATEX xxxx X						
DX19-DMP 333P	zone 0: II 1G Ex ia IIC T4 Ga; zone 20: II 1D Ex ia IIIC T 135°C Da						
Safety technical maximum values	$J_i = 28 \text{ V}, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C_i \approx 0 \text{ nF}, L_i \approx 0 \mu\text{H},$						
	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 up to bis 1.1 bar						
environment	in zone 1: -20 70 °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	min. 200 g (depending on process connection)						
Installation position	any (standard calibration in a vertical position with the pressure port connection down)						
Operational life	100 million load cycles						
CE-conformity	EMC Directive: 2014/30/EU						
ATEX Directive	2014/34/EU						
Wiring diagrams							
2-wire-system (current)	3-wire-system (voltage)						
p supply+ A +	p supply + O + Vs						





Pin configuration					
Electrical connection	ISO 4400	Binder 723	M12x1 / metal	compact	cable colours
Liectrical confilection	130 4400	(5-pin)	(4-pin)	field housing	(IEC 60757)
Supply +	1	3	1	IN +	WH (white)
Supply –	2	4	2	IN –	BN (brown)
Signal + (only 3-wire)	3	1	3	OUT +	GN (green)
Shield	ground pin 🕕	5	4	⊕	GNYE (green-yellow)

Electrical connections (dimensions mm / in)

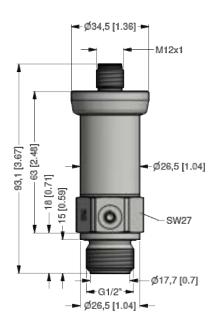


⇒ universal field housing stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request

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

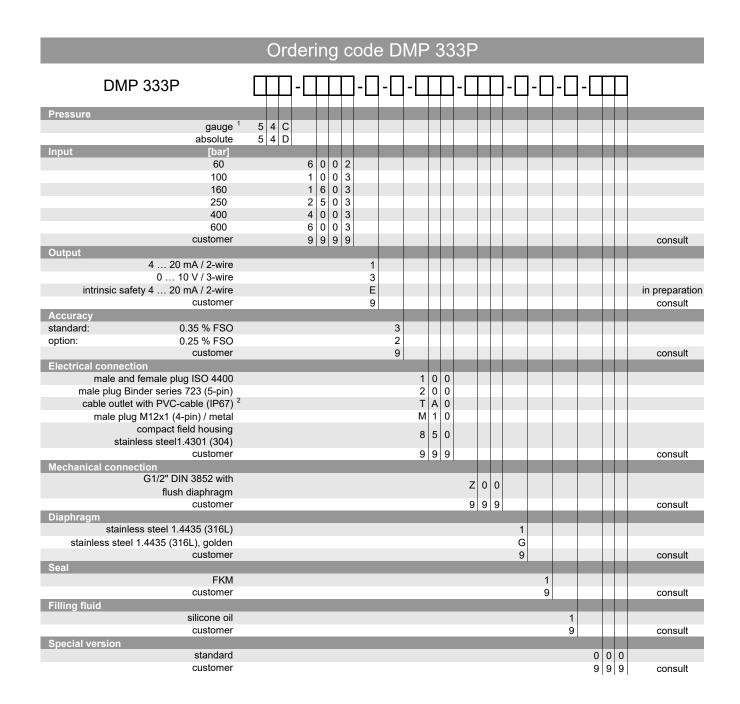
⁴ different cable types and lengths available, permissible temperature depends on kind of cable

Mechanical connection (dimension mm / in)



G1/2" flush DIN 3852

⇒ metric threads and other versions on request



¹ measurement starts with ambient pressure

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



DMP 339P

Industrial **Pressure Transmitter**

Stainless Steel Sensor

accuracy according to IEC 60770: 0.5 % FSO

Nominal pressure

from 0 ... 25 bar up to 0 ... 600 bar

Output signals

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

Special characteristics

- mechanical connection: G 1/4" flush welded
- suitable for viscous and pasty media

Optional versions

- several electrical connections
- customer specific versions

The DMP 339P industrial pressure transmitter features a G 1/4" flush welded pressure port and was designed for the use in a range of machinery including metering systems. It is ideal for measuring the pressure of viscous and pasty media. No dead spaces arise from the flush welded stainless steel diaphragm.

Material accumulation, dripping and stringing in machinery is eliminated. This increases the efficiency and reliability of your machines.

The DMP 339P is available with various electrical connections, ensuring an excellent adaption to the application conditions.

Preferred areas of use are



Plant and Machine Engineering - especially conveyor plants and dosing systems



Hydraulics







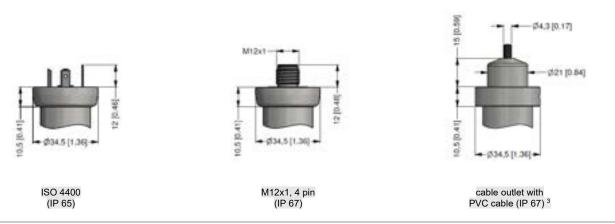
DMP 339 P

Input pressure range									
Nominal pressure gauge	[bar]	25	40	60	100	160	250	400	600
Overpressure (static)	[bar]	50	80	120	200	320	500	800	1200
Burst pressure ≥	[bar]	125	200	300	500	800	1250	2000	2000

Output signal / Supply							
2-wire	4 20 mA / V _S = 9 36 V _{DC}						
3-wire	0 10 V / V _S = 14 30 V _{DC}						
Performance							
Accuracy ¹	≤±0.5 % FSO						
Permissible load	2 wire: $R_{max} = [(V_S - V_{S min}) / 0.02 A] \Omega$						
	3 wire: $R_{min} = 10 \text{ k}\Omega$						
Influence effects	pply: 0.05 % FSO / 10 V						
	id: 0.05 % FSO / kΩ						
Response time	2-wire: ≤ 10 msec						
	3-wire: ≤ 3 msec						
Long term stability	≤ ± 0.15 % FSO / year at reference conditions						
	point adjustment (non-linearity, hysteresis, repeatability)						
Thermal effects (offset and span)							
Thermal error	≤±0.15% FSO / 10 K						
in compensated range	-10 80 °C						
Permissible temperatures							
Medium	-10 125 °C						
Electronics / environment	-40 85 °C						
Storage	-40 85 °C						
Electrical protection							
Short-circuit protection	permanent						
Reverse polarity protection	no damage, but also no function						
Electromagnetic protection	emission and immunity according to EN 61326						
Mechanical stability							
Vibration	10 g, 25 Hz 2 kHz according to DIN EN 60068-2-6						
Shock	100 g / 1 msec according to DIN EN 60068-2-27						
Materials	<u> </u>						
Pressure port / housing	stainless steel 1.4404 (316L)						
O-ring pressure port	FKM others on request						
Diaphragm	stainless steel 1.4435						
Filling fluid	silicone oil						
Media wetted parts	pressure port, seal, diaphragm						
Miscellaneous							
Weight	approx. 170 g						
Current consumption	signal ouput current: max. 25 mA						
Carroni concamption	signal output voltage: max. 7 mA						
Operational life	100 million load cycles						
CE-conformity	2014/30/EU (EMC) Pressure Equipment Directive: 2014/68/EU (module A) ²						
² This directive is only valid for devices w	ith maximum permissible overpressure > 200 bar						
Wiring diagrams							
2-wire-system (current)	3-wire-system (voltage)						
supply + A	Vs supply + Vs Vs Supply - V signal +						

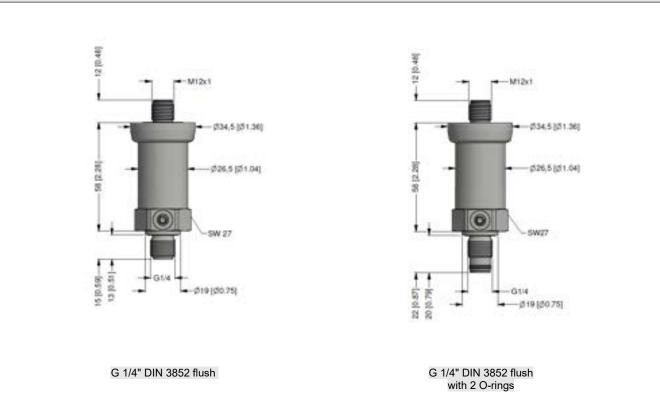
Pin configuration			
Electrical connection	ISO 4400	M12x1 / metal 4-pin	cable colours (IEC 60757)
Supply +	1	1	WH (white)
Supply –	2	2	BN (brown)
Signal (only 3-wire)	3	3	GN (green)
Shield	ground pin 🕣	4	GNYE (green-yellow)

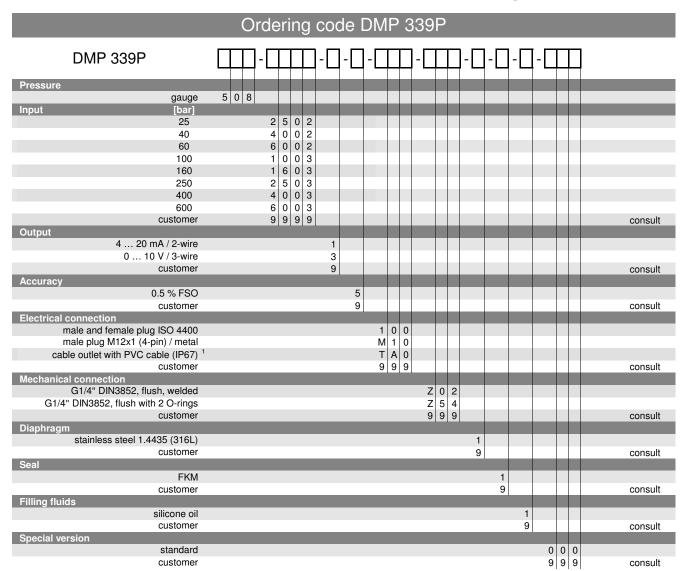
Electrical connections (dimensions mm / in)



³ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C); different cable types and lengths available, permissible temperature depends on kind of cable

Dimensions (mm / in)





 $^{^{\}rm 1}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C); others on request



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
- SIL 2 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 BDISENSORS, 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













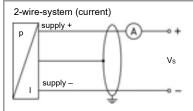


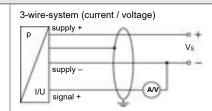
Input pressure range						
Nominal pressure gauge/ab	s. [bar]	60	100	160	250	400
Overpressure	[bar]	100	200	400	400	600
Burst pressure ≥	[bar]	180	300	500	750	1000

Standard Option IS-protection Options 3-wire Performance Accuracy ¹ Permissible load	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
Options 3-wire Performance Accuracy 1	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
Options 3-wire Performance Accuracy 1	3-wire: 0 20 mA / V _S = 14 30 V _{DC} 0 10 V / V _S = 14 30 V _{DC}
Accuracy ¹	≤±0.5 % FSO
	≤±0.5 % FSO
	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: $R_{min} = 10 \text{ k}\Omega$
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
Long term stability	≤ ± 0.3 % FSO / year at reference conditions
Response time	2-wire: ≤ 10 msec 3-wire: ≤ 3 msec
¹ accuracy according to IEC 60770 – lin	nit point adjustment (non-linearity, hysteresis, repeatability)
Thermal effects (offset and span) 2	
Thermal error	≤±0.2 % FSO / 10 K
In compensated range	0 85°C
	nce 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 overpressure: -10 250 °C vacuum: -40 150 °C vacuum: -10 150 °C
Electronics / environment	-40 85 °C
Storage	-40 100 °C
	overpressure > 0 bar: 150 °C for 60 minutes with a max. environmental temperature of 50 °C and 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 (25 2000 Hz) according to DIN EN 60068-2-6
Shock	500 g / 1 msec according to DIN EN 60068-2-27
Filling fluids	, <u>.</u>
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 < 260 °C) others on requestions.
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 DX19-DMK 331P	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
Safety technical maximum values	U _i = 28 V, I _i = 93 mA, P _i = 660 mW, C _i ≈ 0 nF, L _i ≈ 0 μ H, 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 (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m signal line/shield also signal line/signal line: 1µH/m

Miscellaneous						
Option SIL 2 version ⁶	according to IEC 61508 / IEC 61511					
Current consumption	signal output current: max. 25 mA	signal output voltage: max. 7 mA				
Weight	min. 200 g (depending on process cor	nnection)				
Installation position	any (standard calibration in a vertical	any (standard calibration in a vertical position with the pressure port connection down)				
Operational life	100 million load cycles					
CE-conformity	EMC Directive: 2014/30/EU	Pressure Equipment Directive: 2014/68/EU (module A) 7				
ATEX Directive	2014/34/EU					

Wiring diagrams





Pin configuration

Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	compact field housing	
	3 GND	3		V _{S+} V _{S-} S+ GND	cable colours (IEC 60757)
supply +	1	3	1	V _S +	WH (white)
supply –	2	4	2	V _S -	BN (brown)
signal + (only 3-wire)	3	1	3	S+	GN (green)
Shield	ground pin 🕕	5	4	GND	GNYE
Sillelu	ground pin		4	GND	(green-yellow)

Electrical connections (dimensions mm / in)



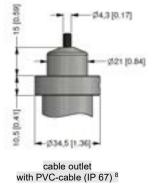




Binder series 723, 5-pin (IP 67)

M12x1, 4-pin (IP 67)



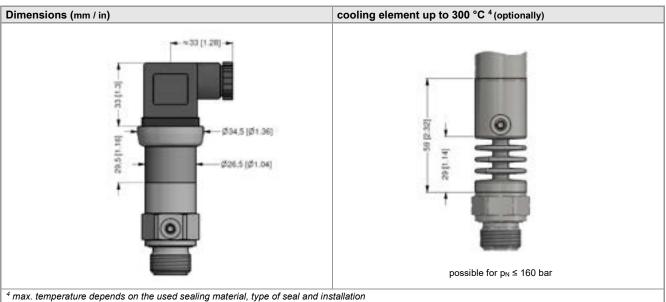


⇒ universal field housing stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request

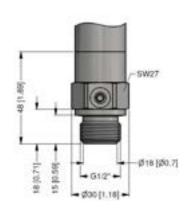
 8 standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)

compact field housing (IP 67)

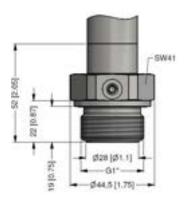
 $^{^6}$ only for 4 ... 20 mA / 2-wire 7 this directive is only valid for devices with maximum permissible overpressure > 200 bar



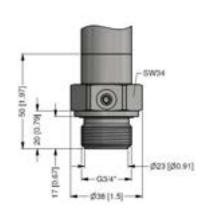




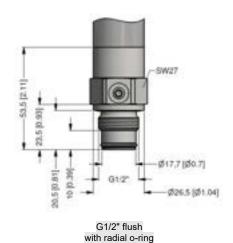
G1/2" flush DIN 3852



G1" flush DIN 3852



G3/4" flush DIN 3852



- ⇒ SIL- and SIL-Ex version: total length increases by 26.5 mm! ⇒ metric threads and other versions on request

Ordering code

	Ordering code DMK 331P	
DMK 331P	ш-ш-a-a-ш-ш-a-a-	- 🔲
Pressure		
gauge	5 0 5 5 0 6	
absolute	5 0 6	
Input [bar]		
60	6 0 0 2 1 0 0 3	
100 160	1 0 0 3 1 6 0 3	
250	1 6 0 3 2 5 0 3	
400	4 0 0 3	
customer	4 0 0 3 9 9 9	consult
Output		Serieur
4 20 mA / 2-wire	1	
0 20 mA / 3-wire	2	
0 10 V / 3-wire	3	
intrinsic safety 4 20 mA / 2-wire	E	
SIL2 4 20 mA / 2-wire	1S	
SIL2 with intrinsic safety	ES	
4 20 mA / 2-wire		
customer	9	consult
Accuracy		
0.5 % FSO	5	
customer Electrical connection	9	consult
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) 1	T A 0	
male plug M12x1 (4-pin) / metal	M 1 0	
compact field housing		
stainless steel1.4301 (304)	8 5 0	
customer	9 9 9	consult
Mechanical connection		
G1/2" DIN 3852 with	z 0 0	
flush diaphragm	2 0 0	
G3/4" DIN 3852 with	Z S 0	
flush diaphragm		
G1" DIN 3852 with	Z S 1	
flush diaphragm G 1/2" DIN 3852 with rad. o-ring		
and flush diaphragm	Z 6 1	
customer	9 9 9	consult
Diaphragm		55.10dik
stainless steel 1.4435 (316L)	1	
customer	9	consult
Seals		
FKM	1	
FFKM ²	7 9	
customer	9	consult
Filling fluids		
silicone oil	1	
food compatible oil	2	
Special version customer	9	consult
Special version standard		
with cooling element up to 300°C ³		0 0 0 2 0 0 9 9 9 consult
customer		9 9 9 consult
Castomer		o o o o

 $^{^1}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C); others on request 2 only for $p_N\!\le\!$ 100 bar possible 3 only for $p_N\!\le\!$ 160 bar possible



DMK 351P

Pressure Transmitter for the Process Industry

Ceramic Sensor

accuracy according to IEC 60770: Standard: 0.35 % FSO Option: 0.25 % FSO

Nominal pressure

from 0 ... 40 mbar up to 0 ... 20 bar

Output signal

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

Special characteristics

- hygienic version
- different process connections (G1 1/2", diary pipe, Clamp, etc.)
- high overpressure capability

Optional versions

- IS-version Ex ia = intrinsically safe for gases and dusts
- diaphragm 99.9 % Al₂O₃
- customer specific versions e.g. special pressure ranges

The pressure transmitter DMK 351P has been designed for measuring small system pressure in the food industry and chemical industry.

The DMK 351P is based on an own-developed capacitive ceramic sensor element. It features overpressure resistance and resistance against most of aggressive media. A variety of different process and electrical connections and an intrinsically safe version complete the range of possibilities.

Preferred areas of use are



Food industry



Chemical and petrochemical industry

Preferred used for



Paint and varnish



Viscous and pasty media



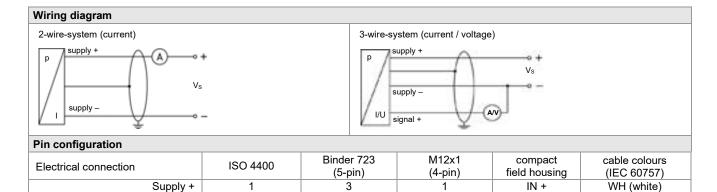






Pressure ranges																
Nominal pressure gauge	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	20
Nominal pressure absolute 1	[bar]		or	reque	est		0.4	0.6	1	1.6	2.5	4	6	10	16	20
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35	45	45
Permissible vacuum	[bar]	-0	.2	-0).3		-0	.5					-1			
¹ not in combination with output 0 10 V / 3-wire																

Output signal / Supply				
Standard	2-wire: 4 20 mA / V _S = 9 32 V _{DC}			
Option IS-protection				
Option 3-wire Performance	3-wire: 0 10 V / V _S = 12.5 32 V _{DC}			
	1			
Accuracy ²	standard: $\leq \pm 0.35 \%$ FSO			
	option for $p_N \ge 0.6$ bar: $\le \pm 0.25$ % FSO			
Long term stability	≤ ± 0.1 % FSO / year at reference conditions			
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ			
Permissible load	$ \begin{array}{lll} \text{current 2-wire:} & R_{\text{max}} = \left[\left(V_{\text{S}} - V_{\text{S min}} \right) / \ 0.02 \ \text{A} \right] \ \Omega \\ \text{voltage 3-wire:} & R_{\text{min}} = 10 \ \text{k} \Omega \\ \end{array} $			
Turn-on time	700 msec			
Mean measuring rate	5 / sec			
Response time	mean response time: ≤ 200 msec max. response time: 380 msec			
² accuracy according to IEC 60770 - Iim	it point adjustment (non-linearity, hysteresis, repeatability)			
Thermal effect (offset and span)				
Tolerance band	≤±1%FSO			
In compensated range	-20 80 °C			
Permissible temperatures Permissible temperatures	medium: -40 125 °C			
remissible temperatures	electronics / environment: -40 125 °C storage: -40 100 °C			
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	10 g RMS (20 2000 Hz) according to DIN EN 60068-2-6			
Shock	100 g / 1 msec according to DIN EN 60068-2-27			
Materials	according to Bit Ett 60000 2 27			
Pressure port	stainless steel 1.4404 (316L)			
Housing	stainless steel 1.4404 (316L)			
Option compact field housing				
· · · · · · · · · · · · · · · · · · ·	stainless steel 1.4301 (304); cable gland M12x1.5, brass, nickel plated (clamping range 2 8 mm)			
Seal (media wetted)	EPDM			
Diaphragm	others on request standard: ceramic Al ₂ O ₃ 96 %			
Diapiliagin	option: ceramic Al_2O_3 99 % ceramic Al_2O_3 99.9 %			
Media wetted parts	pressure port, seals, diaphragm			
Explosion protection (only for 4	20 mA / 2-wire)			
Approval DX 14-DMK 351 P	IBExU 05 ATEX 1070 X			
	zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ia IIIC T110 °C Da			
Safety technical maximum values	$U_i = 28 \text{ V}, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C_i = 14 \text{ nF}, L_i ≈ 0 \mu\text{H}, C_{qnd} = 27 \text{ nF}$			
Max. permissible temperature for	zone 0: -20 60 °C for p _{atm} 0.8 bar up to 1.1 bar			
environment Connecting cables (by factory)	zone 1 and higher: -25 70 °C cable capacity: signal line / shield also signal line / signal line: 220 pF/m			
Connecting cables (by factory)	cable inductance: signal line / shield also signal line / signal line: 1.5 µH/m			
Miscellaneous				
Current consumption	max. 21 mA			
Weight	min. 200 g			
Installation position	any			
Operational life	100 million load cycles			
CE-conformity	EMC-directive: 2014/30/EU			
ATEX Directive	2014/34/EU			



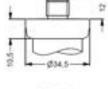
2 Supply -4 2 IN -BN (brown) Signal + (only 3-wire) 1 3 OUT + GN (green) Shield ground pin 📵 5 4 1 GNYE (green-yellow) Electrical connections (dimensions in mm) standard options M12x1





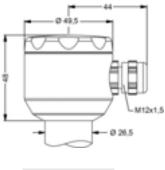


Binder series 723 5-pin (IP 67)

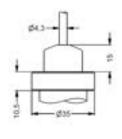




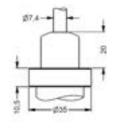
M12x1 4-pin (IP 67)



compact field housing (IP 67)



cable outlet with PVC-cable (IP 67) 3

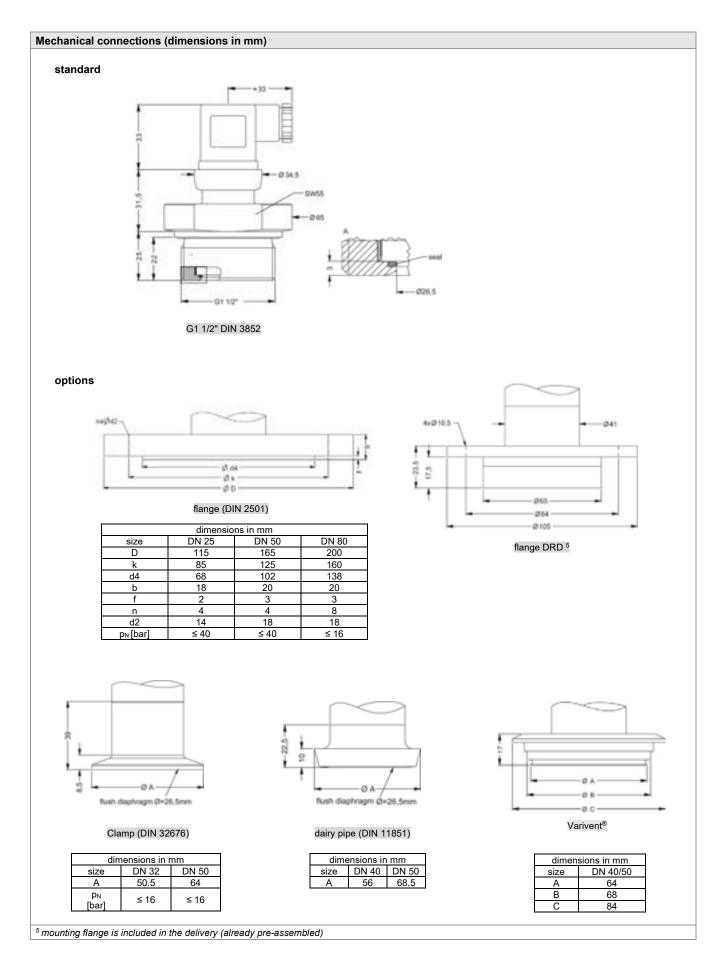


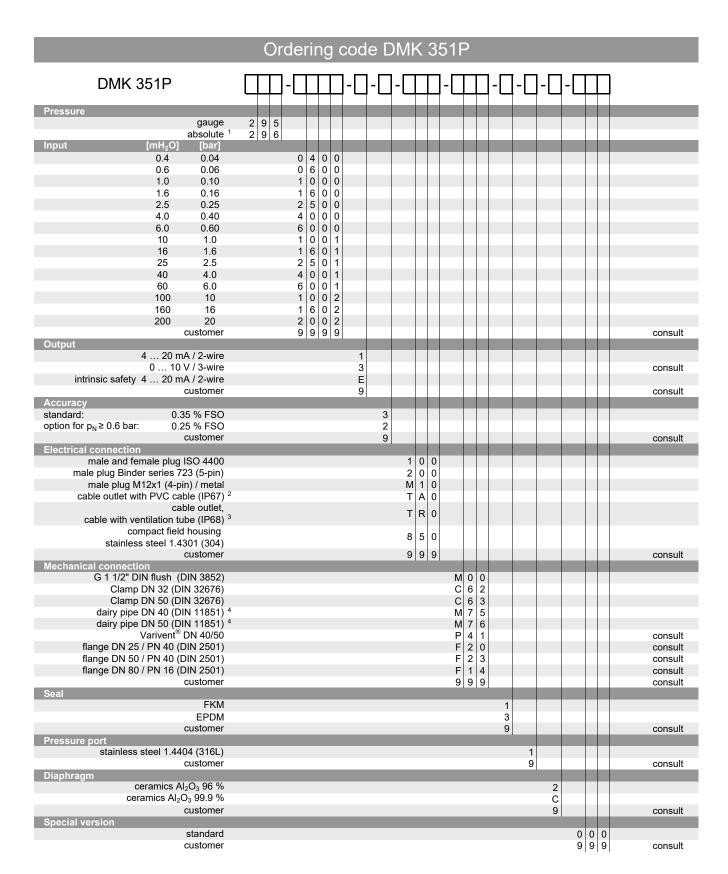
cable outlet, cable with ventilation tube (IP 68) 4

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

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

⁴ different cable types and lengths available, permissible temperature depends on kind of cable





 $^{^{\}rm 1}$ absolute pressure from 0.04 bar up to 0.25 bar on request and not in combination with output 0 \dots 10 V / 3-wire

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

³ code TR0 = PVC cable, cable with ventilation tube available in different types and lengths

⁴ The cup nut has to be mounted by production of pressure transmitter with electrical connection field housing and mechanical connection dairy pipe. The cup nut has to be ordered as separate position.



17.600 G

OEM Pressure Transmitter Heavy Duty

Applications:

- mobile hydraulic
- general mechanical engineering
- oxygen application

Characteristics:

- accuracy 0.5 % FSO according to IEC 60770
- nominal pressure ranges from 0 ... 6 bar up to 0 ... 600 bar









Input pressure range												
Nominal pressure gauge	[bar]	6	10	16	25	40	60	100	160	250	400	600
Overpressure (static)	[bar]	12	20	32	50	80	120	200	320	500	800	1 200
Burst pressure ≥	[bar]	30	50	80	125	200	300	500	800	1 400	2 000	3 000
Vacuum resistance		unlimited	t									

Output signal / Supply								
	4 00	Δ /	.,					
Standard	2-wire: 4 20 m	4 /	$V_{S} = 8 32 V_{DC}$					
Options	3-wire: 0 10 V	/	$V_{S} = 14 30 V_{DC}$					
	3-wire ratiometric: 10 90 %	of V _S	$V_{S} = 2.7 5 V_{DC}$					
Performance								
Accuracy ¹	≤ ± 0.5 % FSO							
Permissible load	2-wire: $R_{max} = [(V_S - V_{S min}) / 0]$.02 A] Ω	3-wire: $R_{min} = 10 \text{ k}\Omega$					
Influence effects	supply: 0.05 % FSO / 10 V		load: 0.05 % FSO / kΩ					
Response time	2-wire: ≤ 10 msec		3-wire: ≤ 3 msec					
Long term stability	≤ ± 0.3 % FSO / year at reference conditions							
Measuring rate	1 kHz							
¹ accuracy according to IEC 60770 – li	mit point adjustment (non-linearity, hy	steresis, repeatability)					
Thermal effects (offset and spa	n) / Permissible temperatures							
Thermal error	≤ ± 0.3 % FSO / 10 K	in compensated	range 0 70 °C					
Permissible temperatures	medium: -40 125 °C	electronics / envi	ironment: -40 85 °C	storage: -40 85 °C				
Electrical protection								
Short-circuit protection	permanent	3-wire ratiometric	c: none					
Reverse polarity protection	no damage, but also no function							
Electromagnetic protection	emission and immunity according to EN 61326							
Mechanical stability								
Vibration	20 g, 25 Hz 2 kHz	according to DIN	EN 60068-2-6					
Shock	500 g / 1 msec according to DIN EN 60068-2-27							

Matariala												
Materials Pressure port	stainless stock 1 4571 (246	STi\										
	stainless steel 1.4571 (316											
	stainless steel 1.4301 (304											
	FKM for G 1/4" DIN 3852	others on rec	quest									
	none (welded) stainless steel 1.4542 (630)											
Diaphragm	pressure port, seal of pressure port, diaphragm											
	pressure port, seal of pres	sure port, diaphragm										
Miscellaneous												
Weight	approx. 120 g											
Current consumption	2-wire: max. 25 mA 3-wire ratiometric: typ. 3 mA											
	3-wire voltage: max. 7 mA (short circuit current: max. 20 mA)											
Operational life	100 million load cycles											
,	EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module A) ²											
² This directive is only valid for devices v	with maximum permissible over	rpressure > 200 bar										
Wiring diagrams												
2-wire-system (current)		3-wire-system (volta	age)									
p supply + A supply -	v _s supply + v _s v											
Pin configuration												
Electrical connection	ISO 4400 2 3	Micro (contact distance 9.4 mm)	M12x1 (4-pin), metal	cable colours (IEC 60757)								
Supply + Supply – Signal + (for 3-wire) Shield	1 1 2 3 ground pin 🚯	1 2 3 ground pin 🚯	1 2 3	WH (white) BN (brown) GN (green) GNYE (green-yellow)								
Electrical connections (dimension		J		(9)								
for cable-⊘ 4 6 mm	15 50 50 50 50 50 50 50 50 50 50 50 50 50	6 mm	- State (Indus	\$4.3 (0.17) \$0.00								
ISO 4400 (IP 65) ³ standard: 2 m PVC cable without venti ⁴ different cable types and lengths availa		rature: -5 70 °C)	(, 4-pin 67)	cable outlet with PVC-cable (IP 67) 3, 4								
Mechanical connection (dimension		aspende on mind of oddio										
1 (2 1 2 2 2 2 2 2 2 2	SHOW GIVE	1000	-14'507	SW2N - G12"								
			NDT	O4/0" FN 927								
G1/4" DIN 3852 (not for oxygen)	G1/4" EN 837	1/4"	NPT	G1/2" EN 837								

	Orderin	g c	ode	17	7.6	00) (3						
17.600 G		-	-	-[]-	Ц]-		-			
Input [bar]														
6	6 0 0 1 1 1 0 0 2													
16	1 0 0 2 1 6 0 2 2 5 0 2 4 0 0 2 6 0 0 2 1 0 0 3													
25	2 5 0 2													
40	2 5 0 2 4 0 0 2													
60	6 0 0 2													
100	1 0 0 3													
160 250	1 6 0 3 2 5 0 3													
400	2 5 0 3 4 0 0 3													
600	6 0 0 3													
customer	9 9 9 9													consult
Pressure														
gauge	R			_	_	_		_	-	_	_			
Output 4 20 mA / 2-wire		1												
0 10 V / 3-wire		1												
1090% of Vs / 3-wire ratiometric		R												
Accuracy														
0.5 % FSO			5											
customer			9											consult
Electrical connection male and female plug ISO 4400				4	0 0									
male and female plug ISO 4400 male and female plug Micro				1 C	0 0									
male plug M12x1 (4-pin), metal				М	2 0									
cable outlet with PVC-cable 1				Т	M 0									
customer				9	9 9									consult
Mechanical connection / Seal														
G1/4" DIN 3852 / on pressure port: FKM							3	0 (0	Р				
G1/4" EN 837 / without							4	0 (0	2				
1/4" NPT / without							N ·	4 (0	2				
G1/2" EN 837 / without							9	0 (0	2				
customer							9	9 9	9	9				consult
Special version											_			
standard oxygen application ²											0	0		
oil and grease free											0	0		
customer											9	9	9	consult
											_		- 1	

 $^{^{1}}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 \dots 70 $^{\circ}\text{C})$

² not possible with G1/4" DIN 3852



17.609 G

OEM Pressure Transmitter

Application

▶ refrigeration

Characteristics

- ▶ stainless steel sensor, welded
- ▶ accuracy 0.5 % FSO according to IEC 60770
- ▶ nominal pressure ranges from 0 ... 6 bar up to 0 ... 60 bar -1 ... 6 bar up to -1 ... 60 bar





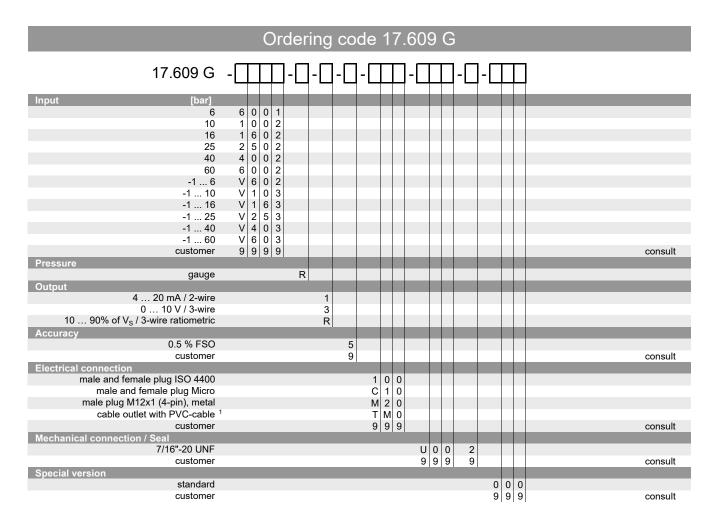




Pressure ranges							
Nominal pressure gauge	[bar]	6	10	16	25	40	60
Overpressure	[bar]	12	20	32	50	80	120
Burst pressure ≥	[bar]	30	50	80	125	200	300
Vacuum resistance		unlimited					
Vacuum ranges							
Nominal pressure gauge	[bar]	-1 6	-1 10	-1 16	-1 25	-1 40	-1 60
Overpressure	[bar]	12	20	32	50	80	120
Burst pressure	[bar]	30	50	80	125	200	300

Output signal / Supply					
Standard	2-wire: 4 20 mA	1	V _S = 8	32 V _{DC}	
Options	3-wire: 0 10 V	1	V _S = 14	30 V _{DC}	
·	3-wire ratiometric: 10 90 % of	V _S /	$V_{S} = 2.7$	5 V _{DC}	
Performance					
Accuracy ¹	≤ ± 0.5 % FSO				
Permissible load	2-wire: $R_{\text{max}} = [(V_S - V_{S \text{ min}}) / 0.02]$	2 A] Ω	3-wire:	R_{min} = 10 k Ω	
Influence effects	supply: 0.05 % FSO / 10 V		load:	0.05 % FSO / kΩ	
Response time	2-wire: ≤ 10 msec		3-wire:	≤ 3 msec	
Long term stability	≤ ± 0.3 % FSO / year at reference	conditions			
Measuring rate	1 kHz				
¹ accuracy according to IEC 60770 – li.	mit point adjustment (non-linearity, hyster	esis, repeatabilit	y)		
Thermal effects (offset and spa	n) / Permissible temperatures				
Thermal error	≤ ± 0.3 % FSO / 10 K	in compensate	ed range	0 70 °C	
Permissible temperatures	medium: -40 125 °C	electronics / e	nvironmer	nt: -40 85 °C	storage: -40 85 °C
Electrical protection					
Short-circuit protection	permanent	3-wire ratiome	tric: none		
Reverse polarity protection	no damage, but also no function				
Electromagnetic protection	emission and immunity according t	o EN 61326			

Mechanical stability											
Vibration	20 g, 25 Hz 2 kHz		according to DIN EN 60068-2-6								
Shock	500 g / 1 msec	according to DIN	N EN 60068-2-27								
Materials											
Pressure port	stainless steel 1.4571 (316	Ti)									
Housing	tainless steel 1.4301 (304)										
Seal of sensor	none (welded)										
Diaphragm	stainless steel 1.4542 (630)										
Media wetted parts	pressure port, diaphragm										
Miscellaneous	, , , , , , , , , , , , , , , , , , ,										
Mechanical connection	7/16"-20 UNF										
Weight	approx. 120 g										
Current consumption	2-wire: max. 25 mA	3-wire ratiometri	io: tup 2 mA								
Current consumption	3-wire voltage: max. 7 mA (
Operational life	100 million load cycles	Short circuit current. max. 2	o may								
		1									
CE-conformity	EMC Directive: 2014/30/EU	<u> </u>									
Wiring diagrams											
2-wire-system (current)		3-wire-system (vol	tage)								
supply –	• + Vs • =	p supply + supply - U signal +	v _s -								
Oin configuration											
Pin configuration	100 4400	NA:- / · ·	N40 4 (4 1)								
Electrical connection	ISO 4400	Micro (contact distance 9.4 mm)	M12x1 (4-pin), metal								
	3	3 1	3 4	cable colours (IEC 60757)							
Supply +	1	1	1	WH (white)							
Supply –	2	2	2	BN (brown)							
Signal + (for 3-wire)	3	3	3	GN (green)							
Shield	ground pin 🕕	ground pin 🕕	4	GNYE (green-yellow)							
Dimensions (mm / in)											
for cable ⊘ 4 6 mm	K di Si I N	r cable ⊘ 5 6 mm	- Michit - M	\$24 (50)							
ISO 4400 (IP 65)	Micro, contact distance 9.4 mm (IP	M12	2x1, 4-pin (IP 67)	cable outlet with PVC-cable (IP 67) ^{2,3}							



 $^{^{\}rm 1}$ standard: 2 m PVC cable without ventilation tube (permissible temperatur: -5 ... 70 °C)



17.620 G

Compact OEM Pressure Transmitter Heavy Duty

Applications:

- mobile hydraulic, presses
- general mechanical engineering

Characteristics:

- stainless steel sensor, welded
- nominal pressure ranges from0 ... 16 bar up to 0 ... 1000 bar
- accuracy according to IEC 60770:0.5 % FSO









Input pressure range											
Nominal pressure gauge	[bar]	16	25	40	60	100	160	250	400	600	1000 ¹
Overpressure (static)	[bar]	50	50	80	120	200	320	500	800	1200	1500
Burst pressure ≥	[bar]	125	125	200	300	500	800	1250	2000	2000	3000 ²
only for static pressures											

Outrot simus! / Consults									
Output signal / Supply									
2-wire	4 20 mA	$V_S = 10 30 V_{DC}$							
3-wire ratiometric	10 90% of V _S	$V_{S} = 2.7 5 V_{DC}$							
Performance									
Accuracy ³	≤ ± 0.5 % FSO								
Permissible load	2 wire: $R_{max} = [(V_S - V_{S min}) / 0.0]$	02 A] Ω 3	wire: $R_{min} = 10 \text{ k}\Omega$						
Influence effects	supply: 0.05 % FSO / 10 V	lo	oad: 0.05 % FSO / kΩ						
Response time	typ. 2 msec								
Long term stability	≤ ± 0.2 % FSO / year at refere	≤ ± 0.2 % FSO / year at reference conditions							
Measuring rate	1 kHz								
³ accuracy according to IEC 60770 – lim	nit point adjustment (non-linearity, hy	rsteresis, repeatability)							
Thermal effects (offset and span) / Permissible temperatures								
Thermal error	≤ ± 0.2 % FSO / 10 K	in compensated range	-20 80 °C						
Permissible temperatures	medium:	-40 125 °C							
	electronics / environment:	-40 85 °C							
	storage:	-40 85 °C							
Electrical protection									
Short-circuit protection	2-wire: permanent	3-wire ratiometric: non-	e						
Reverse polarity protection	no damage, but also no function	on							
Electromagnetic protection	emission and immunity accord	ing to EN 61326							
Mechanical stability									
Vibration	20 g, 25 Hz 2 kHz	according to DIN EN 6	0068-2-6						
Shock	500 g / 1 msec	according to DIN EN 6	0068-2-27						

Mechanical connections (mm / in)

-G1/4°

G1/4" DIN 3852

Materials

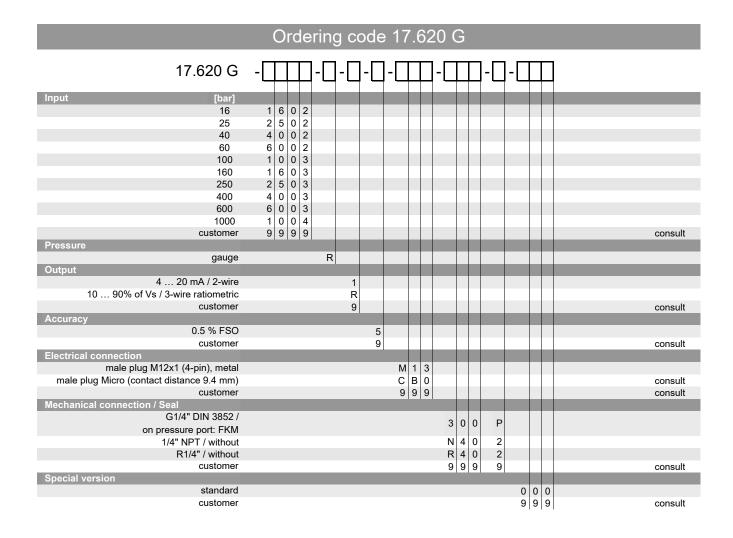
Pressure port	p _N ≤ 600 bar: stainless steel 316L (1.4404)	p _N > 600 bar: stainless steel 17-4 PH (1.4542)
Housing	stainless steel 304 (1.4301)	
Seal of pressure port	G 1/4" DIN 3852: FKM	others on request
Seal of sensor	none (welded)	
Sensor	stainless steel 17-4PH (1.4548)	
Media wetted parts	pressure port, seal, sensor	
Miscellaneous		
Weight	approx. 54 g	
Current consumption	2-wire: max. 25 mA	3-wire ratiometric: typ. 2.5 mA
Operational life	p _N ≤ 600 bar: 100 million load cycles	p _N > 600 bar: 10 million load cycles
CE-conformity	EMC Directive: 2014/30/EU	Pressure Equipment Directive: 2014/68/EU (module A
⁴ This directive is only valid for devices	with maximum permissible overpressure > 200 bar	
Wiring diagrams		
2-wire-system (current)	3_wire_syst	tem (voltage)
	-	ply +
p supply +	+ p / sup	ρι γ '
1/1		Vs
	/s /	ply – O –
1/ 1 . \ \ /	/ sup	piy –
I supply –	- U sign	nal +
- Ž	y sigr	181 + \(\frac{1}{2} \)
Pin configuration		
Electrical connection	male plug M12x1 (4-pin), metal	male plug Micro (contact distance 9.4 mm)
Licotrical confidence	male plug W172X1 (4-pii1), metai	on request
		3-000
Supply +	1	1
Supply –	3	3
Signal + (for 3-wire)	2	2
		ground pin 😩
Shield	housing	ground pin (=)
Shield Dimensions (mm / in)	housing	ground pin (=)

-1/4" NPT

1/4" NPT

R 1/4"

Ordering code





18.600 G

OEM Pressure Transmitter Pneumatics

Applications

- compressed air network
- general mechanical engineering

Characteristics

- silicon sensor without media isolation
- accuracy 0.5 % FSO according to IEC 60770
- nominal pressure ranges from 0 ... 100 mbar up to 0 ... 6 bar





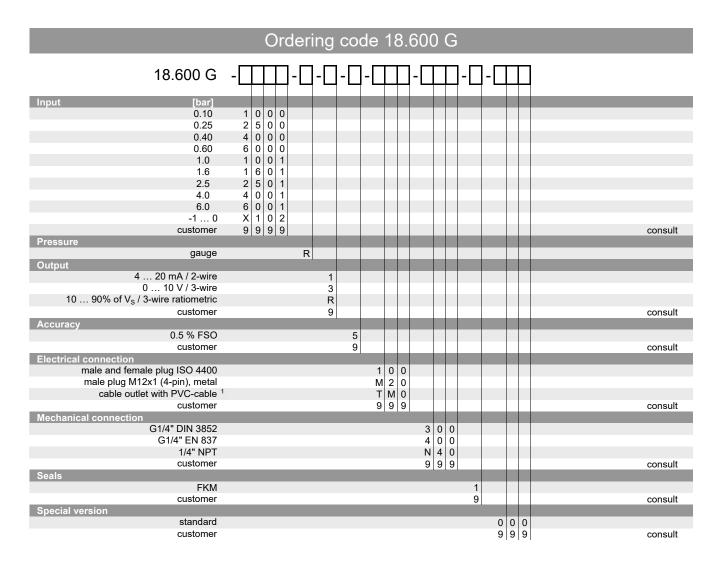




Input pressure range											
Nominal pressure gauge	[bar]	-1 0	0,1	0,25	0,4	0,6	1	1,6	2,5	4	6
Overpressure	[bar]	3	0,5	1	1	3	3	6	10	10	20
Burst pressure	[bar]	5	1,5	3	3	3	7,5	7,5	15	25	25

Output signal / Supply							
Standard	2-wire: 4 20) mA / V _S = 8 32 V _{DC}					
Options	3-wire: 0 10) V / V _S = 14 30 V _{DC}					
	3-wire ratiometric: 10 90) % of V_S / $V_S = 2.7 5 V_{DC}$					
Performance							
Accuracy ¹	≤ ± 0.5 % FSO						
Permissible load	2-wire: $R_{\text{max}} = [(V_S - V_{S \text{ min}}) / 0.02]$	$2 \text{ A} \Omega$ 3-wire: $R_{min} = 10 \text{ k}\Omega$					
Influence effects	supply: 0.05 % FSO / 10 V	load: 0.05 % FSO / k	Ω				
Response time	2-wire: ≤ 10 msec	3-wire: ≤ 3 msec					
Long term stability	≤ ± 0,2 % FSO / year at reference of	conditions					
Measuring rate	1 kHz						
¹ accuracy according to IEC 60770 – lim	it point adjustment (non-linearity, hysteres	sis, repeatability)					
Thermal effects (offset and span							
Nominal pressure p _N [bar]	-1 0	≤ 0.4	> 0.4				
Tolerance band [% FSO]	≤ ± 1	≤ ± 1	≤ ± 0.75				
in compensated range [°C]	0 .	70	-20 85				
Permissible temperatures							
Permissible temperatures	medium: -25 125 °C	electronics / environment: -25 85 °C	storage: -40 85 °C				
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	10 g, 25 Hz 2 kHz	according to DIN EN 60068-2-6					
Shock	100 g / 11 msec	according to DIN EN 60068-2-27					

Materials											
Pressure port / housing	stainless steel 1.4301 (304)										
Seals	FKM										
Sensor	stainless steel 1.4404 (316L), silico	n glass epoxy or RTV									
Media wetted parts	pressure port, seals, sensor	in, glace, eperly clarity									
Miscellaneous											
Weight	approx 120 a	арргох. 120 g									
Permissible media											
	2-wire: max. 25 mA	pressurized air, non-aggressive gases									
Current consumption	3-wire voltage: max. 7 mA (short	circuit current: max. 20 mA)									
Operational life	100 million load cycles										
CE-conformity	EMC Directive: 2014/30/EU										
Wiring diagrams											
2-wire-system (current) p supply +	-	1 /	+ Vs -								
Pin configuration											
Electrical connections	ISO 4400	M12x1 (4-pin), metal									
	3	2 1	cable colours (IEC 60757)								
Supply +	1	1	WH (white)								
Supply –	2	2	BN (brown)								
Signal + (for 3-wire)	3	3	GN (green)								
Shield	ground pin 🕣	4	GNYE (green-yellow)								
ISO 4400 (IP 65)	M12x	(1, 4-pin P 67)	cable outlet with PVC-cable (IP 67) 2,3								
² standard: 2 m PVC cable without vents	ilation tube (permissible temperatur: -5	70 °C)									
³ different cable types and lengths available Mechanical connection (dimension)	able, permissible temperatur depends on i ons mm / in)	kina of cable									
		SWOH -	SWON -								
20 00 00 00 00 00 00 00 00 00 00 00 00 0	5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	THE SHOPE THE SH	E OLF								
G1/4" DIN 3852	G1/4" EN 837	1/4" NPT	G1/2" EN 837								
other mechanical connections on reque	SI										



 $^{^{\}rm 1}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)



18.601 G

OEM Pressure Transmitter Low Pressure

Applications

general industrial applications

Characteristics

- piezoresistive stainless steel sensor
- ▶ accuracy 0.5 % FSO according to IEC 60770
- nominal pressure ranges from 0 ... 100 mbar up to 0 ... 6 bar







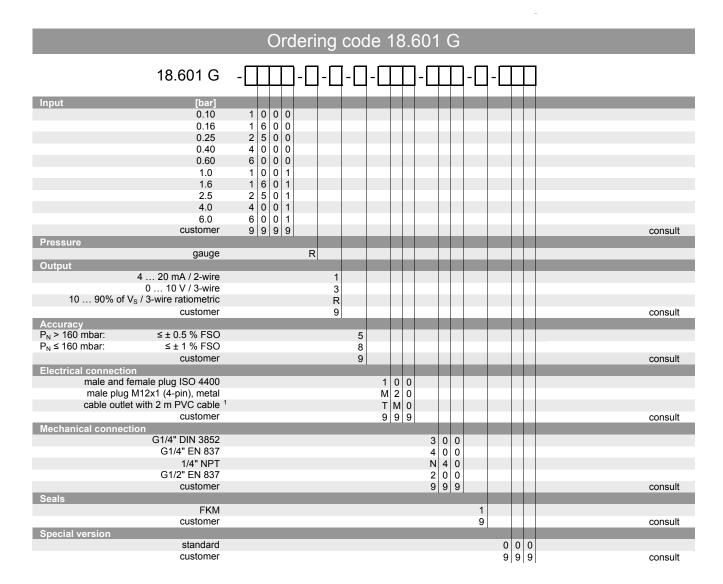


Input pressure range											
Nominal pressure gauge	[bar]	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6
Overpressure	[bar]	1	1	1	1	3	3	6	10	10	21
Burst pressure ≥	[bar]	1.5	1.5	1.5	1.5	5	5	10	17.5	17.5	35
Vacuum resistance		unlimited									

Output signal / Supply								
Standard	2-wire: 4 20	nA /	V _S = 8 32 V _{DC}					
Options 3-wire	3-wire: 0 10 '	/	V _S = 14 30 V _{DC}					
	3-wire ratiometric: 10 90	% of V _S /	$V_S = 2.7 5 V_{DC}$					
Performance								
Accuracy ¹	$p_N > 160 \text{ mbar: } \le \pm 0.5 \% \text{ FSC}$)						
	$p_N \le 160 \text{ mbar: } \le \pm 1 \% \text{ FSO}$							
Permissible load	2-wire: $R_{\text{max}} = [(V_S - V_{S \text{ min}}) /$	0.02 A] Ω	3-wire: $R_{min} = 10 \text{ k}\Omega$					
Influence effects	supply: 0.05 % FSO / 10 V		load: 0.05 % FSO / kΩ					
Response time	2-wire: ≤ 10 msec		3-wire: ≤ 3 msec					
Long term stability	≤ ± 0,2 % FSO / year at referer	ce conditions						
Measuring rate	1 kHz							
¹ accuracy according to IEC 60770 – I	imit point adjustment (non-linearity, hys	teresis, repeatability)						
Thermal effects (offset and spa	n) / Permissible temperatures							
Thermal error	≤ ± 0.3 % FSO / 10 K	in compensated ra	ange 0 70 °C					
Permissible temperatures	medium: -25 125 °C	electronics / environment	onment: -25 85 °C storage: -40 85 °C					
Electrical protection								
Short-circuit protection	permanent	3-wire ratiometric:	none					
Reverse polarity protection	no damage, but also no functio	no damage, but also no function						
Electromagnetic compatibility	emission and immunity accord	emission and immunity according to EN 61326						
Mechanical stability								
Vibration	10 g, 25 Hz 2 kHz	according to DIN E	EN 60068-2-6					
Shock	100 g / 1 msec	according to DIN E	EN 60068-2-27					

Materials									
Pressure port / housing	stainless steel 1.4301 (304)								
Seals	FKM								
Diaphragm	stainless steel 1.4435 (316 L)								
Media wetted parts	pressure port, seals, diaphragm								
Miscellaneous	σοσαίο μοτί, σοσαίο, αιαμπιαχιπ								
	approx 120 a								
Weight	pprox. 120 g								
Current consumption	-wire: max. 25 mA 3-wire ratiometric: typ. 1.5 mA -wire voltage: max. 7 mA (short circuit current: max. 20 mA)								
Operational life	100 million load cycles								
CE-conformity	EMC Directive: 2014/30/EU								
Wiring diagrams									
2-wire-system (current)		3-wire-system (voltage)							
p supply + A Vs Supply -		p supply + supply - U signal + V	• + Vs • -						
Pin configuration									
Electrical connections	ISO 4400	M12x1 (4-pin), metal							
Electrical connections	3	2 1 1 3 4 4	cable colours (IEC 60757)						
Supply +	1	1	WH (white)						
Supply –	2	2	BN (brown)						
Signal + (for 3-wire)	3	3	GN (green)						
Shield	ground pin 倒	4	GNYE (green-yellow)						
for cal 4 6		M12a1 Ø04 (0 84) SW24	\$4.3 (3.17) \$5. \$6. \$7. \$1. \$2. \$2. \$3. \$3. \$4.3 (3.17)						
ISO 4400 (IP 65)		(1, 4-pin 2 67) 70 °Cl	cable outlet with PVC-cable (IP 67) ^{2, 3}						
³ different cable types and lengths availa Mechanical connection (dimensio	able, permissible temperatur depends on	kind of cable							
60 00 00 00 00 00 00 00 00 00 00 00 00 0	Smort - G14"	SW2H	SWON OUT						
G1/4" DIN 3852	G1/4" EN 837	1/4" NPT	G1/2" EN 837						

Ordering code



 $^{^{\}rm 1}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 \dots 70 °C)



18.605 G

Submersible OEM-Pressure Transmitter

Applications

level measurement in water and fuel oil tanks

Characteristics

- ▶ piezoresistive stainless steel sensor
- ► accuracy 0.5 % FSO according to IEC 60770
- nominal pressure ranges from 0 ... 1 mH₂O up to 0 ... 10 mH₂O



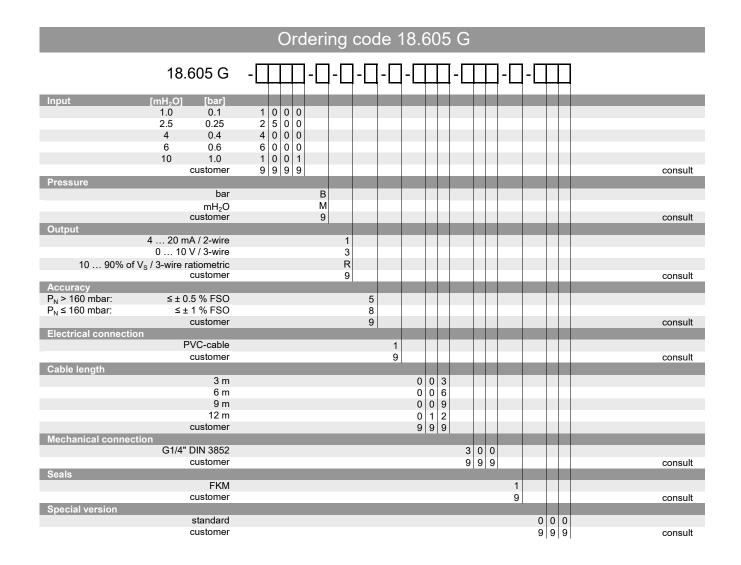




Input pressure range						
Nominal pressure gauge	[bar]	0.1	0.25	0.4	0.6	1
Level	[mH ₂ O]	1	2.5	4	6	10
Overpressure	[bar]	1	1	1	3	3
Burst pressure ≥	[bar]	1.5	1.5	1.5	5	5
Vacuum resistance		unlimited				

Output signal / Supply	
Standard	2-wire: $4 \dots 20 \text{ mA}$ / $V_S = 8 \dots 32 V_{DC}$
Option 3-wire	3-wire: $0 10 \text{ V}$ / $V_S = 14 30 \text{ V}_{DC}$
	3-wire ratiometric: 10 90 % of V _S / V _S = 2.7 5 V _{DC}
Performance	
Accuracy 1	$p_N > 160 \text{ mbar: } \le \pm 0.5 \% \text{ FSO}$ $p_N \le 160 \text{ mbar: } \le \pm 1 \% \text{ FSO}$
Permissible load	2-wire: $R_{\text{max}} = [(V_S - V_{S \text{ min}}) / 0.02 \text{ A}] \Omega$
	3-wire: $R_{min} = 10 \text{ k}\Omega$
Influence effects	supply: 0.05 % FSO / 10 V
	load: 0.05 % FSO / kΩ
Response time	2-wire: ≤ 10 msec
	3-wire: ≤ 3 msec
Long term stability	≤ ± 0.2 % FSO / year at reference conditions
Measuring range	1 kHz
¹ accuracy according to IEC 60770 – lin	nit point adjustment (non-linearity, hysteresis, repeatability)
Thermal effects (offset and span) / Permissible temperatures
Thermal error	≤ ± 0.3 % FSO / 10 K in compensated range 0 70 °C
Permissible temperatures	medium / electronics / environment / storage: -10 70 °C
Electrical protection	
Short circuit protection	permanent 3-wire ratiometric: none
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326

Mechanical stability		
Vibration	10 g, 25 Hz 2 kHz	according to DIN EN 60068-2-6
Shock	100 g / 1 msec	according to DIN EN 60068-2-27
Materials (media wetted)		<u> </u>
Housing	stainless steel 1.4301 (304)	
Seals	FKM	
Diaphragm	stainless steel 1.4435 (316 L)	
Cable sheath	PVC (oil resistant)	
Miscellaneous	1 VC (oii resistant)	
	100 (111)	
Weight	approx. 120 g (without cable)	cable: 25 g / m
Cable length	3 m, 6 m, 9 m or 12 m; others	on request
Suitable for following media	water, fuel oil	0 : " 1: 1 15 1
Current consumption		3-wire ratiometric: typ. 1.5 mA ort circuit current: max. 20 mA)
Ingress protection	IP 68	
CE-conformity	EMC Directive: 2014/30/EU	
Wiring diagrams		
2-wire-system (current)		3-wire-system (voltage)
p supply + A supply -	• + Vs	supply + Vs supply - U signal +
Pin configuration		
Electrical connections		cable colours (IEC 60757)
Supply +		WH (white)
Supply –		BN (brown)
Signal + (only for 3-wire)		GN (green)
Shield Dimensions (mm / in)		GNYE (green-yellow)
	14 [0.55]———————————————————————————————————	Ø5 [0.2] Ø24 [0.94] SW21 G1/4*
		i1/4" DIN 3852 ble (with ventilation tube)





26.600 G

OEM Pressure Transmitter Standard

Applications

- mechanical and plant engineering
- general industrial applications

Characteristics

- ▶ ceramic sensor
- ▶ accuracy 0.5 % FSO according to IEC 60770
- nominal pressure ranges from 0 ... 1 bar up to 0 ... 400 bar
- ▶ option: oil and grease free version









tt																
Input pressure range																
Nominal pressure gauge	[bar]	-10 ¹	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400
Nominal pressure abs.	[bar]	-	- 1 1.6 2.5 4 6 10 16 25 40 60 100 160 250 400							400						
Overpressure	[bar]	3	3	5	5	12	12	20	50	50	120	120	200	400	400	650
Burst pressure ≥	[bar]	4	4	7	7.5	15	18	30	70	75	150	180	300	500	750	1000
Vacuum resistance unlimited																
for this pressure range accuracy is < 1 % ESO IEC 60770																

Output signal / Supply						
Standard	2-wire: 4 20 r	mA / V _S = 8 32 V _{DC}				
Options	3-wire: 0 10 \					
•	3-wire ratiometric: 10 90 9	% of V_S / $V_S = 2.7 5 V_{DC}$				
Performance						
Accuracy ²	≤ ± 0.5 % FSO	for p _N -10 bar: ≤ 1 % FSO				
Permissible load	2-wire: $R_{max} = [(V_S - V_{S min}) / 0.0]$	Ω 2 A] Ω 3-wire: R _{min} = 10 kΩ				
Influence effects	supply: 0.05 % FSO / 10 V	load: 0.05 % FSO / kΩ				
Response time	2-wire: ≤ 10 msec	3-wire: ≤ 3 msec				
Long term stability	≤ ± 0.3 % FSO / year at reference	ce conditions				
Measuring rate	1 kHz					
² accuracy according to IEC 60770 – lim	nit point adjustment (non-linearity, hysto	teresis, repeatability)				
Thermal effects (offset and span) / Permissible temperatures					
Thermal error	≤ ± 0.3 % FSO / 10 K	in compensated range: 0 85 °C				
Permissible temperatures	medium: -25 125 °C	electronics / environment: -25 85 °C storage: -40 85 °C				
Electrical protection						
Short-circuit protection	permanent	3-wire ratiometric: none				
Reverse polarity protection	no damage, but also no function	1				
Electromagnetic protection	emission and immunity according to EN 61326					
Mechanical stability						
Vibration	10 g, 25 Hz 2 kHz	according to DIN EN 60068-2-6				
Shock	500 g / 1 msec	according to DIN EN 60068-2-27				

G1/4" DIN 3852

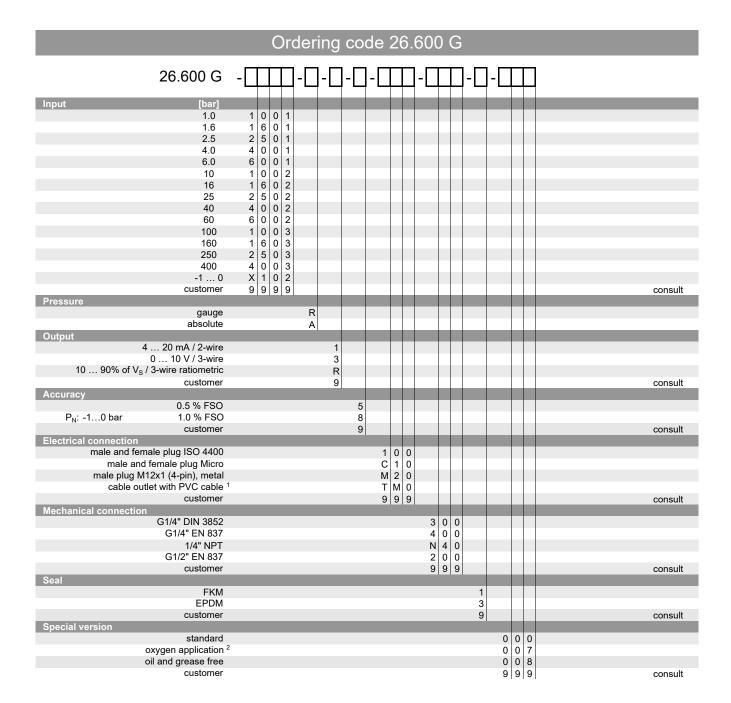
Materials								
Pressure port / housing	stainless steel 1 /301 /30/							
Seals (media wetted)	stainless steel 1.4301 (304) FKM others on request							
Diaphragm	ceramics Al ₂ O ₃ 96 %							
Media wetted parts	pressure port, seals, diaphragm							
Miscellaneous	process opers, obailo, diapritagin							
Option oxygen application	for p _N ≤ 25 bar: O-ring in FKM Vi 567 (with BAM-approval); permissible maximum values are 25 bar / 150° C							
Weight	approx. 120 g							
Current consumption	2-wire: max. 25 mA 3-wire ratiometric: typ. 1.5 mA 3-wire voltage: max. 7 mA (short circuit current: max. 20 mA)							
Operational life	100 million load cycles							
CE-conformity	EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module A) ³							
³ this directive is only valid for devices v	s with maximum permissible overpressure > 200 bar							
Wiring diagrams								
2-wire-system (current)	supply +							
supply –	Vs supply – signal +							
Pin configuration								
Electrical connection	ISO 4400	Micro (contact distance 9.4 mm)	M12x1 (4-pin), metal					
	3	3 6	3 1	cable colours (IEC 60757)				
Supply +	1	1	1	WH (white)				
Supply –	2	2	2	BN (brown)				
Signal + (for 3-wire)	3	3	3	GN (green)				
Shield	ground pin 🚇	ground pin 🚯	4	GNYE (green-yellow)				
Electrical connections (dimension	ns mm / in)							
for cable ⊘ 4 6 mm	for cable ⊘ 4.56 mm							
ISO 4400 (IP 65)	Micro, contact M12x1, 4-pin distance 9.4 mm (IP 65) (IP 67)			cable outlet with PVC-cable (IP 67) 4,5				
* pressure range p _N = 400 bar: total length increases by 12 mm ⁴ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 70 °C) ⁵ different cable transport and length a variable parmissible temperature depends on kind of cable								
⁵ different cable types and lengths available, permissible temperature depends on kind of cable Mechanical connection (dimensions mm / in)								
SW34 - G5.4°	0W04	20034	- 14" NPT	SW24				
7. 2	# 10	2		20				

G1/4" EN 837

1/4" NPT

G1/2" EN 837

Ordering code



 $^{^{\}rm 1}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 $^{\rm o}\text{C})$

² oxygen application with FKM seal up to 25 bar possible

30.600 G



OEM Pressure Transmitter Low Cost

Applications

- ▶ mechanical and plant engineering
- general industrial applications

Characteristics

- ceramic sensor
- ▶ accuracy 1 % FSO according to IEC 60770
- ▶ nominal pressure ranges from 0 ... 1.6 bar up to 0 ... 250 bar





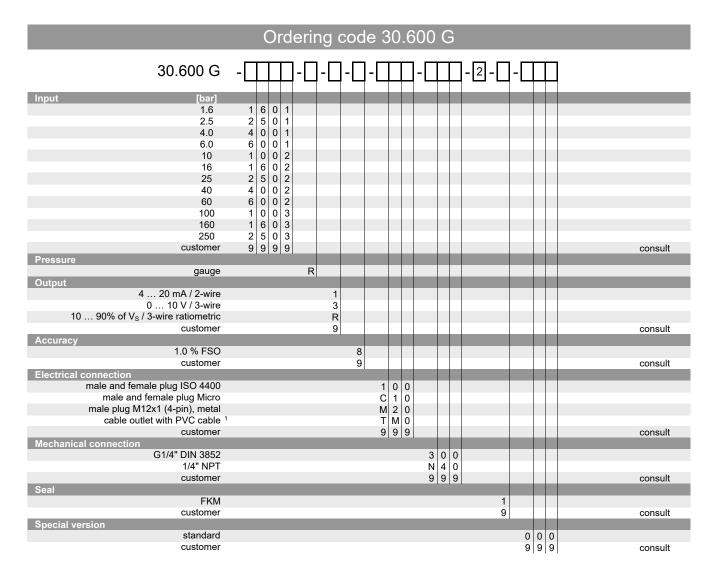




Input pressure range													
Nominal pressure gauge	[bar]	1.6	2.5	4	6	10	16	25	40	60	100	160	250
Overpressure	[bar]	5	5	12	12	20	50	50	120	120	200	400	400
Burst pressure ≥	[bar]	7	7.5	15	18	30	70	75	150	180	300	500	750
Vacuum resistance		unlimite	d										

Output signal / Supply								
Standard	2-wire: 4 20	mA /	V _S = 8	32 V _{DC}				
Options	3-wire: 0 10	V /	V _S = 14	30 V _{DC}				
	3-wire ratiometric: 10 90	$\%$ of V_S /	$V_S = 2.7$	5 V _{DC}				
Performance								
Accuracy 1	≤ ± 1 % FSO							
Permissible load	2-wire: $R_{\text{max}} = [(V_S - V_{S \text{ min}}) / 0.$.02 A] Ω	3-wire:	R_{min} = 10 k Ω				
Influence effects	supply: 0.05 % FSO / 10 V		load:	0.05 % FSO	/ kΩ			
Response time	2-wire: ≤ 10 msec		3-wire:	≤ 3 msec				
Long term stability	≤±0.3 % FSO / year at reference conditions							
Measuring rate	1 kHz							
¹ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)								
Thermal effects (offset and spar	n) / Permissible temperatures							
Thermal error	≤ ± 0.5 % FSO / 10 K (typ.)	in compensated range	0 8	5 °C				
Permissible temperatures	medium: -25 125 °C	electronics / environm	ent: -25 8	5 °C	storage: -40 85 °C			
Electrical protection								
Short-circuit protection	permanent	3-wire ratiometric: non	ie					
Reverse polarity protection	no damage, but also no function							
Electromagnetic protection	emission and immunity according to EN 61326							
Mechanical stability								
Vibration	10 g, 25 Hz 2 kHz	according to DIN EN 6	0068-2-6					
Shock	500 g / 1 msec	according to DIN EN 6	0068-2-27					

Materials									
Pressure port / housing	stainless steel 1.4301 (304)								
Seals (media wetted)									
Diaphragm	FKM others on request ceramics Al ₂ O ₃ 96 %								
Media wetted parts	pressure port, seals, diaphragm								
Miscellaneous	piessuie puit, seais, uiapiiiayiii								
Weight									
Current consumption	approx. 120 g 2-wire: max. 25 mA 3-wire ratiometric: typ. 1.5 mA 3-wire voltage: max. 7 mA (short circuit current: max. 20 mA)								
Operational life	100 million load cycles								
CE-conformity	EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module A) ²								
² This directive is only valid for devices v	² This directive is only valid for devices with maximum permissible overpressure > 200 bar								
Wiring diagrams									
2-wire-system (current)		3-wire-system (vol	tage)						
p supply + Vs Vs supply - U signal + V									
Pin configuration									
Electrical connection	ISO 4400 2 1	Micro (contact distance 9.4 mm)	M12x1 (4-pin), metal	cable colours (IEC 60757)					
Supply +	1	1	1	WH (white)					
Supply –	2	2	2	BN (brown)					
Signal + (for 3-wire)	3	3	3	GN (green)					
Shield	ground pin 🚇	ground pin	4	GNYE (green-yellow)					
for cable ⊘ 4 6 mm									
ISO 4400 (IP 65) 3 standard: 2 m PVC cable without ventil	Micro, contact- distance 9.4 mm (IP	65) (I	x1, 4-pin P 67)	cable outlet with PVC-cable (IP 67) 3,4					
⁴ different cable types and lengths available, permissible temperature depends on kind of cable Mechanical connection (dimensions mm / in)									
G1/4" DIN 3852	1/4" NPT	°NPT							



 $^{^{\}rm 1}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 \dots 70 °C)

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DISTRIBUTION EASTERN EUROPE

BD | SENSORS s.r.o. Hradištská 817 68708 Buchlovice CZECH REPUBLIC

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