PRODUCT CATALOGUE PRESSURE TRANSMITTER





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 260 employees at 4 locations in Germany, the Czech Republic, Russia and China BDJSENSORS has solutions from 0.1 mbar to 6000 bar:

- → pressure sensors, pressure transducers pressure transmitters
- \rightarrow electronic pressure switches
- → pressure measuring devices with display and switching outputs
- \rightarrow 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 BD|SENSORS. 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.

INDEX

PRECISION PROCESS INDUSTRY GENERAL INDUSTRIAL APPLICATION	5-34 5-29 30-34
INDUSTRY	35-104
GENERAL INDUSTRIAL APPLICATION MARINE / OFFSHORE PROCESS INDUSTRY	35-75 76-89 90-104
OEM	105-122
SPECIAL VERSIONS	123-131
4 ADVANTAGES	134
ICONS	135

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.

MATR	IX	
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			1							sure p s con I			1		
	stainless steel sensor	ceramic sensor	DMS	accuracy (FSO) ¹	nominal, pressure [bar]	options / special characteristics	inch and NPT thraed	inch thread flush	dairy pipe	Clamp (3A-certification)	Varivent® (3A-certification)	flange	DRD flange	certificates	page
precision									1	1	1	1			
XMP i	•			0.1 %	0 0.4 up to 0 600	flameproof enclosure,	•	•				•	•	Ex, HART®	5-9
	-					cooling element up to 300°C									
XMP ci		•		0.1 %	0 0.06 up to 0 20	flameproof enclosure hygienic version,	•	•				•	•	Ex, HART®	10-14
x act i	•			0.1 %	0 0.4 up to 0 40	cooling element up to 300°C			•	•	•	•	•	Ex, HART®, 3A	15-19
x act ci		•		0.1 %	0 0.06 up to 0 20	hygienic version		•	•	•	•	•	•	Ex, HART®	20-24
DMP 331Pi	•			0.1 %	0 0.4 up to 0 40	communication interface for adjustment of offset, span end damping		•	•	•				Ex	25-29
DMP 331i	•			0.1 %	0 0.4 up to 0 40	communication interface for adjustment of offset, span end damping	•							Ex	
DMP 333i	•			0.1 %	0 60 up to 0 600	communication interface for adjustment of offset, span end damping	•							Ex	30-34
industry															
DMP 343	•			0.35 %	0 0.01 up to 0 1	for non-aggressive gases	•							Ex, SIL, UL	35-39
DMP 331	•			0.35 %	0 0.01 up to 0 1	universal applications	•	•						Ex, SIL, UL	40-4
DMP 333	•			0.35 %	0 60 up to 0 600	universal applications	•							Ex, SIL, UL	45-4
DMP 339	•			0.35 %	0 60 up to 0 600	G 1/2" flush		•						Ex	50-5
DMP 335	•			0.5 %	0 6 up to 0 600	welded version	•							Ex, UL	54-58
DMP 334	•			0.35 %	0 600 up to 0 2.200	adjustability of span and offset	•							Ex, UL	59-62
DMP 304			•	0.5 %	0 2,000 up to 0 6,000	adjustability of span and offset	•							Ex	63-66
DMK 351		•		0.35 %	0 0.04 up to 0 20	diaphragm 99.9% Al2O3, pressure port PVDF	•							Ex	67-70
DMK 331		•		0.5 %	0 0.4 up to 0 600	pressure port PVDF for agressive media	•							Ex, SIL, UL	71-7
DMP 457	•			0.35 %	0 0.1 up to 0 600		•	•						EX, DNV, GL, CCS	76-80
DMK 458		•		0.25 %	0 0.04 up to 0 20	diaphragm 99.9% Al2O3, seawater resistant pressure port	•							EX, DNV, GL, CCS	81-85
DMK 457		•		0.5 %	0 0.4 up to 0 600	seawater resistant pressure port	•							EX, DNV, GL, CCS	86-8
DMP 331 P	•			0.35 %	0 0.1 up to 0 40	hygienic version, cooling element up to 300°C		•	•	•				Ex, SIL, UL, 3A	90-94
DMK 331 P		•		0.5 %	0 60 up to 0 400	filling fluid with FDA approval, cooling element up to 300°C		•						Ex, SIL, UL	95-99
DMK 351 P		•		0.35 %	0 0.04 up to 0 20	diaphragm 99.9% Al2O3		•	•	•	•	•		Ex	100-104
OEM															
18.600 G	•			0.5 %	0 0.1 up to 0 6	for non-aggressive gases	•							UL	105-107
18.601 G	•			0.5 %	0 0.1 up to 0 6		•							UL	108-110
26.600 G		•		0.5 %	0 1 up to 0 400	oil and grease free version	•							UL	111-113
30.600 G		•		1 %	0 1.6 up to 0 250		•							UL	114-116
17.609 G	•			0.5 %	0 6 up to 0 60	welded version	•							UL	117-119
17.600 G	•			0.5 %	0 6 up to 0 600	welded version, suitable for oxygen	•							UL	120-122
special versions															
DMK 456		•		0.25 %	0 0.04 up to 0 20	diaphragm 99.9% Al2O3, seawater resistant pressure port	•					•		EX, DNV, GL, CCS	123-126
HU 300			•	0.5%	0 5,000 psi up to 0 15,000 psi	Hammer Union, pressure port WECO [®] 2"								Ex	127-131

¹ according to IEC 60770

4

PRECISION PRESSURE TRANSMITTER



XMP i

Precision Pressure Transmitter for the Process Industry with HART[®]-Communication

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
- IS-version: Ex ia = intrinsically safe for gases and dusts

Optional versions

- ► IS-version:Ex d = flameproof enclosure
- 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 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 a two chamber aluminum die cast case or a stainless field housing.

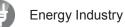
Preferred areas of use are



Oil and gas industry



Chemical and petrochemical industry



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Heavy Industry

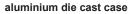


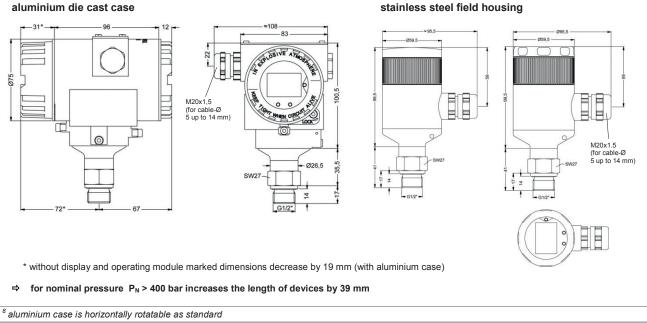
Pressure ranges ¹			1						1								
Nominal pressure		0.4	1	2	4	10	20	40	100	200	400	600					
gauge / abs. ²	[bar]						-										
Overpressure	[bar]	2	5	10	20	40	80	105	210	600	1000	1000					
Burst pressure ≥	[bar]	3	7,5	15	25	50	120	210	420	1000	1250	1250					
¹ On customer request we adj ² absolute pressure possible fi			i the turn-d	own-possi	Dility by S	onware to th	ie required	i pressure r	anges.								
Vacuum ranges												10					
Nominal pressure gauge	[bar]		0.4	-	·1 1		-1 2		-1 4	4	-1						
Overpressure Burst pressure ≥	[bar] [bar]		2 3		5 7,5		10 15		20 25		40 50						
	[Dai]		3		7,5		10		25		50						
Output signal / Supply																	
Standard		2-wire: 4															
Option						RT [®] -comm S = 13 …		/ V _s = 12	28 V _{DC}	>							
Current consumption		max. 25 i															
Performance																	
Accuracy ³		≤±0.1 %	FSO		T	ne accurac	v is calcu	lated as f	ollows								
Perfomance after turn-dov	ND	- turn-dov		no chang		0.1 + 0.01											
	VII	- turn-dov				g. turn-dov				% FSO =	0.16 % F	SO					
Permissible load		$R_{max} = [()$) / 0.02 A				ing HART									
Influence effects		supply: 0			-			ible load:									
Long term stability		≤ ± 0.1 %			erence c	onditions	<u> </u>										
Response time						electronic	damping	9	measurir	ng rate 10	/sec						
Adjustability		electronic) 90 %	FSO;	turr	n-down of	span up t	to 1:10					
³ accuracy according to IEC 6	60770 — lir	nit point adj	ustment (no	on-linearity	, hystere	sis, repeata	bility)										
Thermal errors / Permiss	sible ten	nperature	s														
Tolerance band 4, 5		≤ 0.2 % F	SO x turr	n-down (ii	n compe	nsated rar	nge -20	. 85 °C)									
Permissible temperatures	6	medium						without di	splay:	environm	ent: -40	80 °C					
			25 °C for	filling flui	d silicon	oil	_	storage: -40 80 °C									
		10 1															
		-10 1	25 °C for	filling flui		ompatible	oil	with displa									
Permissible temperature					d food co	ompatible		· · ·		storage:	-30	80 °C					
Permissible temperature medium for cooling eleme	ent	filling fluid	d silicon o	il	d food co	ompatible overpress	ure: -40 .	300 °C	low	storage: pressure:	-30 -40 15	80 °C 50 °C					
medium for cooling eleme 300°C		filling fluid filling fluid	d silicon o d food cor	il npatible d	d food co pil	ompatible overpress overpress	ure: -40 . ure: -10 .	300 °C 250 °C	low	storage: pressure: pressure:	-30	80 °C 50 °C					
medium for cooling eleme 300°C ⁴ an optional cooling element ⁵ for flange- and DRD-version	can influe n: toleranc	filling fluid filling fluid ence therma	d silicon o d food cor <i>l effects for</i> et $\leq \pm 1.6$ %	il npatible o offset and 6 FSO / tol	d food co bil d span de lerance ba	ompatible overpress overpress pending on and span <	ure: -40 . ure: -10 . <i>installatior</i> ± 0.6 % FS	300 °C 250 °C n position ai	low low nd filling co	storage: pressure: pressure:	-30 -40 15	80 °C 50 °C					
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Explosion protection						
Approval AX12-XMP i	IBExU 05 ATEX 1106 X					
	stainless steel field housing: zone 0: II 1G Ex ia IIC T4 Ga / II 1D Ex ia IIIC T85 °C Da					
	aluminium die cast case: zone 1: II 2G Ex	ia IIB T4 Gb / II 1D Ex ia IIIC T85 °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, C _{GND} = 27 nF				
Approval AX17-XMP i	IBExU 12 ATEX 1045 X					
(flameproof enclosure)	aluminium die cast case: zone 1: II 2G Ex					
Permissible temperatures for	in zone 0: -20 60 °C with p _{atm} 0.8 bar up					
environment	zone 1 or higher: -25 70 °C (intrinsically safe ve	rsion); -20 70 °C (flameproof enclosure)				
Connecting cables	capacitance: signal line/shield also signal line/sign					
(by factory)	inductance: signal line/shield also signal line/sign	al line: 1 µH/m				
Miscellaneous						
Display (optionally)	LC-display, visible range 32.5 x 22.5 mm; 5-digit 7-					
	indication ±9999; 8-digit 14-segment additional disp	olay, digit height 5 mm;				
	52-segement bargraph; accuracy 0.1% ± 1 digit					
Ingress protection	IP 67					
Installation position	any (standard calibration in a vertical position with the pressure port connection down;					
	differing installation position have to be specified in					
Weight	min. 400 g (depending on housing and mechanical	connection)				
Operational life	> 100 x 10 ⁶ pressure cycles					
CE-conformity	EMC Directive: 2004/108/EC Pressure	Equipment Directive: 97/23/EC (module A) '				
⁷ This directive is only valid for devices v	vith maximum permissible overpressure > 200 bar					
Wiring diagram						
P Supply + A Supply - R R R	→• + Vs →• - nterface HART →RS232 → PC					
Pin configuration						
	aluminium die cast case:	stainless steel field housing:				
Electrical connections	terminal clamps	terminal clamps				
	(clamp section: 2.5 mm ²)	(clamp section: 1.5 mm ²)				
Supply +	IN+	IN+				
Supply –	IN-	IN-				
Test	Test	-				

Housing designs ⁸ (dimensions in mm)

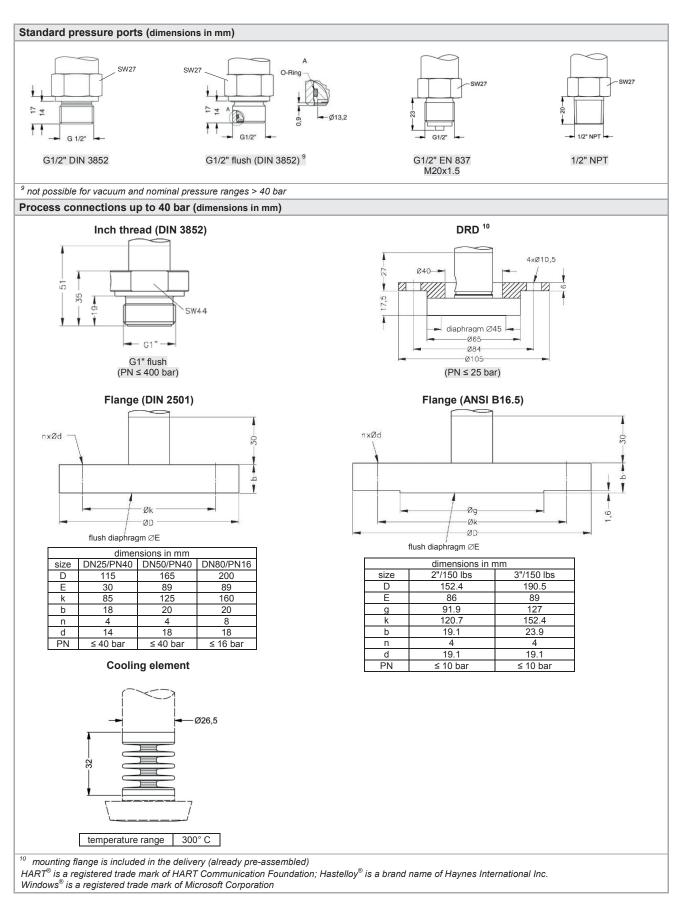
Shield





7

8



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XMP i Ordering Code

XMP i		[]]-□-□-□-□]
Pressure gauge	5 1 1	
absolute ¹	5 1 2	
0 0.4 ¹ 0 1	4 0 0 0 1 0 0 1	
0 2 0 4	2 0 0 1	
0 10 0 20	4 0 0 1 1 0 0 2 2 0 0 2 4 0 0 2	
0 40 0 100	4 0 0 2	
0 200 0 400	2 0 0 3	
0600 -0.4 0.4	4 0 0 3 6 0 0 3 S 4 0 0	
-1 1 -1 2	6 0 0 3 S 4 0 0 S 1 0 2 V 2 0 2 V 4 0 2 V 1 0 3	
-1 4	V 2 0 2 V 4 0 2	
-1 10 customer	V 1 0 3 9 9 9 9	consult
Design Aluminium die cast case		
with display without display	A 0 A N	
Stainless steel field housing with display	FV	
without display customer	F N 9 9	consult
Output Intrinsic safety 4 20 mA / 2-wire		
with HART [®] -communication	1	
Intrinsic safety Ex d 4 20 mA / 2-wire (flameproof enclosure)	G	
with HART [®] -communication ² customer	9	consult
Accuracy 0.1 %	1	
Electrical connection terminal clamp alu housing	A K 0	
terminal clamp field housing customer	8 8 0 9 9 9	consult
Mechanical connection Standard pressure connections	5,5,5,	
G1/2" DIN 3852 G1/2" DIN 3852 with 3	1	0 0
flush sensor	F	
G1/2" EN 837 1/2" NPT	2 N	
Process connections (up to 40 bar) G1" with flush welded	7	3 1
diaphragm (DIN 3852) Flange DN 25 / PN 40 (DIN 2501)		
Flange DN 50 / PN 40 (DIN 2501) Flange DN 80 / PN 16 (DIN 2501)	F	1 4
Flansch DN 2" / 150 lbs (ANSI B16.5) ⁴ Flansch DN 3" / 150 lbs (ANSI B16.5) ⁴	F	3 3
DRD Ø 65 mm ⁻⁵ Diaphragm	D	R D
Stainless steel 1.4435 (316L) Hastellov ^{® 6}		1 H
Tantal ^{6,7}		T consult
Inch thread: FKM		1
EN 837: without (welded version) ⁹		7
DRD, flange: without		0
Filling Fluids Silicon oil		1
food compatible oil ⁶ Halocarbon ⁶		2 C consult
customer Special version		9 consult
standard with cooling element up to 300 °C 6		0 0 0 2 0 0
special compensation -40 +60 °C ¹⁰ ▲ if setting range shall be different from nominal range please	specify in your order	0 2 2

 \clubsuit if setting range shall be different from nominal range please specify in your order 1 absolute pressure possible from 1 bar

absolute pressure possible from 1 bar 2 only possible in combination with aluminium die cast case 3 not possible for vacuum ranges and pressure ranges > 40 bar 4 2'/150 lbs and 3'/150 lbs possible for nominal pressure ranges P_N ≤ 10 bar 5 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 $P_{\rm N}$ < 100 bar

⁹ possible with pressure ranges between 1 bar and 40 bar
 ¹⁰ option for version without display

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This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

PRECISION PRESSURE TRANSMITTER 10



XMP ci

Process Pressure Transmitter with HART[®]-communication

Ceramic Sensor

accuracy according to IEC 60770: 0.1 % FSO

Nominal pressure

from 0 ... 60 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
- IS-version: Ex ia = intrinsically safe version
- diaphragm Al₂O₃ 99.9 %

Optional versions

- IS-version: Ex d = flameproof enclosure
- 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 aluminum die cast case or a stainless field housing.

Preferred areas of use are



Oil and gas industry







Chemical and petrochemical industry

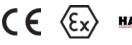
Preferred using in



Fuel and Oil



aggressive Media



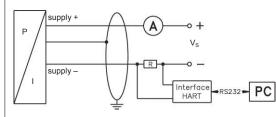
HART

Pressure ranges ¹	[hey]	0.00	0.40	0.4	4	0	F	10	20
Nominal pressure gauge	[bar]	0.06	0.16	0.4	1 8	2 15	5 25	10 35	20 45
Overpressure Permissible vacuum	[bar] [bar]	-0.2	-0.3	÷	0.5	15	-	1 1	40
¹ On customer request we adjust		-				he turn-down-n		-	
Output signal / Supply	life dev	ices by soliwar	e lo line requi	eu pressure r	anges. within t	ne tum-down-po	5551511119 (514111	ing at 0.02 bar)	
Standard		2-wire: 4	20 m∆						
		intrinsically	safe version			tion / $V_s = 12$	28 V _{DC}		
Option		max. 25 mA		iciosure / v	/S = 13 28	V _{DC}			
Current consumption Performance		max. 25 m/	1						
Accuracy ²									
Accuracy		nominal pre	ssure < 1 ba ssure ≥ 1 ba	ar: ≤±0.	2 % FSO 1 % FSO				
			pressure rar ar up to 0.4 l		$\leq \pm (0.2 + ($	(TD-1) x 0.02)	% FSO		
			pressure rar	nges:	< + (0 1 + (TD-1) x 0.01)	% ESO		
		from 1 bar u				· · · ·	/0100		
		with turn-do	wn = nomina	al pressure	range / adjust				
Permissible load		$R_{max} \leq [(V_S - V_S)]$	- V _{S min}) / 0.0	2 A] Ω	lo	ad during HA	RT [®] -commur	nication: R _{min}	= 250 Ω
Influence effects			5 % FSO / 10	V	pe	ermissible loa	d: 0.05 % FS	SO / kΩ	
Long term stability		≤±0.1%F							
Response time					f electronic da	amping	mea	asuring rate §	5/sec
Adjustability		electronic d offset 0 8	0 % FSO		nin. 0.02 bar)				
² accuracy according to IEC 6077	70 <u> </u>								
Thermal errors / Permissib				ity, hysteresi	s, repeatability)				
Thermal error	ie tem		urn_down) %	6 ESO / 10	k in compens	ated range -2	0 80 °C		
Permissible temperatures ³		without disp				nvironment: -4		storage: -4	0 80° C
		with display		m: -25 12		nvironment: -2		storage: -3	
³ for pressure port of PVDF the m	ninimum								
Electrical protection									
Short-circuit protection		permanent							
Reverse polarity protection		no damage.	but also no	function					
Electromagnetic compatibility	V	emission ar	d immunity	according to	EN 61326				
Mechanical stability	,	onnoonon ai		according to					
Vibration			2000 11-	•)					
			0 2000 Hz	_)					
Shock		100 g / 11 n	ISEC						
Materials									
Pressure port Standard			eel 1.4404 (3	316L)					
Optionally for G1 1/2" flush		PVDF							
Housing				der-coated	or stainless s	teel 1.4404 (3	516L)		
Cable gland		brass, nicke							
Viewing glass		laminated s			10-00				
Seals (media wetted)		EPDM (peri			125 °C) 0 125 °C)				
Diaphragm		others on re ceramics Al							
				bracm					
Media wetted parts		pressure po	rt, seal, diap	mayin					
Explosion protection									
Approval AX12-XMP ci (intrinsically safe version)		stainless ste		sing: zone 0		Ex ia IIC T4 Ga F4 Gb / II 1D E			°C Da
Safety techn. maximum value	es					= 0 µH, C _{GND} =			
Approval AX17-XMP ci (flameproof enclosure)		IBExU 12 A	TEX 1045 X lie cast case			Ex d IIC T5 Gt			
Permissible temperatures for environment		in zone 0: -2	20 60 °C v	vith p _{atm} 0.8	bar up to 1.1			enclosure)	
⁴ The designation depends on the	nomin		,		,		• •	/	
For nominal pressure ranges >									

12

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 x 10⁶ pressure cycles CE-conformity EMC Directive: 2004/108/EC

Wiring diagram

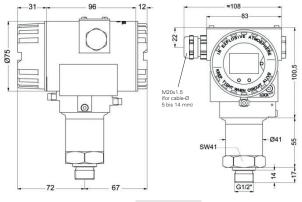


Pin configuration

	aluminium die cast case:	stainless steel field housing:
Electrical connections	terminal clamps	terminal clamps
	(clamp section: 2.5 mm ²)	(clamp section: 1.5 mm ²)
Supply +	IN+	IN+
Supply –	IN-	IN-
Test	Test	-
Shield	<u>_</u>	

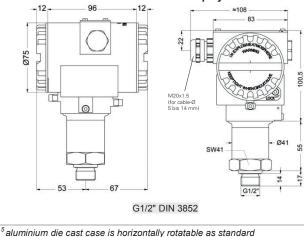
Housing designs ⁵ (dimensions in mm)

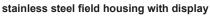
aluminium die cast case with display

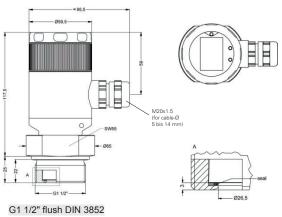


G1/2" DIN 3852

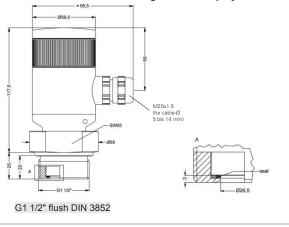
aluminium die cast case without display

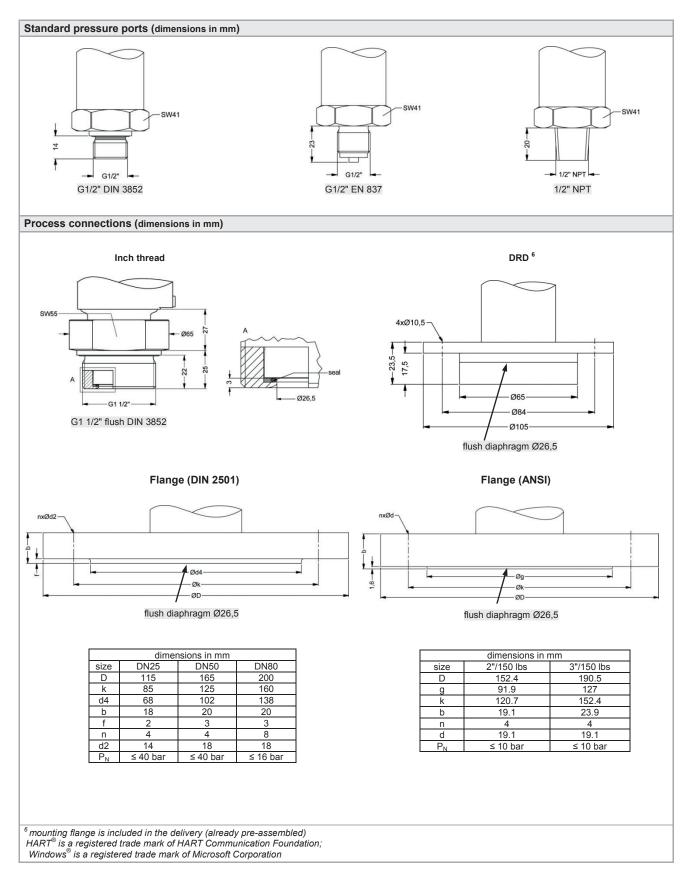






stainless steel field housing without display





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Pressure input guge (b) C <thc< th=""> C C C</thc<>	XMP ci]-[]]]	
input base	Pressure			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $				_
$\begin{array}{c c c c c c c c c c c c c c c c c c c $				
0.4 4 0 0 0 0 1 0 0 0 0 2 2 0 0 1 2 2 0 0 1 0 1 0 0 2 0 1 0 0 0 0 1 0 0 2 0 1 0 0 0 0 1 0 0 2 0 1 0 0 0 0 1 0 0 0 0 0 0				
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		4 0 0 0		
5 5 6 0 1 0 1 0 1 0 1 0 1 0		1 0 0 1		
10 10 10 0 2 0				
20 2 0 0 1				
customer 9 9 9 0<				
Design Muminum dir cast case With display A		9 9 9 9		consult
with display A N <t< td=""><td></td><td></td><td></td><td>concar</td></t<>				concar
without display A N	Aluminium die cast case			
Stainless steel field housing with display F V I<				
with display customer F V		AN		
without display customer P N </td <td></td> <td></td> <td></td> <td></td>				
Customer 9 9 0<				
Output Output Image of the state of the				consult
Intrinsic safety 4 20 mA / 2-wire (Intrinsic safety 4 20 mA / 4-wire (Intrinsic safety 4 20				Conoun
Intrinsic safety of 420 mA /2-wire (flamerpoof enclosure) with HART®-communication ' ustomer G I	Intrinsic safety 4 20 mA / 2-wire			
(fameproof enclosure) G I				
with HARTE-communication 1 outsomer outsomer <thoutsomer< th=""> outsomer outsom</thoutsomer<>				
customer 9 a<				
Accuracy 0.1% 1 0 <th< td=""><td></td><td>9</td><td></td><td>consult</td></th<>		9		consult
electrical connection A K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 0 0 0 0 0 0 <td></td> <td></td> <td></td> <td>Contourt</td>				Contourt
Electrical connection k	0.1 %	1		
terminal clamp field housing A K 0 <th0< th=""> <th1< td=""><td></td><td>9 9</td><td></td><td>consult</td></th1<></th0<>		9 9		consult
terminal clamp field housing 8 8 0 <td< td=""><td></td><td></td><td></td><td></td></td<>				
Mechanical connection: I <thi< th=""> I <thi< th=""> <thi< th=""> I <thi< th=""></thi<></thi<></thi<></thi<>				
Mechanical connection: I <thi< th=""> I <thi< th=""> <thi< th=""> I <thi< th=""></thi<></thi<></thi<></thi<>				consult
standard pressure connections: 1 0 <				consult
G1/2" EN 837 2 0 <t< td=""><td></td><td></td><td></td><td></td></t<>				
1/2" NPT N 0<				
process connections: M 0 0 I				
G 1 1/2" DIN flush (DIN 3852) M 0 O I		N 0 0		
Flange DN 25 / PN 40 (DIN 2501) F 2 0 1		MOO		
Flange DN 80 / PN 16 (DIN 2501)FII <th< td=""><td></td><td>F 2 0</td><td></td><td></td></th<>		F 2 0		
Flange DN 80 / PN 16 (DIN 2501)FII <th< td=""><td></td><td>F 2 3</td><td></td><td></td></th<>		F 2 3		
Flansch DN 2" / 150 lbs (ANSI B16.5) 2 F32IIIIIFlansch DN 3" / 150 lbs (ANSI B16.5) 2 F33II<	Flange DN 80 / PN 16 (DIN 2501)	$F \left[1 \right] 4$		
DRD Ø 65 mm ³ D R D D R D D R D C I	Flansch DN 2" / 150 lbs (ANSI B16.5) 2	F 3 2		
customer 9 9 9 9 9 0<	Flansch DN 3" / 150 lbs (ANSI B16.5) 2	F 3 3		
Diaphragm Image: Ceramics Al_2O_3 99,9% C Image: Ceramics Al_2O_3 99,9% Image: Ceramics Al_				ooncult
Ceramics Al ₂ O ₃ 99,9% C C I <thi< th=""> I I <thi< th=""></thi<></thi<>	Disulars and	8 8 8		consult
customer 9 I<	Ceramics Al ₂ O ₃ 99.9%	С		
Seals I <td></td> <td></td> <td></td> <td>consult</td>				consult
EPDM 4 3	Seals			
customer 9 I I I consult Pressure port I I I I I standard: I I I I I option for G 1 1/2" flush: I I I I PVDF 4 B I I Special version I I I Standard I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I<	FKM ⁴			
Pressure port Image: Standard: standard: Image: Stainless steel 1.4404 (316L) option for G 1 1/2" flush: Image: Standard PVDF 4 Image: Standard Special version Image: Standard standard Image: Standard				
standard: 1 1 1 1 1 Option for G 1 1/2" flush: PVDF 4 B 1 1 1 1 Special version 9 0 0 0 0		9		consult
Stainless steel 1.4404 (316L) 1 I <t< td=""><td></td><td></td><td></td><td></td></t<>				
option for G 1 1/2" flush: Image: Special version Image: Special vers		1		
PVDF ⁴ B Consult Customer 9 V Consult Special version 0 0 0 0				
customer 9 I consult Special version I I standard 0 0 I		B		
Special version 0 0 0				consult
standard000customer999consult	Special version			
customer 9 9 9 consult			0 0 0	
	customer		9 9 9	consult

$\underline{\Lambda}$ if setting range shall be different from nominal range please specify in your order

¹ only possible in combination with aluminium die cast case

 2 2"/150 lbs and 3"/150 lbs only possible for nominal pressure ranges PN $\,\leq$ 10 bar

 $^{\rm 3}$ mounting flange is included in the delivery (already pre-assembled)

 4 permissible temperature FKM -25 \dots 125 °C, EPDM -40 \dots 125 °C, PVDM -30 \dots 125 °C

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

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PRECISION PRESSURE TRANSMITTER



x act i

Precision **Pressure Transmitter** For Food / Beverage And **Pharmaceutical Industry** And Biotechnology

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

- **IS-version** Ex ia = intrinsically safe for gases and dust
- 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 / beverage, pharmaceutical industry 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 residue-free and а antibacterial cleaning.

Preferred areas of use are



Food and Beverage



Pharmaceutical Industry

Material and test certificates

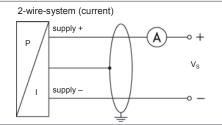
- inspection certificate 3.1 according to EN 10204
- test report 2.2 ► according to EN 10204

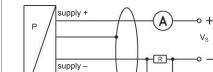


Pressure ranges ¹		1	1					
Nominal pressure gauge / abs.	[bar]	0.4	1	2	4	10	20	40
Dverpressure	[bar]	2	5	10	20	40	80	105
Burst pressure	[bar]	3	7,5	15	25	50	120	210
higher pressure ranges on reque	est; on dem	nand we adjust		hin the turn-do	wn-possibility by s	oftware on the re	quired pressure	e ranges
absolute pressure possible from					, , , , ,			
/acuum ranges								
Nominal pressure gauge	[bar]	-0.4 0.4		1	-1 2	-1	4	-1 10
Overpressure	[bar]	2		5	10 15	20		40
Burst pressure	[bar]	3	/	,5	15	25		50
Output signal / Supply								
Standard		2-wire: 4	20 mA / Vs =	= 12 30 Vr	20			
Option		IS-protection		-wire: 4 2		= 12 28 V _{DC}		
0,000					0 mA with HART	[®] communicati	on $/V_{s} = 12$	28 V _{DC}
Current consumption		max. 25 mA						
Performance								
Accuracy ³	:	≤ ± 0.1 % FS	0	The a	ccuracy is calcul	ated as follows		
Perfomance after turn-down		- turn-down ≤	1:5: no chan		+ 0.015 x (turn-o			
		- turn-down >	· 1:5:		urn-down 9: ≤ 0 .			0.16 % FSC
Permissible load		$R_{max} = [(V_s -$	V _{S min}) / 0.02 A			HART [®] comm		
nfluence effects			% FSO / 10 V	-		load: 0.05 % F		
ong term stability					eference conditi			
Response time	·	100 msec – v	vithout consid	eration of ele	ectronic damping	n mea	asuring rate 1	0/sec
Adjustability	(electronic da	mping: 0 10	00 sec				
		offset: 0 90				of span: max.	1:10	
³ accuracy according to IEC 6077	0 – limit po	int adjustment	(non-linearity, h	ysteresis, rep	eatability)			
Thermal effects (Offset and	Span) / F	Permissible	temperatures	\$				
Tolerance band 4, 5			O x Turn-Dov	/n				
in compensated range		-20 85 °C						
Permissible temperatures ⁶	1	medium:	-40 125	°C for filling	fluid silicon oil			
					fluid food compa	tible oil		
		environment: storage:	-20 70 -30 80					
Permissible temperature med		filling fluid sili			ressure: -40	300 °C vacuu	m pressure: -	40 150 °C
for cooling element 300°C	-		od compatible		oressure: -10 2			
⁴ an optional cooling element can								
⁵ for flange Varivent DRD-versi	ion: toleran	ice band offset	≤± 1.6 % FSO	/ tolerance ba	nd span ≤ ± 0.6 %	FSO		
⁶ for vacuum ranges and absolute	pressure t	the max. mediu	ım temperature	is 70 °C;				
max. temperature of the medium temperature of 50 °C (without co			uge > 0 bar: 150) °C for 60 min	utes with a max. e	nvironmental		
Electrical protection	oning cicini	ony.						
Short-circuit protection		permanent						
Reverse polarity protection			out also no fui	nction				
Electromagnetic compatibility			immunity acc		1 61326			
Mechanical stability			and and					
Vibration		5 g RMS (25	2000 Hz)	according	g to DIN EN 600	68-2-6		
Shock		100 g / 11 ms			to DIN EN 600			
Filling fluids					, , , 2			
Standard		silicon oil						
Options			ble oil (with Fl	DA annroval)			
					, ; NSF Registrati	on No.: 130662	2)	
			ind others on				,	
Materials								
Pressure port		G1" cone Va	rivent [®] , dairy	nine und Cla	imn: stain	ess steel 1.443	35 (316 L)	
		DRD and flar				ess steel 1.44	· · ·	
Housing			ige. el 1.4301 (304	.)	Stall	000 31001 1.440		
		laminated sa)				
Viewing glass				oono of dalle	0.00/			
		none, not inc	luded in the s	cope of deliv	ery			
Seals (media wetted) Diaphragm Standard		stainless stor	1 4/25 (216	1)				
			el 1.4435 (316 276 (2.4819)	L)	Tant	alum (possible	from 1 bor on) on request

Explosion protection	
Approval AX12-x act i	IBExU 05 ATEX 1106 X zone 0: II 1G Ex ia IIC T4 Ga / II 1D Ex ia IIIC T85 °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: -25 70 °C
Connecting cables (by factory)	capacitance: signal line/shield also signal line/signal line: 160 pF/m inductance: signal line/shield also signal line/signal line: 1 µH/m
Miscellaneous	
Display	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-segment bargraph; accuracy 0.1% ± 1 digit
Ingress protection	IP 67
Installation position	any (standard calibration in a vertical position with the pressure port connection down; differing installation position for $P_N \le 2$ bar have to be specified in the order)
Weight	min. 400 g (depending on mechanical connection)
Operational life	> 100 x 10 ⁶ pressure cycles
CE-conformity	EMC Directive: 2004/108/EC
Wiring diagrams	·

Wiring diagrams





+ 0

Vs

Interface HART

PC

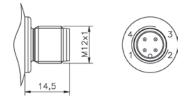
RS232

2-wire-system (current) HART®

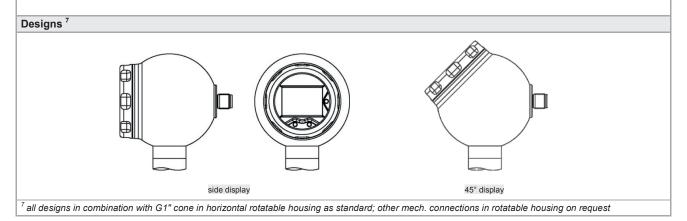
Pin configuration

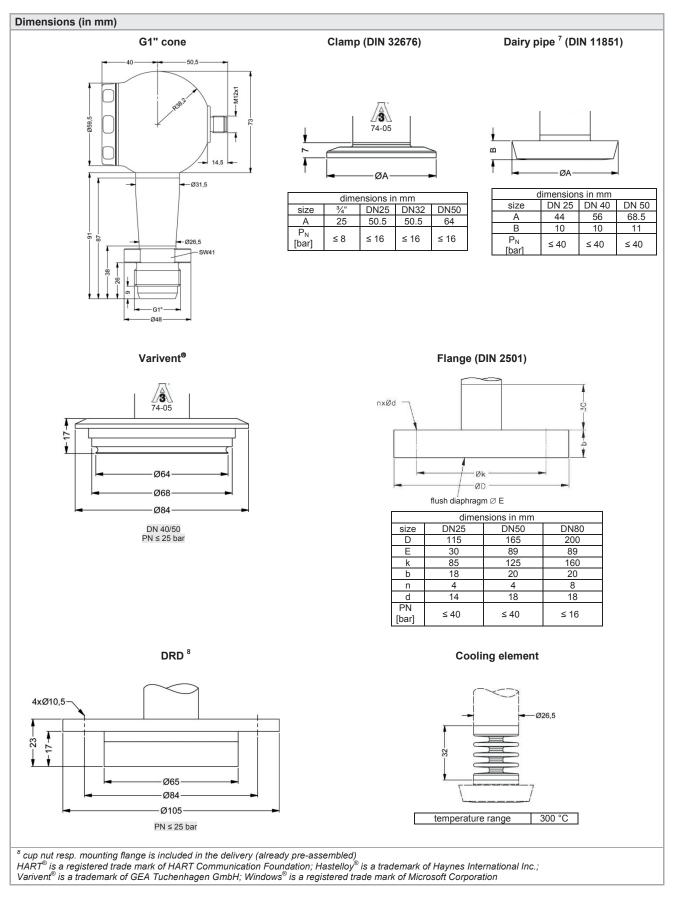
Electrical connections	M12x1 (4-pin)
Supply +	1
Supply –	3
Shield	plug housing

Electrical connections (dimensions in mm)



M12x1 (4-pin)





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18

x|act i Ordering Code

x act i		-	□-□	-0-0			-0-0]-[]·	-	
Pressure gauge	5 1 1									
absolute ¹ Input [bar]	5 1 2									
0 0.4 1		4 0 0 0								
0 1 0 2		1 0 0 1 2 0 0 1								
0 4		4 0 0 1								
0 10 0 20		1 0 0 2 2 0 0 2								
0 40		4 0 0 2								
-0.4 0.4		S 4 0 0								
-1 1 -1 2		S 1 0 2 V 2 0 2								
-1 4	,	V 4 0 2								
-1 10 customer		V 1 0 3 9 9 9 9 9								consult
Design		9 9 9 9 9								consult
side display			K H K 4							
45° display Output			K 4							
4 20 mA / 2-wire			1							
Intrinsic safety 4 20 mA / 2-wire Intrinsic safety 4 20 mA / 2-wire			E							
with HART [®] -communication			L							
customer			9							consult
Accuracy 0.1 %				1						
Electrical connection										
Male plug M12x1 (4-pin)				N	И 1 0 Э 9 9					
customer Mechanical connection				,	9 9 9 9					consult
G1" cone						K 3 1				
Clamp DN 25 / 1" (DIN 32676) / 3A Clamp DN 32 / 1 1/2" (DIN 32676) / 3A						C 6 1 C 6 2				
Clamp DN 50 / 2" (DIN 32676) / 3A						C 6 3				
Clamp 3/4" (DIN 32676) / 3A Dairy pipe DN 25 (DIN 11851) ²						C 6 9 M 7 3				
Dairy pipe DN 40 (DIN 11851) ²						M 7 5				
Dairy pipe DN 50 (DIN 11851) ²						M 7 6				
Varivent [®] DN 40/50 / 3A Flange DN 25 / PN 40 (DIN 2501)						P 4 1 F 2 0				
Flange DN 50 / PN 40 (DIN 2501)						F 2 3				
Flange DN 80 / PN 16 (DIN 2501) DRD Ø 65 mm ²						F 1 4				
DRD Ø 65 mm ⁻ Diaphragm						DRD				
Stainless steel 1.4435 (316L)							1			
Hastelloy [®] C-276 (2.4819) Tantalum ³							H			consult
Seals										consult
without								0		
Filling Fluids silicon oil								1		
food grade oil (FDA) / 3A								2		
Halocarbon customer								C 9		consult consult
Special version								9		CONSUL
standard									0 0 0 2 0 0	
with cooling element up to 300°C / 3A									200	

 ${\mathbb A}$ if setting range shall be different from nominal range please specify in your order

¹ absolute pressure possible from 1 bar

² cup nut resp. mounting flange is included in the delivery (already pre-assembled)

³ tantal 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

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

PRECISION PRESSURE TRANSMITTER



x act ci

Precision **Pressure Transmitter for** Food Industry, Pharmacy + **Biotechnology**

Ceramic Sensor

accuracy according to IEC 60770: 0.1 % FSO

Nominal pressure

from 0 ... 60 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

- IS-version: Ex ia = intrinsically safe version
- HART[®]-communication

The precise pressure transmitter x act ci 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 Industry





Laboratory Techniques

Preferred using in



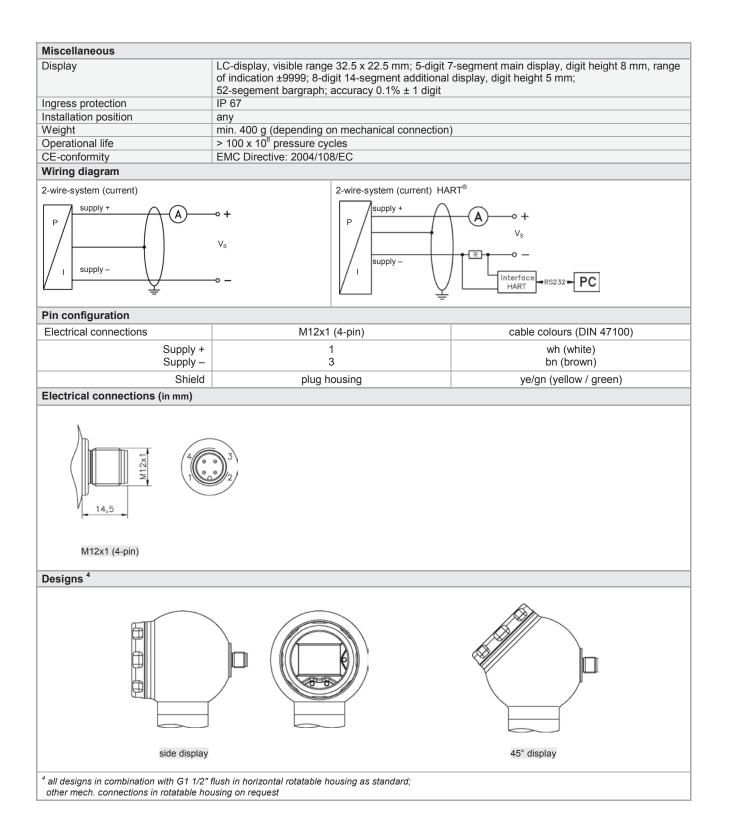
Viscous and pasty media



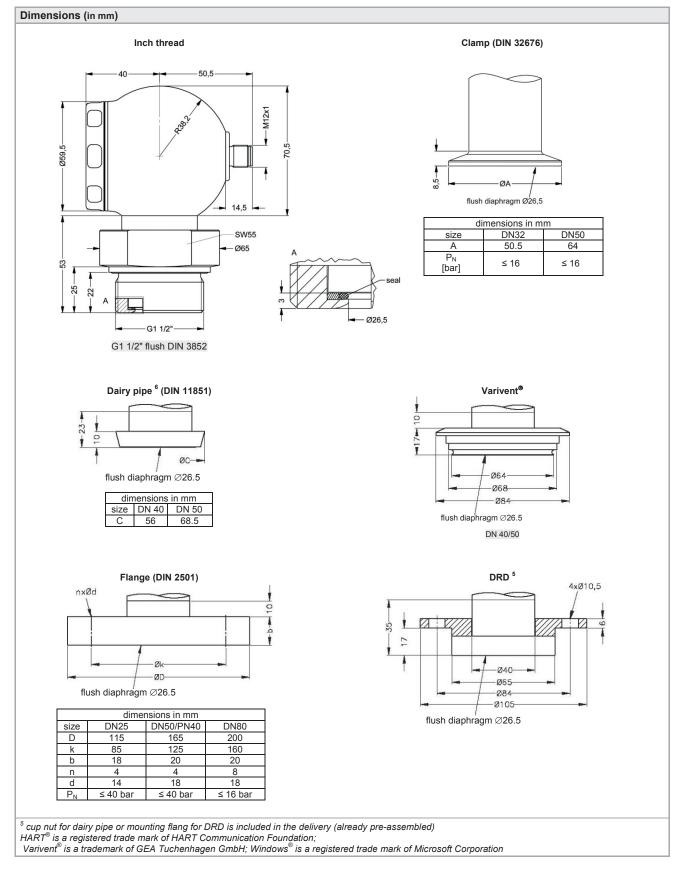
x act ci Technical Data

Nominal pressure gauge	[bar] 0.06	0.16	0.4	1	2	5	10	20					
Overpressure	[bar] 2	4	6	8	15	25	35	45					
Permissible vacuum	[bar] -0.2	-0.3	-	-0.5	10	-	-1	10					
¹ On customer request we adjust i					ne turn-down-r		-	r).					
Output signal / Supply	, , , , , , , , , , , , , , , , , , , ,					····		,					
Standard	2 wiro: /	20 mA / \	/ - 12 30										
	2-1116.2	20 MA / V	s = 12 30	D V DC									
Option	O surings	20 mA / \	/ _ 40 _ 00										
IS-protection IS-protection/ HART [®]	2-wire: 4	20 mA / V	$V_{\rm S} = 12 \dots 20$	ov _{DC}	$V_{2} = 12$ 2	8 \/							
· · · · · · · · · · · · · · · · · · ·	max. 25		TIANT CON	intunication /	vs = 12 2	O V DC							
Current consumption	max. 25	mA											
Performance													
Accuracy ²		pressure < 1 b		2 % FSO									
		pressure ≥ 1 b		,1 % FSO									
		nal pressure ra 6 bar up to 0.4		≤ ± (0.2 + (TE	0-1) x 0.02) 9	% FSO							
		•			, ,								
		nal pressure ra	nges:	≤ ± (0.1 + (TE	0-1) x 0.01) 9	% FSO							
		ar up to 20 bar -down = nomin	al pressure	range / adjust	d range								
Permissible load						DT [®] comm	inication: D	- 250.0					
		$R_{max} ≤ [(V_S - V_{S min}) / 0.02 A] Ω$ load during HART [®] communication: $R_{min} = 250$ supply: 0.05 % FSO / 10 V permissible load: 0.05 % FSO / kΩ											
Influence effects			0 V	ре	rmissible loa	Id: 0.05 % F	·SO / kΩ						
Long term stability		% FSO / year c – without con	aideration o	f alastropia da	maina		maggining	ata Elaa					
Response time Adjustability		c damping: 0		r electronic da	mping		measuring	ale 5/sec					
Adjustability		80 % FSO	. 100 360										
		n of span: max	. 1:5 (span	min. 0.02 bar)									
² accuracy according to IEC 6077													
Thermal errors / Permissibl													
Thermal error		2 x turn-down)	% FSO / 10	K in compensa	ated range -2	20 80 °C							
Permissible temperatures		-25 125 °C		environment:	v		storage: -30) 80 °C					
Electrical protection							g						
Short-circuit protection	permane	nt											
Reverse polarity protection		ige, but also no	function										
Electromagnetic compatibility		and immunity		EN 61326									
Mechanical stability	, , ,	· •···•,											
	E a DMC		7)										
*													
Vibration		<u>; (20 2000 H</u> 1 msec	۷)										
Vibration Shock	100 g / 1		<u> </u>										
Vibration Shock Materials	100 g / 1	1 msec		n									
Vibration Shock Materials	100 g / 1	1 msec ad, DRD and fl	ange versio		steel 1 4404	(3161)							
Vibration Shock Materials	100 g / 1	1 msec	ange versio		steel 1.4404	(316L)							
Vibration Shock Materials	inch three Varivent	1 msec ad, DRD and fl	ange versio d clamp:	stainless	steel 1.4404	(316L)							
Vibration Shock Materials Pressure port Housing	100 g / 1 inch thre Varivent optional	1 msec ad, DRD and fl [®] , dairy pipe an	ange versio d clamp: ush (DIN 38	stainless	steel 1.4404	(316L)							
Vibration Shock Materials Pressure port Housing	100 g / 1	1 msec ad, DRD and fl [®] , dairy pipe an y for G1 1/2" flu	ange versio d clamp: ush (DIN 38	stainless	steel 1.4404	(316L)							
Vibration Shock Materials Pressure port Housing	100 g / 1 inch thre Varivent optionall stainless Iaminate	1 msec ad, DRD and fl [®] , dairy pipe an y for G1 1/2" flu s steel 1.4301 (ange versio d clamp: ush (DIN 385 304)	stainless 52): PVDF	steel 1.4404	(316L)							
Vibration Shock Materials Pressure port Housing Viewing glass	100 g / 1 inch thre Varivent optionall stainless Iaminate FKM (pe EPDM	1 msec ad, DRD and fl [®] , dairy pipe an y for G1 1/2" flu s steel 1.4301 (d safety glass rmissible temp	ange versio d clamp: ush (DIN 385 304)	stainless 52): PVDF	steel 1.4404	(316L)							
Vibration Shock Materials Pressure port Housing Viewing glass Seals	100 g / 1 inch thre Varivent optionall stainless Iaminate FKM (pe EPDM others o	1 msec ad, DRD and fl [®] , dairy pipe an y for G1 1/2" flu s steel 1.4301 (d safety glass rmissible temp n request	ange versio d clamp: ush (DIN 385 304)	stainless 52): PVDF	steel 1.4404	(316L)							
Vibration Shock Materials Pressure port Housing Viewing glass Seals Diaphragm	100 g / 1 inch thre Varivent optionall stainless Iaminate FKM (pe EPDM others o ceramics	1 msec ad, DRD and fl [®] , dairy pipe an y for G1 1/2" flu s steel 1.4301 (d safety glass rmissible temp n request s Al ₂ O ₃ 99.9 %	ange versio d clamp: ush (DIN 38 304) erature: -25	stainless 52): PVDF	steel 1.4404	(316L)							
Vibration Shock Materials Pressure port Housing Viewing glass Seals Diaphragm Media wetted parts	100 g / 1 inch thre Varivent optionall stainless Iaminate FKM (pe EPDM others o ceramics	1 msec ad, DRD and fl [®] , dairy pipe an y for G1 1/2" flu s steel 1.4301 (d safety glass rmissible temp n request	ange versio d clamp: ush (DIN 38 304) erature: -25	stainless 52): PVDF	steel 1.4404	(316L)							
Vibration Shock Materials Pressure port Housing Viewing glass Seals Diaphragm Media wetted parts	100 g / 1 inch thre Varivent optionall stainless Iaminate FKM (pe EPDM others o ceramics	1 msec ad, DRD and fl [®] , dairy pipe an y for G1 1/2" flu s steel 1.4301 (d safety glass rmissible temp n request s Al ₂ O ₃ 99.9 %	ange versio d clamp: ush (DIN 38 304) erature: -25	stainless 52): PVDF	steel 1.4404	(316L)							
Vibration Shock Materials Pressure port Housing Viewing glass Seals Diaphragm Media wetted parts Explosion protection	100 g / 1 inch thre Varivent optionall stainless Iaminate FKM (pe EPDM others o ceramics pressure	1 msec ad, DRD and fl [®] , dairy pipe an y for G1 1/2" flu s steel 1.4301 (; d safety glass rmissible temp n request s Al ₂ O ₃ 99.9 % e port, seals, dia GATEX1106 X	ange versio d clamp: ush (DIN 38: 304) erature: -25 aphragm	stainless 52): PVDF 125 °C)									
Vibration Shock Materials Pressure port Housing Viewing glass Seals Diaphragm Media wetted parts Explosion protection Approval AX12-x act ci	100 g / 1 inch thre Varivent optionall stainless Iaminate FKM (pe EPDM others o ceramics pressure IBExU05 zone 0/1	1 msec ad, DRD and fl [®] , dairy pipe an y for G1 1/2" flu s teel 1.4301 (d safety glass rmissible temp n request s Al ₂ O ₃ 99.9 % port, seals, dia	ange versio d clamp: ush (DIN 383 304) erature: -25 aphragm a IIC T4 Ga/4 ; = 660 mW,	stainless 52): PVDF 125 °C) Gb / II 1D Ex ia C _i = 0 nF, L _i =	a IIIC T85 °C 0 μH,	Da	ng						
Vibration Shock Materials Pressure port Housing Viewing glass Seals Diaphragm Media wetted parts Explosion protection Approval AX12-x act ci Safety technical maximum va Permissible temperatures for	100 g / 1 inch thre optionall stainless laminate FKM (per EPDM others or ceramics) pressure IBExU02 zone 0/1 alues U _i = 28 N the supp in zone 0	1 msec ad, DRD and fl \mathbb{P} , dairy pipe an y for G1 1/2" flu a steel 1.4301 (d safety glass rmissible temp n request s Al ₂ O ₃ 99.9 % port, seals, dia ATEX1106 X 3 : II 1/2G Ex iz /, I ₁ = 93 mA, P ly connections): -20	ange versio d clamp: ush (DIN 383 304) erature: -25 aphragm a IIC T4 Ga/4 ; = 660 mW, have an inn 60 °C wit	stainless 52): PVDF 125 °C) Gb / II 1D Ex ia C _i = 0 nF, L _i =	a IIIC T85 °C 0 μH, max. 27 nF 1	Da o the housin	ng						
Vibration Shock Materials Pressure port Housing Viewing glass Seals Diaphragm Media wetted parts Explosion protection Approval AX12-x act ci Safety technical maximum va	100 g / 1 inch thre optionall stainless laminate FKM (pe EPDM others o ceramics pressure IBExU05 zone 0/1 alues U _i = 28 N the supp in zone 0 ab zone	1 msec ad, DRD and fl \mathbb{P} , dairy pipe an y for G1 1/2" flu a steel 1.4301 (d safety glass rmissible temp n request s Al ₂ O ₃ 99.9 % port, seals, dia ATEX1106 X 3 : II 1/2G Ex iz /, I ₁ = 93 mA, P ly connections): -20	ange versio d clamp: ush (DIN 383 304) erature: -25 aphragm a IIC T4 Ga/4 ; = 660 mW, have an inn 60 °C wit 70 °C	stainless 52): PVDF 125 °C) Gb / II 1D Ex ia $C_i = 0$ nF, $L_i =$ er capacity of th p _{atm} 0.8 bar signal line/sig	a IIIC T85 °C 0 μH, max. 27 nF f up to 1.1 bar nal line: 160	: Da o the housin	ng						

x|act ci Technical Data



x act ci Technical Data



This document contains product specifications; properties are not guaranteed. Subject to change without notice.

x act ci		-	
Pressure			
gauge	5 1 E		
0.06	0 6 0 0		
0.16			
0.4			
2			
5	2 0 0 1 5 0 0 1		
10			
20			
customer	9 9 9 9		consult
Design			
side display	КН		
45° display	К 4		
Output 4 20 mA / 2-wire			
Intrinsic safety 4 20 mA / 2-wire			
Intrinsic safety 4 20 mA / 2-wire			
with HART [®] -communication			
customer	9		consult
Accuracy			
0.1 %	1		
customer	9		consult
Electrical connection			
Male plug M12x1 (4-pin)	M 1 0 9 9 9		
customer	9 9 9		consult
Mechanical connection G 1 1/2" DIN flush (DIN 3852)	M 0 0		
Clamp DN 32 / 1 1/2" (DIN 32676)	C 6 2		
Clamp DN 50 / 2" (DIN 32676)	C 6 2 C 6 3		
Dairy pipe DN 40 (DIN 11851)	M 7 5		
Dairy pipe DN 50 (DIN 11851)	M 7 6		
Varivent [®] DN 40/50	P 4 1		
Flange DN 25 / PN 40 (DIN 2501)	F 2 0		
Flange DN 50 / PN 40 (DIN 2501)	F 2 3		
Flange DN 80 / PN 16 (DIN 2501)	F 1 4		
DRD Ø 65 mm	DRD		
customer	9 9 9		consult
Diaphragm Ceramics Al ₂ O ₃ 99,9%			
customer	C 9		consult
Seals			consult
FKM	1		
EPDM	3		
customer	9		consult
Pressure port			
standard: Stainless steel 1.4404 (316L)	1		
option for G 1 1/2" flush: PVDF	В		
customer	9		consult
Special version standard		0 0 0	
customer		999	consult
customer		010101	consult

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

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

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

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

PRECISION PRESSURE TRANSMITTER



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
 Ex ia = intrinsically safe for gases and dusts
- communication interface for adjustment of offset, span and damping

The precision pressure transmitter DMP 331Pi demonstrates the further development of well-tried 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 \dots 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

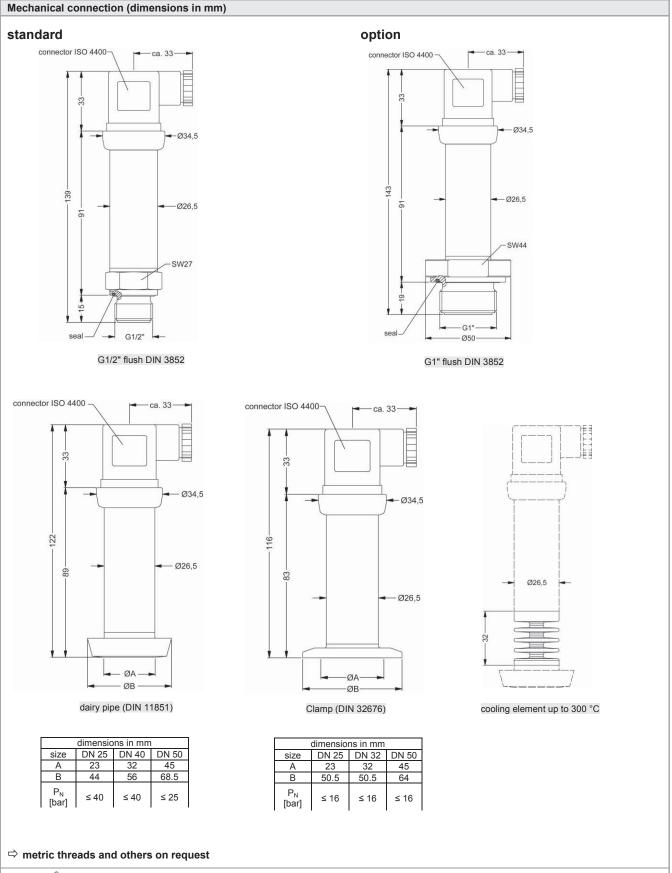


Pressure ranges ¹								
Nominal pressure						40		
gauge / absolute ²	[bar]	0.4	1	2	4	10	20	40
Overpressure	[bar]	2	5	10	20	40	80	105
Burst pressure ≥	[bar]	3	7,5	15	25	50	120	210
Vacuum resistance		$P_N \ge 1$ bar: u $P_N < 1$ bar: c		uum resistan	ce			
¹ On customer request we ac ² absolut pressure permissibl			urn-down-pos	sibility by softw	are on the requi	ired pressure range.		
Vacuum ranges								
Nominal pressure	[bar]	-0.4 0.4	-1	1	-1 2	-1 4		-1 10
Overpressure	[bar]	2	5		10	20		40
Burst pressure ≥	[bar]	3	7.5		15	25		50
Output signal / Supply								
Standard		2-wire: 4 2	0 mA / V	′ _s = 12 36 ′	V _{DC}			
Option IS-protection		2-wire: 4 2	0 mA / V	′ _s = 14 28 ′				
Options				ommunication				
		3-wire: 0 1	0 V / V	′ _s = 14 30 ′	V _{DC}			
³ only possible with el. conne	ection Bir							
Performance								
Accuracy ⁴		IEC 60770: ≤ ±	0.1 % FSO					
performance after turn-do								
- TD ≤ 1:5		no change of a	ccuracy 5					
- TD > 1:5		0	,	ving formula	(for nominal p	ressure ranges ≤ (0.40 bar see	note 5):
		$\leq \pm [0.1 + 0.015]$				0		
		with turn-down	= nominal pr	essure range	e / adjusted rai	nge		
		e.g. with a turn-						
		$\leq \pm (0.1 + 0.015)$						
Permissible load						age 3-wire: R _{min} =	10 kΩ	
Influence effects			5 % FSO / 1		load: 0.	.05 % FSO / kΩ		
Long term stability		$\leq \pm (0.1 \text{ x turn-c})$	iown) % FSC) / year				
Response time		< 5 msec	following	romotors = -	nible (interfer	o / ooffware rece	6).	
Adjustability		- electronic dar - offset: 0 90 - turn down of s	nping: 0 1 9 % FSO	00 sec	sidie (interfac	e / software nece	ssary):	
⁴ accuracy according to IEC	60770 -				reneatability)			
⁵ except nominal pressure ra	nges ≤ 0	.40 bar; for these	calculation of	accuracy is as	follows:			
$\leq \pm (0.1 + 0.02 \text{ x turn-down})$) % FSO	e.g. turn-down of	1:3: ≤ ± (0.1 +	0.02 x 3) % F	SO i.e. accuraci	$y 13 \ge \pm 0.10 \% F30$		
≤ ± (0.1 + 0.02 x turn-down) ⁶ software, interface, and cab) % FSO ble have t	to be ordered sep	arately (softwa	0.02 x 3) % F re appropriate	SO i.e. accuraci	y IS ≤ ± 0.16 % PSO 5, 98, 2000, NT Vers	sion 4.0 or high	er, and XP)
$\leq \pm$ (0.1 + 0.02 x turn-down) ⁶ software, interface, and cab Thermal effects ⁷ (Offse) % FSO ble have t i t and S	to be ordered sepa (pan) / Permiss	arately (softwa ible temper a	0.02 x 3) % F re appropriate atures	SO i.e. accuracy for Windows [®] 9	5, 98, 2000, NT Vers	sion 4.0 or high	er, and XP)
$e^{4} \pm (0.1 + 0.02 \times turn-down)$ e^{6} software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [%) % FSO ble have a t and S FSO]	to be ordered sepa (pan) / Permiss ≤ ± (0.35 x turn	arately (softwa ible tempera -down)	0.02 x 3) % F are appropriate atures in compens	SO i.e. accuracy for Windows [®] 9 ated range	5, 98, 2000, NT Vers -20 80 °C	sion 4.0 or high	er, and XP)
$\leq \pm (0.1 + 0.02 \times turn-down)$ $\frac{6}{5}$ software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO /) % FSO ble have a tt and S FSO] 10 K]	to be ordered separation (pan) / Permiss ≤ ± (0.35 x turn ≤ ± (0.035 x turn)	arately (softwa ible tempera -down)	0.02 x 3) % F are appropriate atures in compens in compens	SO i.e. accuracj for Windows [®] 9. ated range ated range	5, 98, 2000, NT Vers -20 80 °C -20 80 °C	sion 4.0 or high	ner, and XP)
$\leq \pm (0.1 + 0.02 \times turn-down)$ $\frac{6}{5}$ software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO /) % FSO ble have a tt and S FSO] 10 K]	to be ordered separation be ordered separation be ordered separation by the separation between the separation bet	arately (softwa i ble tempera -down) n-down)	0.02 x 3) % F re appropriate atures in compens -40 12 -10 12	SO i.e. accuracy for Windows [®] 9 ated range 5 °C for filling 5 °C for filling	5, 98, 2000, NT Vers -20 80 °C		er, and XP)
$\leq \pm (0.1 + 0.02 \times turn-down)$ $\frac{6}{5}$ software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO /) % FSO ble have a tt and S FSO] 10 K]	to be ordered separate to be ordered separat	arately (softwa i ble tempera -down) n-down)	0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8	SO i.e. accuracy for Windows [®] 9 atted range atted range 5 °C for filling 5 °C for filling 5 °C for filling	5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil		er, and XP)
[≤] ± (0.1 + 0.02 x turn-down, ⁶ software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures) % FSO ble have a tt and S FSO] 10 K] S	to be ordered separation be ordered separation be ordered separation by the separation between the separation bet	arately (softwa ible tempera -down) n-down) vironment:	0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10	SO i.e. accuracy for Windows [®] 9 lated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C or filling 1 5 °C or filling 1	5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati	ble oil	er, and XP)
⁶ software, interface, and cat ⁶ software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissible temperature) % FSO ble have a tt and S FSO] 10 K] s ⁸	to be ordered sept (pan) / Permiss $\leq \pm (0.35 \times turn)$ $\leq \pm (0.035 \times turn)$ $\leq \pm (0.035 \times turn)$ medium: electronics / en storage: filling fluid silico	arately (softwa ible tempera -down) n-down) vironment: on oil over	0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 pressure: -40	SO i.e. accuracy for Windows [®] 9 ated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C 0 °C 300 °C	5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40	ble oil 150 °C ⁹	er, and XP)
⁶ software, interface, and cat ⁶ software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissible temperature medium for cooling element 300°C) % FSO ble have t t and S FSO] 10 K] s ⁸	to be ordered sept (pan) / Permiss $\leq \pm (0.35 \times turn)$ $\leq \pm (0.035 \times turn)$ $\leq \pm (0.035 \times turn)$ medium: electronics / en storage: filling fluid silico filling fluid food	arately (softwa ible tempera -down) n-down) vironment: on oil over compatible o	0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 biloverpressu	SO i.e. accuracy for Windows [®] 9 ated range ated range 5 °C for filling 5 °C for filling 5 °C for filling 5 °C 0 °C 300 °C re: -10 250	5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 °C vacuum: -10	ble oil 150 °C ⁹ 150 °C ⁹	er, and XP)
<pre>≤ ± (0.1 + 0.02 x turn-down, ⁶ software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissible temperatures medium for cooling element 300°C ⁷ an optional cooling element</pre>) % FSO ble have t t and S FSO] 10 K] s ⁸	to be ordered sept to be ordered sept (pan) / Permiss $\leq \pm (0.35 \times turn)$ $\leq \pm (0.035 \times turn)$ $\leq \pm (0.035 \times turn)$ medium: electronics / en storage: filling fluid silico filling fluid silico filling fluid food uence thermal effet	arately (softwa ible tempera -down) n-down) vironment: on oil over compatible o cts for offset a	0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 biloverpressu	SO i.e. accuracy for Windows® 9 ated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C for filling 1 5 °C 300 °C 300 °C re: -10 250	5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 . °C vacuum: -10 tion position and fillii	ble oil 150 °C ⁹ 150 °C ⁹ na conditions.	
$\leq \pm (0.1 + 0.02 \times turn-down)$, $software, interface, and catal Thermal effects 7 (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissible temperatures Permissible temperature medium for cooling element 300°C 7 an optional cooling element 8 max. temperature of the me 9 also for Pabs \leq 1 bar$) % FSO ble have t t and S FSO] 10 K] s ⁸	to be ordered sept to be ordered sept (pan) / Permiss $\leq \pm (0.35 \times turn)$ $\leq \pm (0.035 \times turn)$ $\leq \pm (0.035 \times turn)$ medium: electronics / en storage: filling fluid silico filling fluid silico filling fluid food uence thermal effet	arately (softwa ible tempera -down) n-down) vironment: on oil over compatible o cts for offset a	0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 biloverpressu	SO i.e. accuracy for Windows® 9 ated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C for filling 1 5 °C 300 °C 300 °C re: -10 250	5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 . °C vacuum: -10 tion position and fillii	ble oil 150 °C ⁹ 150 °C ⁹ na conditions.	
$\leq \pm (0.1 + 0.02 \times turn-down)$, software, interface, and catal Thermal effects 7 (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissi) % FSO ble have t t and S FSO] 10 K] s ⁸	to be ordered sept to be ordered sept (pan) / Permiss $\leq \pm (0.35 \times turn)$ $\leq \pm (0.035 \times turn)$ $\leq \pm (0.035 \times turn)$ medium: electronics / en storage: filling fluid silico filling fluid silico filling fluid food uence thermal effet	arately (softwa ible tempera -down) n-down) vironment: on oil over compatible o cts for offset a	0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 biloverpressu	SO i.e. accuracy for Windows® 9 ated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C for filling 1 5 °C 300 °C 300 °C re: -10 250	5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 . °C vacuum: -10 tion position and fillii	ble oil 150 °C ⁹ 150 °C ⁹ na conditions.	
<pre>≤ ± (0.1 + 0.02 × turn-down, [§] software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissible temperatures Permissible temperatures Permissible temperatures ⁷ an optional cooling element 300°C ⁷ an optional cooling element ⁸ max. temperature of the me ⁹ also for P_{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protection</pre>) % FSO ble have to have the have to	to be ordered sept to be ordered sept (pan) / Permiss $\leq \pm (0.35 \times turn)$ $\leq \pm (0.035 \times turn)$ medium: electronics / ensitivation filling fluid silicon filling fluid silicon filling fluid silicon filling fluid silicon filling fluid food uence thermal effer r nominal pressure permanent no damage, bu	arately (softwa ible tempera -down) n-down) vironment: on oil over compatible o cots for offset a gauge > 0 ba t also no fun	0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 biloverpressu r: 150 °C for 60	SO i.e. accuracy for Windows® 9 ated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C for filling 1 5 °C 300 °C 300 °C re: -10 250 ding on installa	5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 . °C vacuum: -10 tion position and fillii	ble oil 150 °C ⁹ 150 °C ⁹ na conditions.	
<pre>≤ ± (0.1 + 0.02 × turn-down, [§] software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissible temperatures Permissible temperatures Permissible temperatures ⁷ an optional cooling element 300°C ⁷ an optional cooling element ⁸ max. temperature of the me ⁹ also for P_{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protection</pre>) % FSO ble have to have the have to	to be ordered sept to be ordered sept to an ordered sept $\leq \pm (0.35 \times turn)$ $\leq \pm (0.035 \times turn)$ $\leq \pm (0.035 \times turn)$ medium: electronics / en storage: filling fluid silico filling fluid silico filling fluid silico filling fluid food uence thermal effer r nominal pressure permanent	arately (softwa ible tempera -down) n-down) vironment: on oil over compatible o cots for offset a gauge > 0 ba t also no fun	0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 biloverpressu r: 150 °C for 60	SO i.e. accuracy for Windows® 9 ated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C for filling 1 5 °C 300 °C 300 °C re: -10 250 ding on installa	5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 . °C vacuum: -10 tion position and fillii	ble oil 150 °C ⁹ 150 °C ⁹ na conditions.	
$\leq \pm (0.1 + 0.02 \times turn-down)$, software, interface, and catal Thermal effects 7 (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissi) % FSO ble have to have the have to	to be ordered sept to be ordered sept (pan) / Permiss $\leq \pm (0.35 \times turn)$ $\leq \pm (0.035 \times turn)$ medium: electronics / ensitivation filling fluid silicon filling fluid silicon filling fluid silicon filling fluid silicon filling fluid food uence thermal effer r nominal pressure permanent no damage, bu	arately (softwa ible tempera -down) n-down) vironment: on oil over compatible o cots for offset a gauge > 0 ba t also no fun	0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 biloverpressu r: 150 °C for 60	SO i.e. accuracy for Windows® 9 ated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C for filling 1 5 °C 300 °C 300 °C re: -10 250 ding on installa	5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 . °C vacuum: -10 tion position and fillii	ble oil 150 °C ⁹ 150 °C ⁹ na conditions.	
$\leq \pm (0.1 + 0.02 \times turn-down)$, e^{6} software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissible temperatures Per) % FSO ble have to t and S FSO] 10 K] 5 ⁸ t can influe dium for bility	to be ordered sept to be ordered sept (pan) / Permiss $\leq \pm (0.35 \times turn)$ $\leq \pm (0.035 \times turn)$ medium: electronics / ensitivation filling fluid silicon filling fluid silicon filling fluid silicon filling fluid silicon filling fluid food uence thermal effer r nominal pressure permanent no damage, bu	arately (softwa ible tempera -down) n-down) vironment: on oil over compatible o cots for offset a gauge > 0 ba t also no fun	0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 biloverpressu r: 150 °C for 60	SO i.e. accuracy for Windows® 9 ated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C for filling 1 5 °C 300 °C 300 °C re: -10 250 ding on installa	5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 . °C vacuum: -10 tion position and fillii	ble oil 150 °C ⁹ 150 °C ⁹ na conditions.	
[≤] ± (0.1 + 0.02 x turn-down, ⁶ software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissible temperature medium for cooling element 300°C ⁷ an optional cooling element ⁸ max. temperature of the me) % FSO ble have to t and S FSO] 10 K] 5 ⁸ t can influe edium for bility	to be ordered sept to be ordered sept (pan) / Permiss $\leq \pm (0.35 \times turn)$ $\leq \pm (0.035 \times turn)$ $\leq \pm (0.035 \times turn)$ electronics / en- storage: filling fluid silico filling fluid silico filling fluid silico filling fluid silico filling fluid silico filling fluid food uence thermal effer r nominal pressure permanent no damage, bu emission and ir silicon oil food compatible	arately (softwa ible tempera -down) n-down) vironment: on oil over compatible of costs for offset a gauge > 0 ba t also no fun nmunity acco	0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 biloverpressu and span depent r: 150 °C for 60 ction ording to EN	SO i.e. accuracy for Windows® 9 ated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C for filling 1 5 °C m 300 °C re: -10 250 nding on installa 0 minutes with a	5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 . °C vacuum: -10 tion position and fillii	ble oil 150 °C ⁹ 150 °C ⁹ na conditions.	
$\leq \pm (0.1 + 0.02 \times turn-down)$, e^{6} software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissible temperatures Per) % FSO ble have to t and S FSO] 10 K] 5 ⁸ t can influe edium for bility	to be ordered sept to be ordered sept (pan) / Permiss $\leq \pm (0.35 \times turn)$ $\leq \pm (0.035 \times turn)$ $\leq \pm (0.035 \times turn)$ electronics / en- storage: filling fluid silico filling fluid silico filling fluid silico filling fluid silico filling fluid silico filling fluid food uence thermal effer r nominal pressure permanent no damage, bu emission and ir silicon oil food compatible	arately (softwa ible tempera -down) n-down) vironment: on oil over compatible of compatible of costs for offset a gauge > 0 ba t also no fun nmunity acco e oil with FD/ 32; Categor	0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 biloverpressu and span depent r: 150 °C for 60 ction ording to EN	SO i.e. accuracy for Windows® 9 ated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C for filling 1 5 °C m 300 °C re: -10 250 nding on installa 0 minutes with a	5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 . °C vacuum: -10 tion position and fillin max. environmental	ble oil 150 °C ⁹ 150 °C ⁹ na conditions.	
6 ± (0.1 + 0.02 x turn-down, 6 software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissible temperatures Permissible temperatures Permissible temperatures Permissible temperatures ⁷ an optional cooling element 8 max. temperature of the me 9 also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protectic Electromagnetic compatil Filling fluids Standard Options) % FSO ble have to t and S FSO] 10 K] 5 ⁸ t can influe edium for bility	to be ordered sept (pan) / Permiss ≤ ± (0.35 x turn ≤ ± (0.035 x turn medium: electronics / en storage: filling fluid silico filling fluid silico filling fluid silico filling fluid food uence thermal effer nominal pressure permanent no damage, bu emission and ir silicon oil food compatible (Mobil DTE FM	arately (softwa ible tempera -down) n-down) vironment: on oil over compatible of compatible of costs for offset a gauge > 0 ba t also no fun nmunity acco e oil with FD/ 32; Categor	0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 biloverpressu and span depent r: 150 °C for 60 ction ording to EN	SO i.e. accuracy for Windows® 9 ated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C for filling 1 5 °C m 300 °C re: -10 250 nding on installa 0 minutes with a	5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 . °C vacuum: -10 tion position and fillin max. environmental	ble oil 150 °C ⁹ 150 °C ⁹ na conditions.	
⁶ software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissible temperatures Permissible temperatures ⁷ an optional cooling element ⁸ max. temperature of the me ⁹ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protectic Electromagnetic compatil Filling fluids Standard) % FSO ble have to have the have to	to be ordered sept (pan) / Permiss ≤ ± (0.35 x turn ≤ ± (0.035 x turn medium: electronics / en storage: filling fluid silico filling fluid silico filling fluid silico filling fluid food uence thermal effer nominal pressure permanent no damage, bu emission and ir silicon oil food compatible (Mobil DTE FM	arately (softwa ible tempera -down) n-down) vironment: on oil over compatible of compatible of compa	0.02 x 3) % F re appropriate atures in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 biloverpressu r: 150 °C for 60 ction ording to EN A approval y Code: H1; 00 Hz); oth	SO i.e. accuracy for Windows® 9 ated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C or fi	5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 . °C vacuum: -10 tion position and fillin max. environmental	ble oil 150 °C ⁹ 150 °C ⁹ ng conditions. temperature o	f 50 °C

Materials							
Pressure port		tainloss stool	1.4404 (316 L)			others on re	auost
Housing			1.4404 (316 L)			others office	quesi
U			. ,	aland brace nie	kal platad	othoro on ro	aucot
Option compact field housi			1.4305 (303), cable			others on re	
Seals (O-ring)	0	tandard: ption: lamp and dai	FFKM (r others on	ecommended for	r medium tempera r medium tempera		
Diaphragm			nless steel 1.4435 (3	16L) option: Has	tellov [®] C-276 (2.4	819) and Tant	alum on request
Media wetted parts		ressure port.			10110 (2.1	oroj ana ran	alam on roquoot
			1 0				
Explosion protection (on							
Approval DX19-DMP 331P	z		IG Ex ia IIC T4 Ga			iaD 20 T 85 °	С
Safety technical max. value	es h	ave an inner	93 mA, P _i = 660 mW capacity of max. 27			onnections	
Max. permissible temperat		20 65 °C					
Connecting cables	C	able capacita	nce: signal line/shie	eld also signal lin	e/signal line: 160	pF/m	
(by factory)	C	able inductar	nce:signal line/shield	also signal line/s	signal line: 1 µH/m	1	
Miscellaneous							
Current consumption		gnal output c gnal output v					
W/aight			onage. max. / n				
Weight	a	pprox. 200 g					
Installation position							
Operational life			essure cycles				
CE-conformity			: 2004/108/EC				
¹⁰ Pressure transmitters are ca	librated in a	a vertical positi	on with the pressure co	nnection down. If th	nis position is change	ed on installation	there can be sligh
deviations in the zero point for	pressure ra	anges P _N ≤1 ba	ar.				
Wiring diagrams							
				O uning ourstand	(valtera)		
2-wire-system (current)				3-wire-system	· · · ·		
p supply +	v	> + /s > -		U signal +			
Pin configuration				1			
Electrical connections		ISO 4400	Binder 723 (5-pin)	Binder 723 (7-pin)	M12x1/ metal (4-pin)	field housing	cable colours (DIN 47100)
Su	pply +	1	3	3	3	IN +	wh (white)
	pply –	2	4	1	1	IN –	bn (brown)
Signal + (only for 3		3	1	6	-	OUT +	gr (green)
			-	_			ye/gn
	shield	ground pin	5	2	4	1	yellow / green
Communication	RxD			4			, <u>.</u>
interface ¹¹	TxD	-		5		-	
	GND	-		7		-	
44		-	-		-	-	-
¹¹ may not be connected direct			e adapter is available a	s accessory)			
Electrical connections (c	limensior	ns in mm)					
etereleral 1							
standard optic	n						
L L L L L L L L L L L L L L L L L L L	+	+		44		.3	Ø7,4
				0 49,5		15	
		† ,	_\/' ! ⊨] ᠯ	
	[] []			A A	0.5		1
5) 01 - Ø34,5 - Ø34,5 -	10.5	— Ø34,5 — 🗕 📍	ø34,5		¥ 🔛	0,5	
Autoritation and Autoritation and Autoritation					ø35 •		l ⊲ —_Ø35 ►
				(for o	to 8 mm))	
ISO 4400 Binder 7 (IP 65) 5-pin (IP		inder 723 oin (IP 67)	M12x1 4-pin (IP 67)	field housing (IP 67)	cable outle PVC cable (I		ble outlet ¹³ , with ation tube (IP 68
¹² standard: 2 m PVC cable (w	ithout vent	ilation tube, pe	rmissible temperature: -	-5 70 °C)			

¹² standard: 2 m PVC cable (without ventilation tube, permissible temperature: -5 ... 70 °C)
¹³ different cable types and lengths available, permissible temperature depends on kind of cable

DMP 331Pi Technical Data



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DMP 331Pi Ordering Code

DMP 331Pi			· C]- []-		
Pressure gauge	5 0 0					
absolute ¹	5 0 0 5 0 1					
Input [bar] 0.40 ¹	4 0 0 0					
1.0 2.0	1 0 0 1 2 0 0 1					
4.0	4 0 0 1					
10 20	1 0 0 2 2 0 0 2					
40	4 0 0 2					
-0.40 0.40	9100					
-1 1 -1 2	S 1 0 2 S 1 0 2 V 2 0 2 V 4 0 2 V 1 0 3 9 9 9 9					
-1 4	V 4 0 2					
-1 10 customer	9999					consult
Output						
4 … 20 mA / 2-wire Intrinsic safety 4 … 20 mA / 2-wire	1 E					
0 10 V / 3-wire	3	3				
Accuracy	g	9				consult
0.1%		1				
customer Electrical connection		9				consult
Male and female plug ISO 4400		1 0 0				
Male plug Binder series 723 (5-pin) Male plug Binder series 723 (7-pin) ²		2 0 0				
Cable outlet with PVC-cable ³		A 0 0 T A 0				
Cable outlet ⁴		T R 0				
Male plug M12x1 (4-pin) / metal Compact field housing		M 1 0				
stainless steel 1.4305 5		8 5 0				
Customer Mechanical connection		999				consult
G1/2" with flush			Z 0 0			
welded diaphragm (DIN 3852) ⁶ G1" with flush						
welded diaphragm (DIN 3852)			Z 3 1			
Clamp DN 25 (DIN 32676) Clamp DN 32 (DIN 32676)			C 6 1 C 6 2			
Clamp DN 50 (DIN 32676)			C 6 3			
Dairy pipe DN 25 (DIN 11851) ⁵ Dairy pipe DN 40 (DIN 11851) ⁵			M 7 3 M 7 5			
Dairy pipe DN 50 (DIN 11851) ⁵			M 7 6			
Diaphragm		_	999			consult
Stainless steel 1.4435 (316L)			1			
Hastelloy [®] C-276 (2.4819) Tantalum			H			consult consult
customer			9			consult
Seals						
for clamp or dairy pipe: without for inch thread - standard: FKM			0			
for inch thread - option: FFKM			7			
Filling Fluids			9			consult
silicon oil				1		
food compatible oil customer				2 9		consult
Special version						oonouit
standard RS-232 interface ⁷				1 1	1 1	
with cooling element up to 300 °C				2	1 1 2 1 1 1	
RS-232 interface and cooling element up to 300 °C ⁷				2		
cooling element up to 300°C customer					99	consult

¹ absolut pressure possible from 1 bar

 $^{\rm 2}$ cable socket is included in delivery

³ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C), others on request
 ⁴ cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, price without cable
 ⁵ 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.

⁶ possible only for $P_N \ge 1$ bar

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

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

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

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PRECISION PRESSURE TRANSMITTER



DMP 331i / DMP331i LMP 331 i

Precision Pressure Transmitter / Screw-in 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
- communication interface for adjusting of offset, span and damping

Optional versions

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

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

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

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



Laboratory Techniques

Energy production (gas consumption and thermal energy measurement)

Preferred areas of use are LMP 331i



Chemical / petrochemical industry



Environmental Engineering (water / sewage / recycling)



DMP 331i / DMP 333i / LMP 331i

Technical Data

	2 331 i							
Pressure ranges DMF Nominal pressure				-				
gauge / absolute	[bar]	0.4	1	2	4	10	20	40
Overpressure	[bar]	2	5	10	20	40	80	105
Burst pressure	[bar]	[bar] 3 7,5 15 25 t the device within the turn-down-possibility by software on the requi				50	120	210
	adjust the dev	ice within the tu	1	ility by software o	on the required pr	essure range.		
Vacuum ranges								
Nominal pressure	[bar]	-0.4 0	.4	-1 1	-1 2	-1.	4	-1 10
Overpressure	[bar]	2		5	10		0	40
Burst pressure	[bar]	3		7.5	15	2	5	50
DDM	2 2 2 2 2 1							
Pressure ranges DMF	2 3 3 3 1							
Nominal pressure gauge / absolute	[bar]	60		100	200	40	00	600
Overpressure	[bar]	210		210	600	10	00	1000
Burst pressure	[bar]	420		420	1000	-	50	1250
¹ On customer request we		-	rn-down-possib	-				
						<u> </u>		
Pressure ranges LMP	9 331 i ¹							
Nominal pressure		0.4	1	2	4	10	20	40
gauge / absolute	[bar]					-		
Level gauge	[mH ₂ O]	4	10	20	40	100	200	400
Overpressure			5	10	20	40	80	105
Burst pressure	[bar]	3	7.5	15	25	80	120	210
¹ On customer request we	adjust the dev	ce within the tu	rn-down-possib	ility by software o	on the required pr	essure range.		
Output signal / Suppl	У							
Standard				V _s = 12 36 V				
Option IS-protection				V _S = 14 28 V				
Options								
				V _s = 14 36 M mmunication in				
² only possible with el. cor	nection Binder			minumeation	licitace			
Performance	inection binder	3enes 725 (7-p	////					
			:≤±0.1 % FS	· O				
Accuracy		IEC 60770 .	> + U % F.					
	al a com		. = 1 0.1 /01 0					
performance after turn	-down	no chango o						
- TD ≤ 1:5	-down	no change o	of accuracy ⁴		for nominal pro		< 0.40 bor oo	no poto 2);
	-down	for calculation	of accuracy ⁴ on use the follo	owing formula ((for nominal pre	essure ranges	≤ 0.40 bar se	ee note 3):
- TD ≤ 1:5	-down	for calculation $\leq \pm [0.1 + 0.0]$	of accuracy ⁴ on use the follo 015 x turn-dov	owing formula (vn] % FSO		U	≤ 0.40 bar se	e note 3):
- TD ≤ 1:5	-down	for calculation $\leq \pm [0.1 + 0.0]$ with turn-down	of accuracy ⁴ on use the follo 015 x turn-dov wn = nominal	owing formula (vn] % FSO pressure range	/ adjusted ran	ge	≤ 0.40 bar se	e note 3):
- TD ≤ 1:5	-down	for calculations $\leq \pm [0.1 + 0.0]$ with turn-down e.g. with a turn-	of accuracy ⁴ on use the follo 015 x turn-dow wn = nominal urn-down of 1:	owing formula (vn] % FSO pressure range 10 following ac	 / adjusted ran curacy is calcu 	ge llated:	≤ 0.40 bar se	e note 3):
- TD ≤ 1:5 - TD > 1:5	-down	for calculations $\leq \pm [0.1 + 0.0]$ with turn-down e.g. with a tung $\leq \pm (0.1 + 0.0]$	of accuracy ⁴ on use the folk 015 x turn-dov wn = nominal urn-down of 1: 015 x 10) % F	owing formula (vn] % FSO pressure range 10 following ac SO i.e. accura	e / adjusted ran curacy is calcu acy is ≤ ± 0.25 °	ge ilated: % FSO		e note 3):
- TD ≤ 1:5 - TD > 1:5 Permissible load	-down	for calculation $\leq \pm [0.1 + 0.0]$ with turn-down e.g. with a tung $\leq \pm (0.1 + 0.0]$ current 2-with	of accuracy ⁴ on use the folk 015 x turn-dow wn = nominal urn-down of 1: 015 x 10) % F e: $R_{max} = [(V$	twing formula (vn] % FSO pressure range 10 following ac SO i.e. accura $_{\rm S} - V_{\rm S}$ min) / 0.	 / adjusted ran curacy is calcu 	ge Ilated: % FSO age 3-wire: F		e note 3):
- TD ≤ 1:5 - TD > 1:5 Permissible load Influence effects	-down	for calculatic $\leq \pm [0.1 + 0.0]$ with turn-dow e.g. with a tu $\leq \pm (0.1 + 0.0]$ current 2-wir supply: (0)	of accuracy ⁴ on use the folk 015 x turn-dov wn = nominal urn-down of 1: 015 x 10) % F	twing formula (vn] % FSO pressure range 10 following ac SO i.e. accura $s - V_s min) / 0.$ 10 V	e / adjusted ran curacy is calcu acy is ≤ \pm 0.25 $^{\circ}$ 02 A] Ω volt	ge Ilated: % FSO age 3-wire: F	R _{min} = 10 kΩ	e note 3):
 TD ≤ 1:5 TD > 1:5 Permissible load Influence effects Long term stability 	-down	for calculatic $\leq \pm [0.1 + 0.0]$ with turn-dow e.g. with a tu $\leq \pm (0.1 + 0.0]$ current 2-wir supply: () $\leq \pm (0.1 \times tur)$ approx. 5 ms	of accuracy ⁴ on use the folk 015 x turn-dow wn = nominal urn-down of 1: 015 x 10) % F re: $R_{max} = [(V0.05 \% FSO /rn-down) % FSsec$	twing formula (vn] % FSO pressure range 10 following ac SO i.e. accura $_{\rm S}$ – V _S min) / 0. 10 V SO / year	adjusted ran curacy is calcu acy is ≤ \pm 0.25 $^{\circ}$ 02 A] Ω volt loa	ge Ilated: % FSO age 3-wire: F Id: 0.05 %	R _{min} = 10 kΩ FSO / kΩ	e note 3):
- TD ≤ 1:5	-down	for calculatic $\leq \pm [0.1 + 0.0]$ with turn-dow e.g. with a tu $\leq \pm (0.1 + 0.0]$ current 2-wir supply: (0) $\leq \pm (0.1 \times tur)$ approx. 5 ms configuration	of accuracy ⁴ on use the folk 015 x turn-dow wn = nominal urn-down of 1: 015 x 10) % F re: $R_{max} = [(V0.05 \% FSO /rn-down) \% FSsecn of following p$	by by the second secon	e / adjusted ran curacy is calcu acy is ≤ \pm 0.25 $^{\circ}$ 02 A] Ω volt	ge Ilated: % FSO age 3-wire: F Id: 0.05 %	R _{min} = 10 kΩ FSO / kΩ	e note 3):
 TD ≤ 1:5 TD > 1:5 Permissible load Influence effects Long term stability Response time 	-down	for calculatic $\leq \pm [0.1 + 0.0]$ with turn-dov e.g. with a tu $\leq \pm (0.1 + 0.0]$ current 2-wir supply: (0) $\leq \pm (0.1 \times tur)$ approx. 5 ms configuration - electronic	of accuracy ⁴ on use the folk 015 x turn-dow wn = nominal urn-down of 1: 015 x 10) % F re: $R_{max} = [(V0.05 % FSO /n-down) % FSsecn of following pdamping: 0$	by by the second secon	adjusted ran curacy is calcu acy is ≤ \pm 0.25 $^{\circ}$ 02 A] Ω volt loa	ge Ilated: % FSO age 3-wire: F Id: 0.05 %	R _{min} = 10 kΩ FSO / kΩ	e note 3):
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- TD \leq 1:5 - TD > 1:5 Permissible load Influence effects Long term stability Response time Adjustability accuracy according to IE d = xcept nominal pressure $\leq \pm (0.1 + 0.02 \times turn-dou 5 \circ software, interface, and ofThermal effects (OffsTolerance bandTC, average [%Permissible temperatuElectrical protectionShort-circuit protection$	C 60770 – limit orangeş ≤ 0.40 wn) % FSO e.g cable have to b et and Span] [% FSO] FSO / 10 K] res	for calculatic $\leq \pm [0.1 + 0.0]$ with turn-dov e.g. with a tu $\leq \pm (0.1 + 0.0]$ current 2-wir supply: (1) $\leq \pm (0.1 \times tur$ approx. 5 ms configuration - electronic - offset: 0 - turn down point adjustme bar; for these bar; for these bar; for these bar; for these turn-down of 1 e ordered sepan / Permissibl $\leq \pm (0.2 \times tur)$ in compensa $\pm (0.02 \times tur)$ in compensa medium: electronics / storage: permanent	f accuracy ⁴ on use the folk 015 x turn-dow wn = nominal urn-down of 1: 015 x 10) % F re: $R_{max} = [(V0.05 % FSO /m-down) % FSOof span: max.90 % FSOof span: max.90 % FSOof span: max.90 % FSOof span: max.et (non-linearitycalculation of ac:3: \leq \pm (0.1 + 0.cated (non-linearity)calculation of acated rangen-down)ated rangeenvironment:$	by wing formula (vn] % FSO pressure range 10 following ac SO i.e. accura $s - V_s min$) / 0. 10 V SO / year barameters pos 100 sec 1:10 (, hysteresis, repective () 2x 3) % FSO i appropriate for V res -20 80 °C -25 125 °C -25 85 °C -40 100 °C	e / adjusted ran couracy is calcu- acy is $\leq \pm 0.25$ (02 A] Ω volt- loa sible (interface eatability) ws: e. accuracy is $\leq \pm$ Vindows [®] 95, 98, C C	ge Ilated: % FSO age 3-wire: F Id: 0.05 % 2 / software ne	$R_{min} = 10 \text{ k}\Omega$ FSO / k Ω ccessary ⁵):	
- TD \leq 1:5 - TD > 1:5 Permissible load Influence effects Long term stability Response time Adjustability accuracy according to IE $\leq \pm (0.1 + 0.02 \times turn-doi software, interface, and of Thermal effects (Offs Tolerance band TC, average [% Permissible temperatu Electrical protection Short-circuit protection Reverse polarity protect$	C 60770 – limit orangeş ≤ 0.40 wn) % FSO e.g cable have to b et and Span] [% FSO] FSO / 10 K] res	for calculatic $\leq \pm [0.1 + 0.0]$ with turn-dov e.g. with a tu $\leq \pm (0.1 + 0.0]$ current 2-wir supply: (1) $\leq \pm (0.1 \times tur$ approx. 5 ms configuration - electronic - offset: 0 - turn down point adjustme bar; for these bar; for these bar; for these bar; for these turn-down of 1 e ordered sepan / Permissibl $\leq \pm (0.2 \times tur)$ in compensa $\pm (0.02 \times tur)$ in compensa medium: electronics / storage: permanent	f accuracy ⁴ on use the folk 015 x turn-dow wn = nominal urn-down of 1: 015 x 10) % F re: $R_{max} = [(V0.05 % FSO /m-down) % FSOof span: max.90 % FSOof span: max.90 % FSOof span: max.90 % FSOof span: max.et (non-linearitycalculation of action 4.0.cately (softwarethe temperaturem-down)ated range$	by wing formula (vn] % FSO pressure range 10 following ac SO i.e. accura $s - V_s min$) / 0. 10 V SO / year barameters pos 100 sec 1:10 (, hysteresis, repective () 2x 3) % FSO i appropriate for V res -20 80 °C -25 125 °C -25 85 °C -40 100 °C	e / adjusted ran couracy is calcu- acy is $\leq \pm 0.25$ (02 A] Ω volt- loa sible (interface eatability) ws: e. accuracy is $\leq \pm$ Vindows [®] 95, 98, C C	ge Ilated: % FSO age 3-wire: F Id: 0.05 % 2 / software ne	$R_{min} = 10 \text{ k}\Omega$ FSO / k Ω ccessary ⁵):	
- TD \leq 1:5 - TD > 1:5 Permissible load Influence effects Long term stability Response time Adjustability ³ accuracy according to IE ⁴ except nominal pressure $\leq \pm (0.1 + 0.02 \times turn-doi 5 software, interface, and of Thermal effects (Offs Tolerance band$	C 60770 – limit orangeş ≤ 0.40 wn) % FSO e.g cable have to b et and Span] [% FSO] FSO / 10 K] res	for calculatic $\leq \pm [0.1 + 0.0]$ with turn-dov e.g. with a tu $\leq \pm (0.1 + 0.0]$ current 2-wirr supply: (0) $\leq \pm (0.1 \times tur)$ approx. 5 ms configuration - electronic (1) - offset: 0 - turn down point adjustme bar; for these of turn-down of 1 e ordered sepan / Permissibl $\leq \pm (0.2 \times tur)$ in compensa $\pm (0.02 \times tur)$ in compensa $\pm (0.02 \times tur)$ in compensa medium: electronics / storage: permanent no damage,	of accuracy ⁴ on use the folk 015 x turn-dow wn = nominal urn-down of 1: 015 x 10) % F re: $R_{max} = [(V0.05 % FSO /m-down) % FSOof span: max.of following pdamping: 090 % FSOof span: max.of water of acc1:3: \leq \pm (0.1 + 0.rately (softwarele temperaturrn-down)ated rangen-down)ated rangeenvironment:$	by wing formula (vn] % FSO pressure range 10 following ac SO i.e. accura $s - V_s min$) / 0. 10 V SO / year barameters pos 100 sec 1:10 (, hysteresis, repective () 2x 3) % FSO i appropriate for V res -20 80 °C -25 125 °C -25 85 °C -40 100 °C	e / adjusted ran couracy is calcu- acy is $\leq \pm 0.25^{\circ}$ $02 \text{ A}] \Omega$ volt loa sible (interface eatability) ws: e. accuracy is $\leq \pm$ Vindows [®] 95, 98, C C C C	ge Ilated: % FSO age 3-wire: F Id: 0.05 % 2 / software ne	$R_{min} = 10 \text{ k}\Omega$ FSO / k Ω ccessary ⁵):	

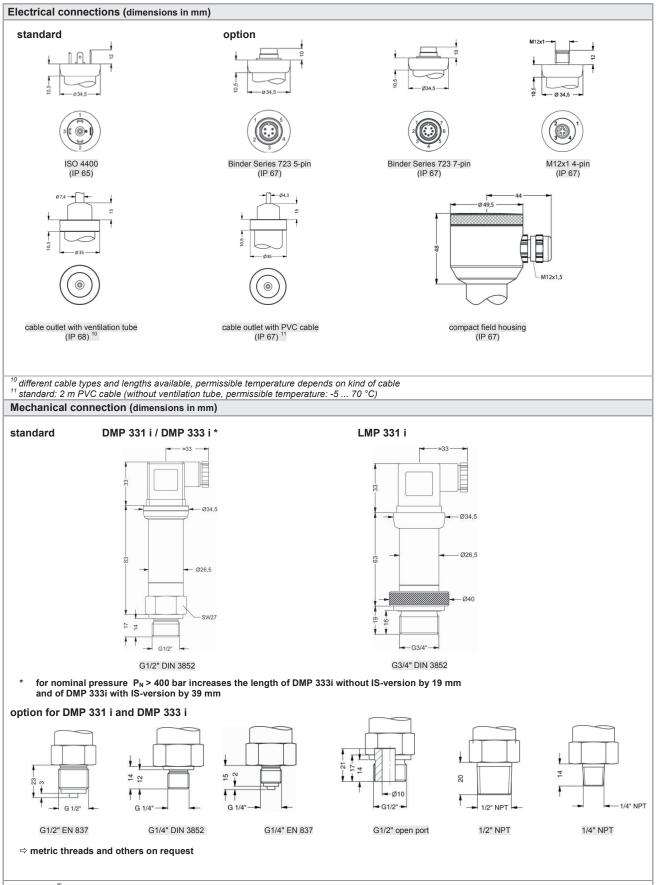
Materials	
Pressure port	stainless steel 1.4404 (316 L)
Housing	stainless steel 1.4404 (316 L)
Seals	DMP 331i / LMP 331i: FKM DMP 333i: NBR
	optional: welded version ⁶
Diaphragm	stainless steel 1.4435 (316L)
Media wetted parts	pressure port, seals, diaphragm
	s according to EN 837; welded version not available with pressure ranges \leq 0.16 bar and > 40 bar
Mechanical stability	
Vibration	10 g RMS (20 2000 Hz)
Shock	100 g / 11 msec.
Explosion protection (only for 4	
Approvals DX19-DMP 331i	IBEXU 10 ATEX 1068 X / IECEX IBE 12.0027X
DX19-DMP 333i	zone 0: II 1G Ex ia IIC T4 Ga
DX19-LMP 331i	zone 20: II 1D Ex ia IIIC T 85°C Da
	$U_i = 28 \text{ V}, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C_i \approx 0 \text{ nF}, L_i \approx 0 \mu\text{H},$
Safety technical max. 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: -20 65 °C
Connecting cables	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m
(by factory)	cable inductance:signal line/shield also signal line/signal line: 1µH/m
Miscellaneous	
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA
Weight	approx. 200 g
Installation position	any ⁷
Operational life	> 100 x 10 ⁶ pressure cycles
CE-conformity	EMC Directive: 2004/108/EC Pressure Equipment Directive: 97/23/EC (module A) ⁸
ATEX Directive	94/4/EG
deviations in the zero point for pressure	a vertical position with the pressure connection down. If this position is changed on installation there can be slight e ranges $P_N \le 1$ bar. with maximum permissible overpressure > 200 bar
Wiring diagrams	
2-wire-system (current)	3-wire-system (voltage)
	+
Pin configuration	

Electrical connections	s	ISO 4400	Binder 723 (5-pin)	Binder 723 (7-pin)	M12x1/ metal (4-pin)	field housing	cable colours (DIN 47100)
	Supply +	1	3	3	3	IN +	wh (white)
	Supply –	2	4	1	1	IN –	bn (brown)
Signal + (on	ly for 3-wire)	3	1	6	-	OUT +	gn (green)
	shield	ground pin	5	2	4		ye/gn (yellow / green)
Communication	RxD	-	-	4	-	-	-
interface ⁹	TxD	-	-	5	-	-	-
	GND	-	-	7	-	-	-
⁹ may not be transmitted	I directly with the	PC (the suitable a	danter is available as	s accessory)			

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

DMP 331i / DMP 333i / LMP 331i

Technical Data



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DMP 331i/ DMP 33	33i/ LMP 331i	П		-			<u></u> .	- 🗌	-]-[-]-[
Pressure																		
For DMP 331i																		
	gauge		1 0															
For DMP 333i	absolute	1	1 1															
FOI DWP 3331	gauge 1	1	3 0															
	absolute	1	3 1															
For LMP 331i																		
	in bar	4	3 0 3 1															
	in mH ₂ O	4	3 1	_		_	_	_										
Input	[mH ₂ O] [bar]																	
For DMP 3311 ² or LMP 3311	4 0.40			4 0	0	0												
	10 1.0			1 0	0	1												
	20 2.0					1												
	40 4.0			4 0	0 (1												
	100 10			1 0	0 0	2												
	200 20			2 0	0 0	2	_											
?	400 40			4 0	0 0	2												
For DMP 333i ²	60			6 0	0 0	2												
	100			1 0														
	200			2 0	0	3 3												
	400			4 0	0 (3												
	600			6 0	0 0	3												
For DMP 331i	0.40	2				0												
	-0.40 0.40	J		S 4	0	0												
	-1 1 -1 2			S 1 V 2		2												
	-1 2			V 4	0	2												
	-1 10			V 1	0	3												
	customer			9 9	9	9												consult
Output																		
	4 20 mA / 2-wire						1											
Intrinsic safe	ty 4 20 mA / 2-wire						E											
	0 10 V / 3-wire customer						3 9											consult
Accuracy (at nominal pressu							5											Consult
	0.1 %	_	_	_	_	_	_	1	_					_				
	customer							9										consult
Electrical connection																		
	female plug ISO 4400								1	0 0								
	der series 723 (5-pin)									0 0								
	Compact field housing ss steel 1.4404 (316L)								8	5 0								
	Male and female plug																	
	der series 723 (7-pin)								A	0 0								
	M12x1 (4-pin) / metal									1 0								
Cable	outlet with PVC cable ³								Т	A 0								
	Cable outlet 4								Т	R 0								
Mochanical connection	customer								9	99								consult
Mechanical connection For DMP 331i or DMP 333i																		
	G1/2" DIN 3852											1 0	0					
	G1/2" EN 837											2 0	0					
	G1/4" DIN 3852											3 0	0					
	G1/4" EN 837											4 0	0					
	G1/2" DIN 3852 with 5,	6										F 0	0					
C1/2" DIN 201	flush sensor 52 open pressure port ⁶											H 0 N 0 N 4						
G 1/2 DIN 30	1/2" NPT											NIO						
	1/4" NPT											N 4	0					
For LMP 331i																		
	852 with flush sensor											K 0 9 9	0					
	customer											99	9					consult
Seals																		
For DMP 331i or LMP 331i																		
	FKM hout (welded version) ⁷													1				
For DMP 333i														2				
	NBR													5				
	customer													9				consult
														5				
Special version																		
Special version	standard														1	1	1	
Special version															1	1 2 9	1	consult

¹ measurement starts with ambient pressure

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

³ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C), optionally cable with ventilation tube ⁴ cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, price without cable

⁵ Mechanical connection G1/2" DIN 3852 flush impossible for vacuum ranges ⁶ only possible for DMP 331i

 7 welded version only with pressure ports according to EN 837; not possible with pressure ranges \leq 0.16 bar and > 40 bar

⁸ RS-232 Interface only possible with el. connection Binder serie 723 (7pin) Software, Interface and cable for DMP 331i, DMP 333i and LMP 331i with option RS-232 have to be order separately

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

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34

INDUSTRIAL PRESSURE TRANSMITTER



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
- ► SIL 2 application according to IEC 61508 / IEC 61511
- 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 gases, pressurized air 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



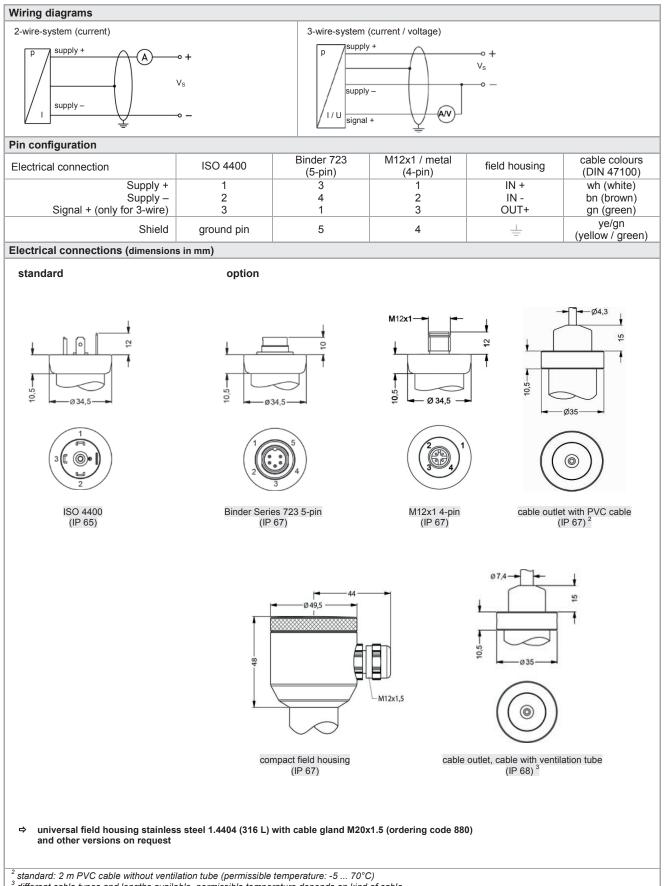
Plant and Machine Engineering

Heating and Air Conditioning

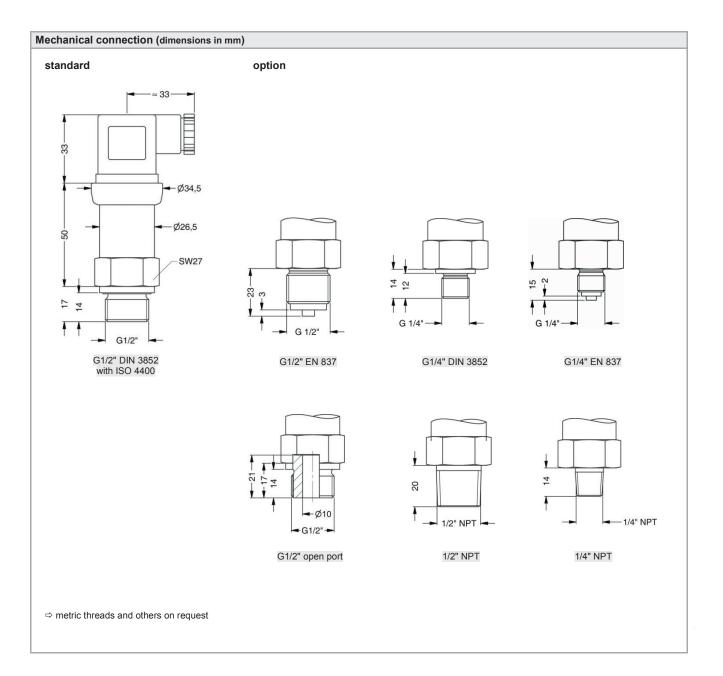


36

Input pressure range												
Nominal pressure gauge	[mbar]	-1000 0 10	16	25	40	60	100	160	250	400	600	1000
Overpressure	[har]	3 0.2		0.2	0.5	0.5	100	2	3	3	3	3
Burst pressure	[bar]	5 0.2		0.2	0.5	0.5	1.5	3	5	5	5	5
	[bai]	5 0	0.5	0.5	0.75	0.75	1.5	5	5		5	5
Output signal / Supply												
Standard		2-wire: 4 20	mA / V	/ _s = 8	32 V _{DC}							
Option IS-protection		2-wire: 4 20										
Options 3-wire		3-wire: 0 20		-								
		0 10		/ _s = 14								
Performance												
Accuracy ¹		standard: nominal pressure	≤ 100 mb		± 0.35 % ± 0.50 %							
Permissible load		current 3-wire:	Irrent 3-wire: $R_{max} = 500 \Omega$ Itage 3-wire: $R_{min} = 10 k\Omega$									
Influence effects		supply:										
Response time		2-wire: ≤ 10 mse 3-wire: ≤ 3 msee	wire: ≤ 3 msec									
¹ accuracy according to IEC 607	770 — limi	t point adjustment (no	on-linearity,	hysteresis	, repeata	ability)						
Thermal effects (Offset an												
Nominal pressure P _N	[mbar]	-1000 0		≤	100		4	≤ 400			> 400	
Tolerance band [9	% FSO]	≤±0.75		≤ :	± 1.5		:	≤±1		:	≤±0.75	
in compensated range	[°C]	-20 85		0.	50		0	70		-	20 85	5
Permissible temperatures						i						
Permissible temperatures		medium: electronics / envir storage:	onment:	-40	125 °C 85 °C 100 °C							
Electrical protection												
Short-circuit protection		permanent										
Reverse polarity protection		no damage, but a	lso no fun	ction								
Electromagnetic compatibility		emission and imn	nunity acc	ording to	EN 613	26						
Mechanical stability												
Vibration		10 g RMS (25	2000 Hz)	acco	ording to	DIN EN	60068-2	2-6				
Shock		500 g / 1 msec		acco	ording to	DIN EN	60068-2	2-27				
Materials												
Pressure port		stainless steel 1.4	404 (316	L)								
Housing		stainless steel 1.4		,								
Seals (media wetted)		FKM										
Sensor		stainless steel 1.4	404 (316	L), silicor	, ероху	or RTV,	mineral	glass				
Media wetted parts		pressure port, se	als, senso	r								
Explosion protection (only	y for 4.	20 mA / 2-wire)										
Approvals DX19-DMP 343			1 068 X / Ex ia IIC T D Ex ia III0	4 Ga)027X						
Safety technical maximum	alues	$U_i = 28 V, I_i = 93$ the supply conne						opposit	e the ho	ousing		
Permissible temperatures for environment	or	in zone 0: in zone 1 or highe		60 °C 70 °C	with p _{atr}	m 0.8 bai	r up to 1	.1 bar				
Connecting cables		cable capacitance		line/shie								
(by factory)		cable inductance	signal	line/shie	ld also s	signal lin	e/signal	line: 1 µ	H/m			
Miscellaneous												
Option SIL 2 application		according to IEC										
Current consumption				ax. 25 mA								
Current consumption		signal output curr signal output volt		ax. 25 m/ ax. 7 mA	N							
Weight					<u> </u>							
•		signal output volta			· · · · · · · · · · · · · · · · · · ·							
Weight		signal output volta approx. 140 g	age: ma	ax. 7 mA								



38



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DMP 343 Ordering Code

DMP 343	Щ-Ц			-	□-	Щ]-[]	-[]		
Pressure										
Input [mbar]	1 0 0									
10	0	1 0 0								
16	0	1 6 0								
25	0	2 5 0								
40		4 0 0								
60 100		6 0 0 0 0 0								
160		6 0 0								
250		5 0 0								
400		0 0 0								
600		0 0 0								
1000	1	0 0 1								
-1000 0	X	1 0 2 9 9 9								
Output	9	9 9 9		_		_				consult
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							
customer			9							consult
Accuracy										
standard for $P_N > 100$ mbar0.35 %standard for $P_N \le 100$ mbar0.5 %			3 5							
Electrical connection			5							
Male and female plug ISO 4400				1 0	0					
Male plug Binder series 723 (5-pin)				2 0						
Cable outlet with PVC cable ¹				TA	0					
Cable outlet ²				TR						
Male plug M12x1 (4-pin) / metal				M 1	0					
Compact field housing stainless steel 1.4305				85	0					
customer				99	9					consult
Mechanical connection				0 0						
G1/2" DIN 3852						1 0	0			
G1/2" EN 837							0			
G1/4" DIN 3852						3 0	0			
G1/4" EN 837							0			
G1/2" DIN 3852 open pressure port 1/2" NPT							0			
1/2 NPT 1/4" NPT							0			
customer ³						9 9	9			consult
Seals										
FKM							1			
customer			_	_	_		9			consult
Special version standard								0	0 0	
customer								9	99	consult
								-	- 10	

¹ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C), optionally cable with ventilation tube

 2 cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, price without cable

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



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 ... 40 bar

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
- pressure sensor welded
- 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

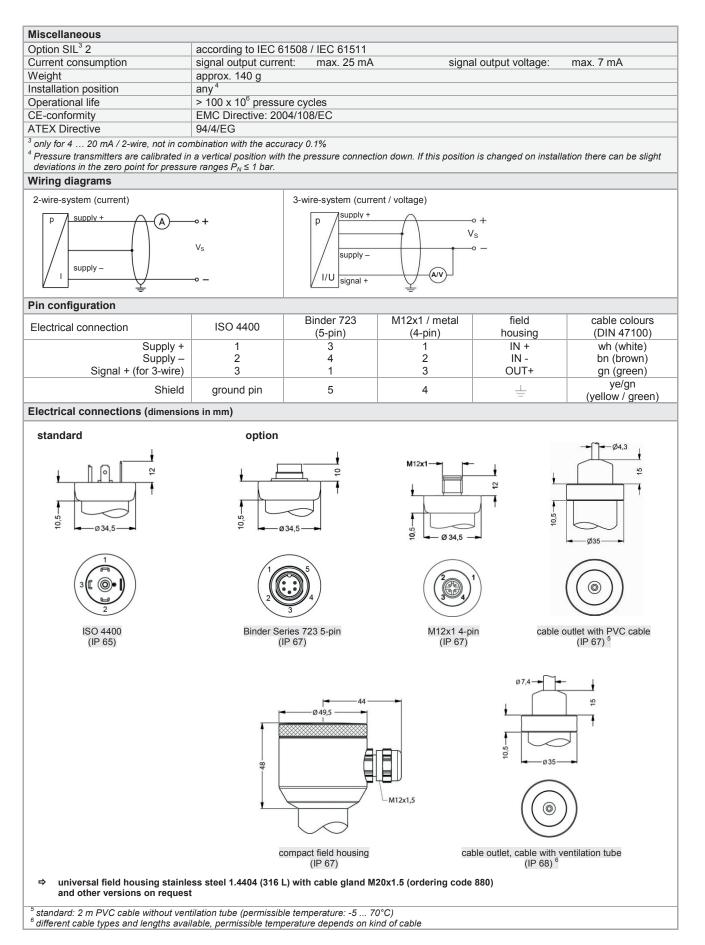
Environmental Engineering (water - sewage - recycling)



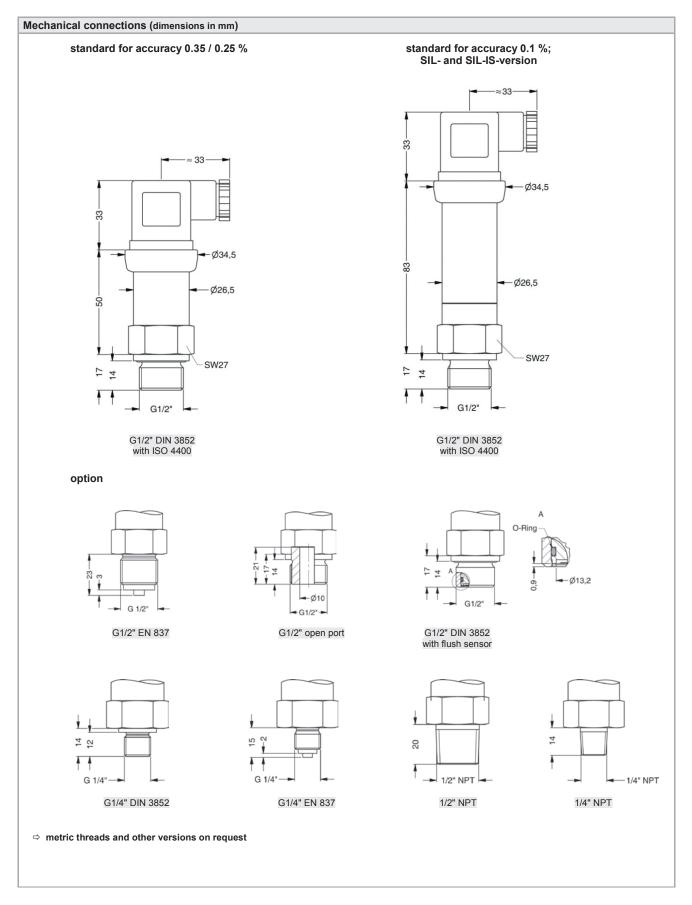
Energy Industry



Input pressure range								
Nominal pressure [bar]	-10	0.10	0.16	0.25	0.40	0.60	1	1.6
0 0		0.5	1	4	0			10
Overpressure [bar]		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	2.5	4	6	10	16	25	40	
gauge / abs. [bar]	2.5	4	0	10	16	25	40	
Overpressure [bar]	10	20	40	40	80	80	105	
Burst pressure ≥ [bar]	15	25	50	50	120	120	210	
Vacuum resistance	P _N ≥ 1 bar: u P _N < 1 bar: o		uum resistan	се		1		
Output signal / Supply								
Standard	2-wire 4	20 mA /	V _s = 8	32 Vpc				
Option IS-protection	2-wire: 4							
Options 3-wire	3-wire: 0							
Options 3-wire		20 MA / 10 V /	V _S = 14 V _S = 14					
Performance								
Accuracy ¹	standard:	nominal pre	ssure < 0.4 b	ar: ≤±0.	5 % FSO			
	option 1:	nominal pre	ssure ≥ 0.4 b ssure ≥ 0.4 b al pressure:	ar: ≤±0.	35 % FSO 25 % FSO 1 % FSO			
Permissible load					1 /0130			
	current 2-wil current 3-wil voltage 3-wi	re: R _{max} = 5		/ 0.02 AJ 12				
Influence effects	supply: 0.05					load: 0.05 %	ESO / ko	
			reference cor	ditiona		10au. 0.05 /	51 30 / KS2	
Long term stability			reference con	lations		0		
Response time	2-wire: ≤ 10					3-wire: ≤ 3 n	isec	
¹ accuracy according to IEC 60770 – lin	nit point adjustm	ent (non-linea	rity, hysteresis	, 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	5
Permissible temperatures								
Permissible temperatures	medium: electronics / storage:	environmen	-40 12 t: -40 8 -40 10	5 °C				
Electrical protection	g							
Short-circuit protection	permanent							
Reverse polarity protection	no damage,	but also no t	function					
Electromagnetic compatibility	<u> </u>		according to E	N 61326				
	Cimosion an	a minina inty c		11 01020				
Mechanical stability								
Vibration	10 g RMS (2	25 2000 H	z) according	to DIN EN 6	0068-2-6			
Shock	500 g / 1 ms	ec	according	to DIN EN 6	0068-2-27			
Materials								
Pressure port	stainless ste	el 1.4404 (3	16 L)					
Housing	stainless ste		,					
Option compact field housing			03), cable gla	and brass nic	kel plated	othe	ers on reques	st
Seals (media wetted)	standard: F options: E				on request		510 01110400	
Diaphragm	stainless ste	el 1.4435 (3	16 L)					
Media wetted parts	pressure po		phragm					
² welded version only with pressure por	ts according to	EN 837						
Explosion protection (only for 4	20 mA / 2	wire)						
Approvals DX19-DMP 331	IBExU 10 A	TEX 1068 X I 1G Ex ia II0	/ IECEx IE C T4 Ga C T 85°C Da	BE 12.0027X				
Safety technical maximum values	U _i = 28 V, I _i	= 93 mA, P _i : onnections h	= 660 mW, C nave an inner	capacity of n	nax. 27 nF to			
Permissible temperatures for environment	in zone 0: in zone 1 or	-20 higher: -20) 60 °C witl) 70 °C	n p _{atm} 0.8 bar	up to 1.1 ba	r		
Connecting cables (by factory)	cable capac	the second secon	nal line/shield					



DMP 331 Technical Data



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DMP 331]-[]-[]			□-□		
Pressure	1 1 0						
gauge absolute	1 1 0 1 1 1						
Input [bar] 0.10	1 0 0 0	2					
0.16	1 6 0 0	C					
0.25	2 5 0 0 4 0 0 0						
0.60	6 0 0 0	0					
1.0	1 0 0	1					
1.6 2.5		1					
4.0	4 0 0	1					
6.0 10	6 0 0 ⁻ 1 0 0 2	2					
16	1 6 0 2 2 5 0 2	2					
25	2 5 0 2	2					
40 -1 0	4 0 0 2 X 1 0 2	2					
customer	1 0 0 1 1 6 0 1 2 5 0 1 4 0 0 1 X 1 0 1 9 9 9 9	9					consult
Output 4 20 mA / 2-wire		1					
0 20 mA / 3-wire		2					
0 10 V / 3-wire		3 E					
Intrinsic safety 4 20 mA / 2-wire SIL2 4 20 mA / 2-wire		L 1S					
SIL2 with intrinsic safety		ES					
4 20 mA / 2-wire customer		9					consult
Accuracy							Contract
standard for $P_N \ge 0.4$ bar0.35 %standard for $P_N < 0.4$ bar0.5 %		3 5					
standard for $P_N < 0.4$ bar 0.5% option 1 for $P_N \ge 0.4$ bar 0.25%		2					
option 2 0.1 % 1		1					
Electrical connection		9					consult
Male and female plug ISO 4400			1 0 0 2 0 0				
Male plug Binder series 723 (5-pin) Cable outlet with PVC cable ²			2 0 0 T A 0				
Cable outlet with P vC cable - Cable outlet 3			T R 0				
Male plug M12x1 (4-pin) / metal			M 1 0				
Compact field housing stainless steel 1.4305			8 5 0				
customer			999				consult
Mechanical connection G1/2" DIN 3852	_			1 0 0			
G1/2" EN 837				2 0 0			
G1/4" DIN 3852 G1/4" EN 837				3 0 0			
G1/4" EN 857 G1/2" DIN 3852				400			
with flush sensor				F 0 0			
G1/2" DIN 3852 open pressure port 1/2" NPT				H 0 0 N 0 0			
1/4" NPT				N 4 0 9 9 9			
Customer				999			consult
FKM					1		
EPDM					3		
NBR without (welded version) ⁴					5 2		
customer					9		consult
Special version standard					0		
customer					9	0 0 9 9	consult
					1		

¹ not in combination with SIL

² standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C), others on request
 ³ cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, price without cable

 $^{\rm 4}\,$ welded version only with pressure ports according to EN 837



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 ... 60 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

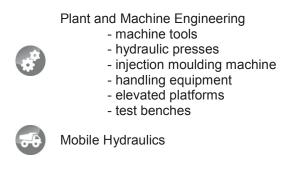
Optional versions

- 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.

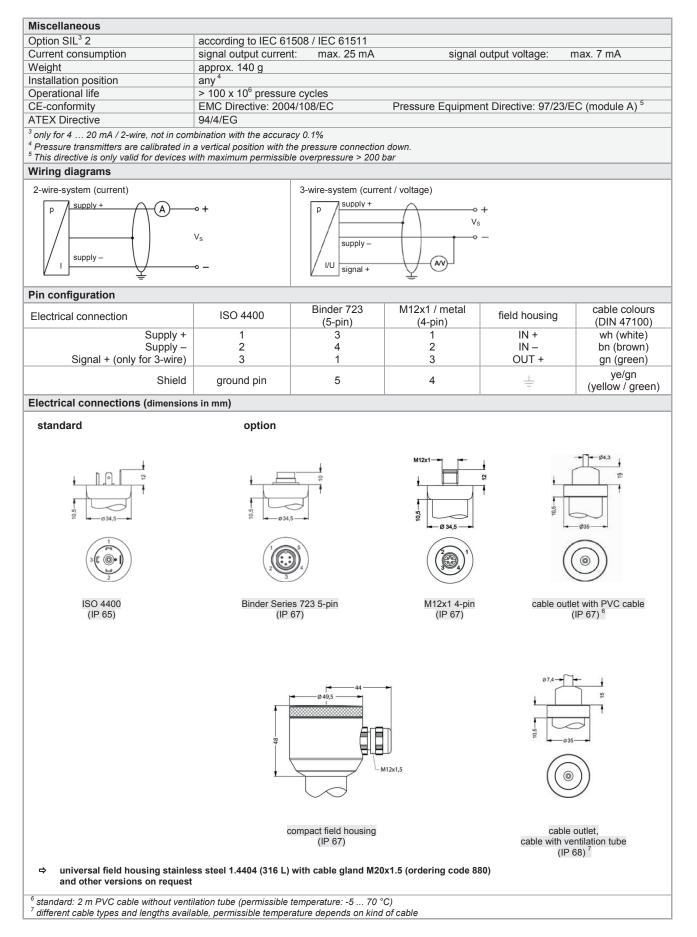
Preferred areas of use are



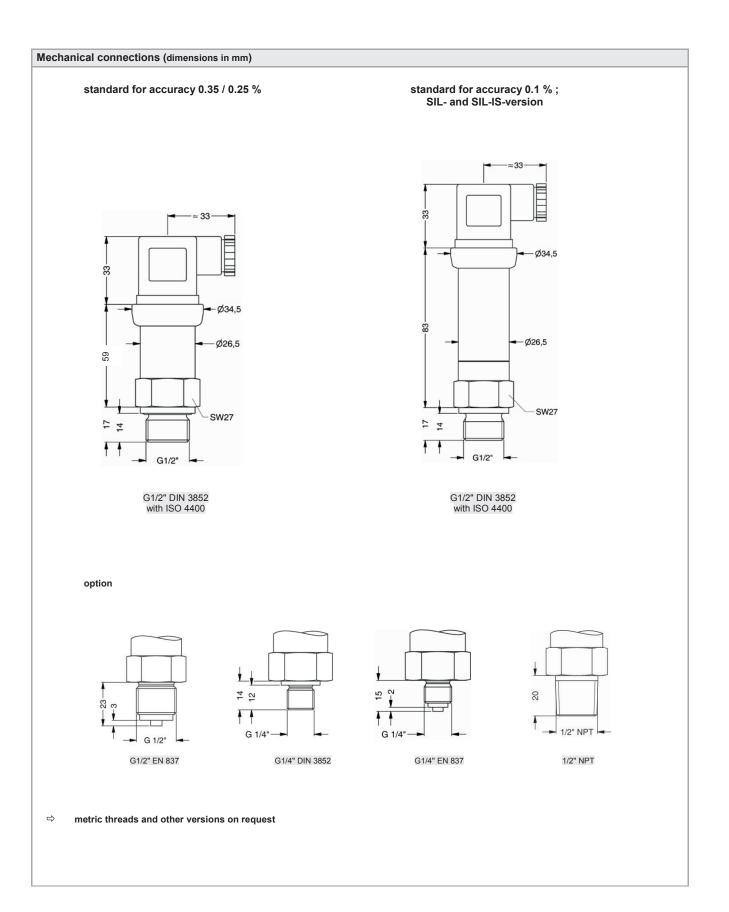


46 DMP 333 Technical Data

Input pressure range						
Nominal pressure						
gauge ¹ / abs.	bar] 60	100	160	250	400	600
	bar] 210	600	600	1000	1000	1000
· · · ·	bar] 420	1000	1000	1250	1250	1250
¹ measurement starts with ambient	pressure					
Output signal / Supply						
Output signal / Supply Standard	Q	20	0 22.1/			
Option IS-protection		$20 \text{ mA} / \text{V}_{\text{S}} =$ $20 \text{ mA} / \text{V}_{\text{S}} =$				
Options 3-wire		$20 \text{ mA} / \text{V}_{\text{S}} =$ 20 mA / V _S =				
Options 3-wire		$10 V$ / $V_s =$				
Performance						
Accuracy ²		0.35 % FSO 0.25 % FSO 0.1 % FSO				
Permissible load	current 2-wire:		- V _s min) / 0.02 A]	Ω		
	current 3-wire: voltage 3-wire:	R _{max} = 500 Ω R _{min} = 10 kΩ				
Influence effects	supply: 0.05 % load: 0.05 %					
Long term stability		year at reference	ce conditions			
Response time	2-wire: ≤ 10 ms	ec				
² accuracy according to IEC 60770	3-wire: ≤ 3 ms - limit point adjustment		eresis, repeatability)			
Thermal effects (Offset and S	Span)					
Tolerance band	≤ ± 0.75 % FSC	I				
in compensated range	0 70 °C					
Permissible temperatures						
Permissible temperatures	medium: electronics / env storage:	rironment: -40	125 °C 85 °C 100 °C			
Electrical protection						
Short-circuit protection	permanent					
Reverse polarity protection		also no function				
Electromagnetic compatibility		munity accordin				
Mechanical stability	'	· · ·	-			
Vibration	10 a RMS (25 .	. 2000 Hz) acco	ording to DIN EN 6	60068-2-6		
Shock	100 g / 11 msec		ording to DIN EN 6			
Materials						
Pressure port	stainless steel 1	.4404 (316 L)				
Housing	stainless steel 1					
Option compact field housing			ole gland brass, ni	ckel plated	others on	request
Seals (media wetted)	NBF	M (for $P_N \le 160$	bar)			
Diaphragm	stainless steel 1	.4435 (316 L)				
Media wetted parts	pressure port, s	eals, diaphragm				
Explosion protection (only for						
Approvals DX19-DMP 333	zone 0: II 10	X 1068 X / IEC S Ex ia IIC T4 Ga D Ex ia IIIC T 85°				
Safety technical maximum valu			mW, $C_i \approx 0$ nF, L_i inner capacity of r		housing	
Permissible temperatures for environment	in zone 0: in zone 1 or hig	-20 60 °	°C with p _{atm} 0.8 ba		5	
Connecting cables (by factory)	cable capacitan	ce: signal line/	shield also signal			
	cable inductanc	e: signal line/	shield also signal	line/signal line: 1	uH/m	



DMP 333 Technical Data



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DMP 333 Ordering Code

DMP 3	333	Щ	-[]		-		-	-			-]-		Ц]
Pressure	1																
	gauge ¹ absolute	1 3 0 1 3 1															
Input	[bar]	. • .															
	60		6	0 0	2												
	100 160		1	0 0 6 0 5 0 0 0 0 0 9 9	3 3 3 3												
	250		2	5 0	3												
	400		4	0 0	3												
	600		6	0 0 9 9	3												
	customer		9	99	9												consult
Output																	
	1 20 mA / 2-wire 0 20 mA / 3-wire					1											
(0 10 V / 3-wire					2											
Intrinsic safety 4	1 20 mA / 2-wire					3 E											
	1 20 mA / 2-wire					1S											
	vith Intrinsic safety					ES											
4	1 20 mA / 2-wire					-											
A	customer		_	_	_	9	_	_			_						consult
Accuracy standard	0.35 %						3										
option 1	0.35 %						2										
option 2	0.10 % 2						1										
	customer						9										consult
Electrical connection																	
	nale plug ISO 4400							1		0							
Male plug Binder	tlet with PVC cable ³							2 T	0	0							
Cable ou	Cable outlet ⁴							T	A R	0							
Male plug M1	2x1 (4-pin) / metal							M		0							
	npact field housing																
	inless steel 1.4305							8									
	customer							9	9	9							consult
Mechanical connectio																	
	G1/2" DIN 3852 G1/2" EN 837										1		0				
	G1/4" DIN 3852										2 3	0	0				
	G1/4" EN 837										4	0	0				
	1/2" NPT										N	0	0				
	customer										9	9	9				consult
Seals																	
	FKM													1			
	EPDM ⁵ NBR													3			
	customer													5 9			consult
Special version	Gustomer							_						3			Consult
	standard														0 0		1
	customer														9 9		consult
															·	Ċ	

¹ measurement starts with ambient pressure

² not in combination with SIL

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

⁴ cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, permissible temperature depends on kind of cable, price without cable

 $^{\rm 5}$ possible for nominal pressure ranges $\rm P_{\rm N} \leq 160$ bar

⁵⁰ INDUSTRIAL PRESSURE TRANSMITTER



DMP 339

Industrial Pressure Transmitter

Stainless Steel Sensor

accuracy according to IEC 60770: 0,35 % FSO

Nominal pressure

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

Output signals

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

Special characteristics

- ▶ mechanical connection: G ¼" flush
- suitable for viscous and pasty media

Optional versions

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

The DMP 339 industrial pressure transmitter features a G ¼" flush 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, as only a small dead space is created.

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

The DMP 339 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

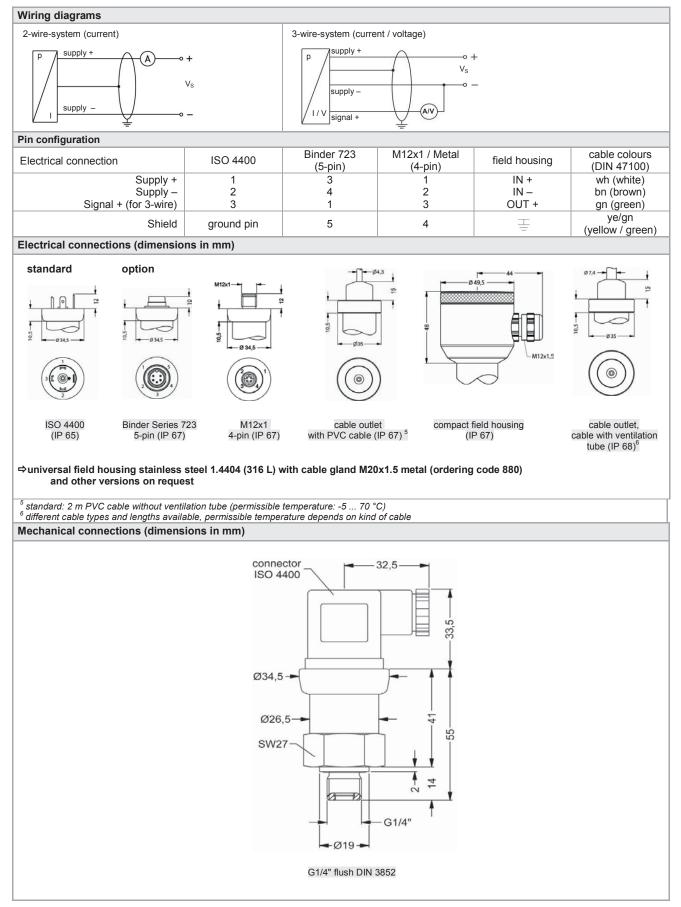




DMP 339 Technical Data

Input pressure range ¹						
Nominal pressure	[bar] 60	100	160	250	400	600
gauge / abs.		010	000	000	4050	1050
Overpressure	[bar] 210	210	600	600	1050	1050
Burst pressure ≥	[bar] 300	300	1100	1100	1500	1500
¹ Nominal pressure P _N < 60 bar o	in request					
Output signal / Supply						
Standard	2-wire: 4	20 mA / V _S =	8 32 Vpc			
Option IS-protection		20 mA / V _s =				
Options 3-wire		$ 20 \text{ mA} / \text{V}_{s} =$				
Options 5-wire		$10 \text{ V} \text{ V}_{s} = 10 \text{ V} \text{ / V}_{s} =$				
Performance						
Accuracy ²	≤ ± 0.35 % F	SO				
Permissible load	current 2-wir	e: $R_{max} = [(V_s - V_s)]$	' _s min) / 0.02 A] Ω			
	current 3-wir	e: R _{max} = 500 Ω	- , -			
Influence offecto		$re: R_{min} = 10 k\Omega$	0.1/			
Influence effects	supply: load:	0.05 % FSO / 1 0.05 % FSO / k				
Long term stability		O / year at referen				
Response time	2-wire: ≤ 10					
	3-wire: ≤ 3					
² accuracy according to IEC 6077			teresis, repeatability)			
Thermal effects (Offset and		, , , , , , , , , , , , , , , , , , , ,	, ., .,			
Tolerance band	≤ ± 1 % FSO					
in compensated range	-20 85 °C					
Permissible temperatures	20 00 0					
Permissible temperatures	medium:	40	125 °C			
ennissible temperatures		environment: -40				
	storage:		100 °C			
Electrical protection	210.090.	10				
Short-circuit protection	permanent					
Reverse polarity protection		but also no functio	n			
Electromagnetic compatibility		d immunity accordin				
Mechanical stability	criticolori and		19 10 211 0 1020			
Vibration			ording to DIN EN (60068.2.6		
Shock	100 g / 11 m		cording to DIN EN 6 cording to DIN EN 6			
Materials	100 g / 11 m			50000-2-27		
Pressure port			ERS) for G1/4" flu	ISN (DIN 3852)		
Housing Option compact field housing		el 1.4404 (316 L)	blo aland brass ni	ckol platod		
option compact neit nousing	others on rec		ble gland brass, ni	chei pialeu		
Seals	FKM	μοσι				
	others on rec	uest				
Diaphragm		el 1.4435 (316 L)				
Media wetted parts	pressure por					
Explosion protection (only						
			CEx IBE 12.0027X	,		
Approvals DX19-DMP 339		1G Ex ia IIC T4 G				
		I 1D Ex ia IIIC T 85				
Safety technical maximum va			0 mW, C _i ≈ 0 nF, L _i	≈ 0 µH. C:CND ≈ 2	7 nF	
Permissible temperatures for	c					
environment	-20 70 °C					
Connecting cables (by factor			/shield also signal			
Missellenseus	cable inducta	ince: signal line	e/shield also signal	line/signal line: 1	JH/M	
Miscellaneous	atamat	ourrort.	25 m A	olonal cutor t		7
Current consumption	signal output		25 mA	signal output	voltage: max	x. 7 mA
Weight	approx. 120	9				
Installation position	any ³					
	$> 100 \times 10^{\circ} r$	pressure cycles				
Operational life			D	 Equipment D1 		
		/e: 2004/108/EC	Pressure	e Equipment Direc	ctive: 97/23/EC ((module A) ⁺

52



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DMP 339 Ordering Code

DMP 339	<u>ш</u> .	·Щ		-[]-[-[-[-[]-[Ţ			
Pressure																	
gauge	1 3 5																
absolute	1 3 6																
Input [bar] ¹																	
60		6 0	0 2 0 3 0 3														
100		1 0	0 3														
160		1 6	0 3														
250		2 5	03														
400		2 5 4 0	0 3														
600		6 0	0 3														
customer		99	0 3 9 9													CO	nsult
Output																	
4 20 mA / 2-wire				1													
0 20 mA / 3-wire				2													
0 10 V / 3-wire				2 3													
Intrinsic safety 4 20 mA / 2-wire				E			1										
customer				9												CO	nsult
Accuracy																	
0.35 %					3												
customer					9											CO	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 ²						2 T	A	0 0									
Cable outlet ³						Т	R	0									
Male plug M12x1 (4-pin) / metal						M											
Compact field housing						8	6										
stainless steel 1.4305 (303)																	
customer						9	9	9								CO	nsult
Mechanical connection																	
G1/4" DIN 3852									F		2						
with flush sensor									г	0	2						
customer									g	9	9					CO	nsult
Seals																	
FKM												1					
customer												9				CO	nsult
Special version																	
standard													(0 0	0		
customer													9	9 9	9		nsult

 1 nominal pressure gauge $P_N < 60\,$ bar on request 2 standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C), others on request 3 cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, price without cable



DMP 335

Industrial **Pressure Transmitter**

Welded, Dry Stainless Steel Sensor

accuracy according to IEC 60770: 0.5 <u>% FSO</u>

Nominal pressure

from 0 ... 6 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 stainless steel welded pressure sensor without fluid.

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

Bevorzugte Anwendungsgebiete



Medical Technology





Plant and Machine Engineering



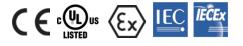
Mobile Hydraulics



Refrigeration



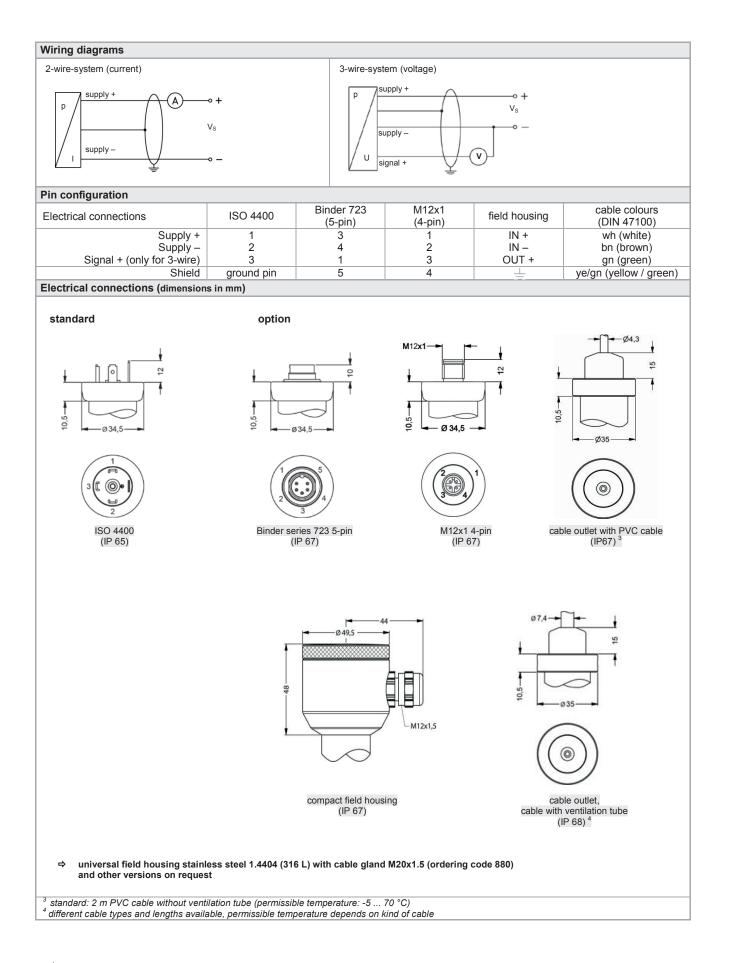
Oxygen application



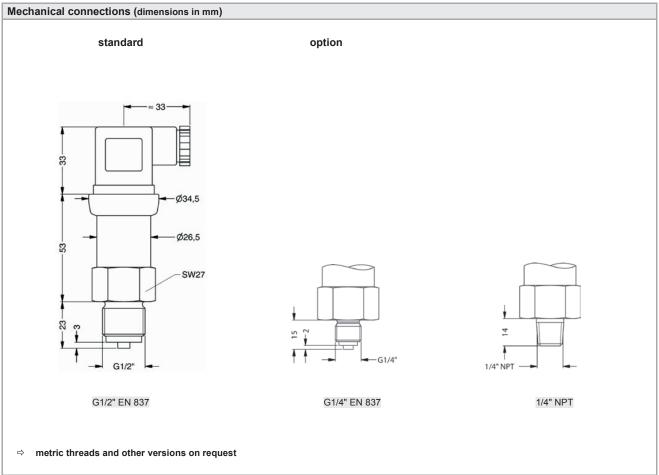
DMP 335 Technical Data

Input pressure range												
Nominal pressure gauge	[bar]	6	10	16	25	40	60	100	160	250	400	600
Overpressure	[bar]	14	35	35	70	140	140	350	350	700	1200	1200
Burst pressure ≥	[bar]	35	85	85	175	350	350	850	850	1750	2100	2100
Vacuum resistance		unlimite	d									
Output signal / Supply												
Standard		2-wire:	4 2	0 mA /	V _S = 8	32 Vpc						
Option IS-version		2-wire:			$V_{\rm S} = 0$ $V_{\rm S} = 10$							
Option 3-wire		3-wire:			$V_{\rm S} = 10$ V _S = 14							
Performance		0-0010.	01	0 0 7	VS - 14	00 000						
Accuracy ¹		≤ ± 0.5										
Permissible load					Vs – Vs min) / 0.02 A	Ω					
			3-wire:									
Influence effects			0.05 %									
		load:		FSO / kΩ								
Long term stability					eference c	onditions						
Response time		-	≤ 10 mse	2								
		3-wire:	≤ 3 msec									
¹ accuracy according to IEC 607	70 – limi	it point adju	ustment (no	on-linearity	, hysteresi	s, repeatab	ility)					
Thermal effects (Offset an	d Span)										
Thermal error		± 0.3 %	FSO / 10	K								
in compensated range		070										
Permissible temperatures			-									
Permissible temperatures		medium			40	125 °C						
Permissible temperatures			i. iics / envii	onmont.		125°C						
		storage		onnent.		100 °C						
		Storage	•		-+0.	100 0						
Electrical protection												
Short-circuit protection		perman										
Reverse polarity protection			age, but a									
Electromagnetic compatibilit	ty	emissio	n and imr	nunity ac	cording to	EN 6132	6					
Mechanical stability												
Vibration		20 g RN	AS (25	2000 Hz) acc	cording to	DIN EN (60068-2-0	6			
Shock		500 g /			/	cording to						
Materials		J				J						
Pressure port		etainles	s steel 1.4	1571 (31	6 Ti)							
Housing			s steel 1.4									
	~				/	ulavad kuaa		ام ا م ا	- 44			
Option compact field housin	g			+305 (30	3), cable g	giand bras	s, nickei	plated	Otr	ners on re	quest	
Seals (media wetted)		none (w	/	4540 (47								
Diaphragm			s steel 1.4		-4PH)							
Media wetted parts			e port, dia	aphragm								
Explosion protection (only	/ for 4 .		,									
Approvals		-			/ IECEx	IBE 12.00)27X					
DX19-DMP 335		zone 0:			C T4 Ga							
		zone 20			IC T 85°C							
Safety technical maximum v	alues				= 660 mV							
,		the sup			ive an inne				the hous	ing		
Permissible temperatures for	or	in zone			bei p _{atm} 0.	8 bar up 1	o 1.1 bar					
environment		in zone		70 °C								
Connecting cables (by facto	ry)	cable ca	apacitanc	e: sig	gnal line/sł	nield also	signal lin	e/signal l	ine: 160 p	oF/m		
		cable in	ductance	: sig	gnal line/sł	nield also	signal lin	e/signal l	ine: 1 μH/	m		
Miscellaneous												
Current consumption		signal o	utput curr	ent:	max. 25 m	A						
			utput volta		nax. 7 mA							
Weight		approx.										
Installation position		any										
Operational life			10 ⁶ press		29							
CE-conformity			rective: 2	10/1/100/	FC							
5		Drocour			t_{1}	$2/L(\cdot)/m^{2}$						
ATEX Directive		Pressur 94/4/EG		ent Direc	tive: 97/2	3/EC (mo	dule A) -					

DMP 335 Technical Data



DMP 335 Technical Data



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DMP 335		-0-0	-	D.	-		- 🗌	-Щ	П	
Pressure										
gauge	2 1 0									
Input [bar]										
6	6 0 0 1									
10	$\begin{array}{ccccccc} 1 & 0 & 0 & 2 \\ 1 & 6 & 0 & 2 \\ 2 & 5 & 0 & 2 \\ 4 & 0 & 0 & 2 \\ 6 & 0 & 0 & 2 \\ 1 & 0 & 0 & 3 \end{array}$	_								
16	1 6 0 2 2 5 0 2									
25 40	2 5 0 2 4 0 0 2	_			_					
60	6 0 0 2									
100	1 0 0 3									
160	1 6 0 3									
250	2 5 0 3									
400	2 5 0 3 4 0 0 3									
600	6 0 0 3 9 9 9 9									
customer	2 5 0 3 4 0 0 3 6 0 0 3 9 9 9 9 9									consult
Output										
4 20 mA / 2-wire		1								
0 10 V / 3-wire		3								
Intrinsic safety 4 20 mA / 2-wire		3 E 9								
customer		9								consult
Accuracy 0.5 %		-								
customer		5 9								consult
Electrical connection		9								Consult
Male and female plug ISO 4400		_	1 0	0						
Male plug Binder series 723 (5-pin)				0						
Cable outlet with PVC cable ¹			2 0 T A							
Cable outlet with cable ²			TR	0						
Male plug M12x1 (4-pin) / metal			M 1	0						
Compact field housing			8 5	0						
stainless steel 1.4305										
customer			99	9			_			consult
Mechanical connection										
G1/2" EN 837					2 0	0				
G1/4" EN 837 1/4" NPT					4 0	0	_			
customer					N 4 9 9	0				consult
Seals					9 9	9				consult
without (welded version)							2			
customer							9			consult
Special version										
standard								0 0	0	
customer								9 9	9	consult
								- 1 -	1 - 1	

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

² cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, permissible temperature depends on kind of cable; price without cable



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 tp 0 ... 2200 bar

Analogue output

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

Special characteristics

- extremly robust and excellent longterm stability
- pressure sensor welded

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, that is welded with the pressure port and meets high demands of and reliability.

All of characteristics and the excellent mesurement 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

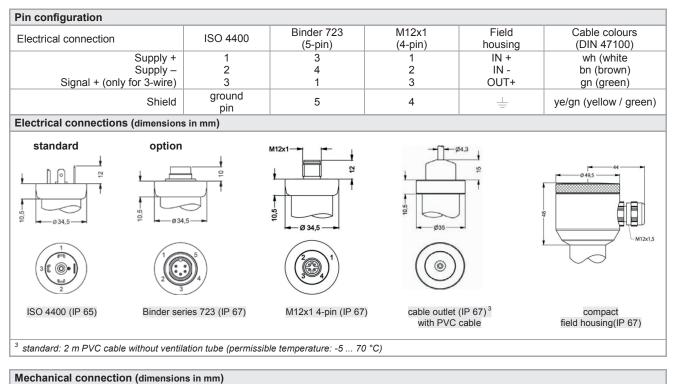


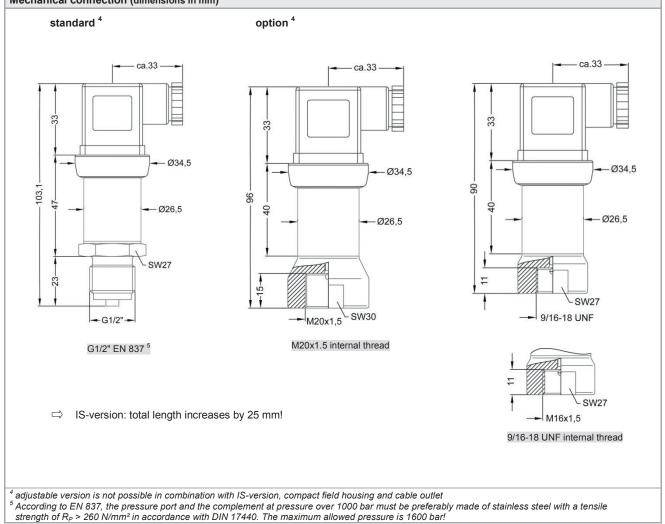
Commercial Vehicles and Mobile Hydraulics



Input pressure range							
Nominal pressure gauge	[bar]	600 ¹	1000		1600	2000	2200
Overpressure	[bar]	800	1400		2200	2800	2800
¹ only available with pressure port	G1/2" EN	837					
Output signal / Supply							
Standard	2	-wire: 4 20	mA / $V_s = 2$	2 36	V _{DC}		
Option IS-protection	2		mA / $V_s = 2$		-		
Option 3-wire		-wire: 0 10 \					
Performance	0	-wite. 010	1 1 15 -	+ 50	V DC		
	<	± 0.35 % FSO IE	C 60770 ²				
Accuracy Permissible load		1 U.35 % PSO IE	$R_{max} = [(V_s - V_s)]$	(, min)	/ 0.02 41 0		
	V	oltage 3-wire:	$R_{min} = 10 \ k\Omega$	vs mm)	7 0.02 AJ 32		
Influence effects		upply: 0.05 % FS				load: 0.05 % FSO /	kΩ
Long term stability		± 0.2 % FSO / ye	ar				
Response time		5 msec	4 in	141- 1 41		41	
Adjustability	in	fluence of charac	teristic curve a	and accu	uracy.	the nominal pressur	e range, without an
² accuracy according to IEC 6077				esis, repe	eatability)		
Thermal effects (Offset and			-				
Thermal error	≤	± 0.25 % FSO / 1			ated range -20 8		
Permissible temperatures	m	edium: -40 140	°C elec	tronics	/ environment: -25	85 °C stor	rage: -40 100 °C
Electrical protection							
Short-circuit protection	p	ermanent					
Reverse polarity protection	n	o damage, but als	so no function				
Electromagnetic compatibility	e	mission and immu	unity according	to EN	61326		
Mechanical stability							
Vibration	1	0 g RMS (20 20	000 Hz)				
Shock		00 g / 11 msec.	,				
Materials		<u> </u>					
Pressure port	s	ainless steel 1.45	42 (17-4 PH)				
Housing			inless steel 1.4	404 (3 ⁻	161.)		
						prass, nickel plated	
Seals (media wetted)	n	one (welded versi	on)				
Diaphragm	st	ainless steel 1.45	642 (17-4 PH)				
Media wetted parts	р	ressure port / diap	ohragm				
Explosion protection (only	for 4 2	20 mA / 2-wire)					
Approval DX13-DMP 334	zc		3 X EEx ia IIC T4 EEx tD A20 IP	65 T 85	°C		
Safety technical maximum va		= 28 V, I _i = 93 m/					
Permissible temperatures for		zone 0:			p_{atm} 0.8 bar up to 1	.1 bar	
environment		zone 1 or higher:					
Connecting cables	ca	ble capacitance:	signal line/sh	eld also	signal line/signal l		
(by factory)	Ca	ble inductance:si	gnal line/shiel	l also si	gnal line/signal line	e: 1µH/m	
Miscellaneous							
Current consumption		gnal output curre gnal output voltag					
Weight		pprox. 200 g					
Installation position		ny					
CE-conformity	E	MC Directive: 200	04/108/EC		Pressure Equipr	ment Directive: 97/23	B/EC (module A)
Wiring diagrams							
2-wire-system (current)				3-wire-s	ystem (current / volta	ge)	
P Supply + A Supply - E	Vs	-		P /U	Supply + Supply - Signal +		

DMP 334 Technical Data





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DMP 334		-		- 🗌	-[-[].	- 🗌].	- 🗌	-			
Pressure																
gauge	1 4 0							Т								
Input [bar]																
600 ¹		6 0	03													
1000		1 0	0 4													
1600		1 6	0 4													
2000		2 0	0 4													
2200		2 0 2 2 9 9	0 4													
customer		99	99													consult
Output																
4 20 mA / 2-wire				1												
0 10 V / 3-wire				3 E												
Intrinsic safety 4 20 mA / 2-wire				E												
customer				9												consult
Accuracy																
0.35 %					3											
customer					9				_			_				consult
Electrical connection																
Male and female plug ISO 4400						1)								
Male plug Binder series 723 (5-pin) Cable outlet with PVC cable ^{2,3}	(2 T	00)								
						M)								
Male plug M12x1 (4-pin) / metal						IV		,								
Comapct field housing stainless steel 1.4404 (316L)						8	5 0)								
customer						0										
Mechanical connection						9	99	1								consult
G1/2" EN 837 ⁴		_						-	2	0	0					
M20x1.5 internal thread									D	2	8					
9/16 UNF internal thread									V	2	0					
customer									q		9					consult
Seals									5	5	5					Consult
without (welded version)												2				
customer												2 9				consult
Special version		_				_										
standard (adjustable) ⁵													0	4	1	
only for IS version													0	0	0	
customer													9	9	0 9	consult

¹ only available with pressure port G1/2" EN 837

² different cable types and lengths deliverable

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

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!

⁵ not possible in combination with IS-version, compact field housing and cable outlet with PVC cable



DMP 304

Industrial Pressure Transmitter for Ultra High Pressure

accuracy according to IEC 60770: standard: 0.5 % FSO option: 0.25 % FSO

Nominal pressure

from 0 ... 2 000 bar up to 0 ... 6 000 bar

Output signals

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

Special characteristics

- adjustability of offset and span via front sided potentiometers
- pressure port 9/16" UNF
- 80 % calibration signal with MIL / Bendix plug

Optional versions

- IS-version:
 Ex ia = intrinsically safe for gases
- accuracy according to IEC 60770: 0.25 % FSO
- ▶ pressure port M20x1.5 and M16x1.5

The ultra-high-pressure transmitter type DMP 304 has been especially designed for applications with highest demand on precision and reliability. DMP 304 series is based on a compensated strain gauge, bonded onto a stainless steel diaphragm.

Due to the rugged stainless steel housing usage under extreme conditions and in IS-required areas is no problem.

Preferred areas of use are



hydraulic circuits



water jet torching

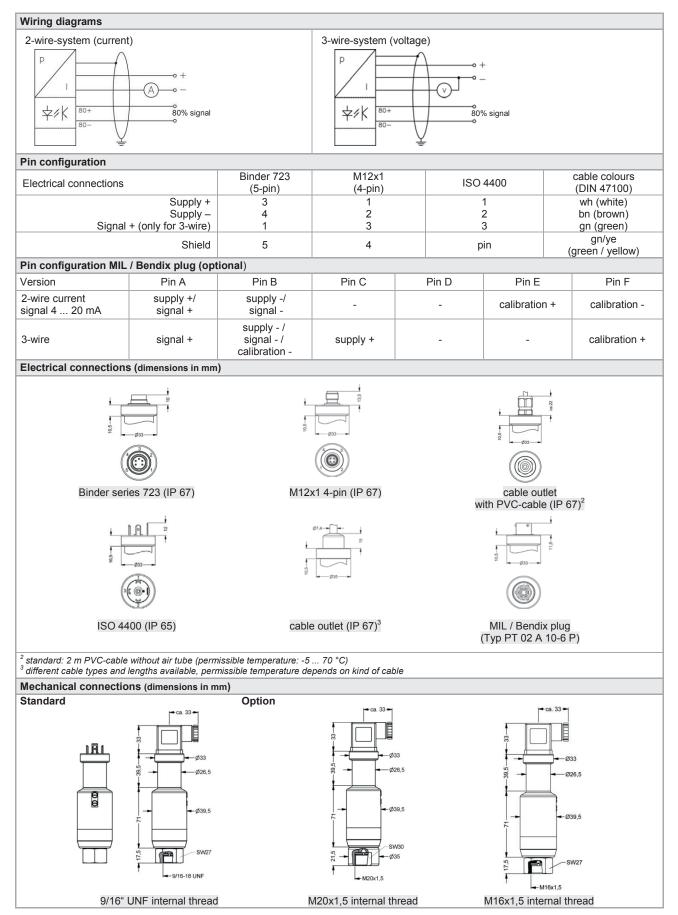


high pressure applications in chemical and petrochemical industry



Input pressure range Nominal pressure gauge	[bar]	2 000	4 000	5 000	6 000
Overpressure	[bar]	3 000	5 000	6 000	7 000
Burst pressure	[bar]	4 000	8 000	10 000	10 000
Barot procedio	[bai]	1000	0.000	10 000	10 000
Output signal / Supply					
Standard		2-wire: 4 20 mA	/ V _S = 10 30 V _{DC}		
IS-protection		2-wire: 4 20 mA	/ V _S = 10 28 V _{DC}		
Option 3-wire (on request)			/ V _S = 14 36 V _{DC}		
Performance					
Accuracy ¹		standard: ≤ ± 0.50 % F	\$0		
			SO (on request)		
Permissible load	C	current 2-wire: R _{max} =	$[(V_{\rm S} - V_{\rm S min}) / 0.02 \text{ A}] \Omega$		
	\ \	voltage 3-wire: R _{min} = 7			
Influence effects		supply 0.05 % FSO / 10 \	/		
		oad: 0.05 % FSO / kΩ			
Long term stability		± 0.2 % FSO / year			
Response time		< 2.5 msec	motor is an adjustment of	the offect peccible within t	ha rango of
Adjustability				the offset possible within t fluence of characteristic cu	
		accuracy.	source range, without all lill		
¹ accuracy according to IEC 607			y, hysteresis, repeatability)		
Calibration (only with MIL					
Calibration signal accuracy		≤ ± 0.25 % FSO			
Calibration			g. for 4 20 mA / 2-wire:	signal = 0.8*16 mA + 4 mA	A = 16.8 mA)
Thermal effects (Offset an	d Span)				
Thermal error		≤ ± 0.2 % FSO / 10 K			
		n compensated range -2	0 85 °C		
Permissible temperatures					
Permissible temperatures		medium:	-40 85 °C		
		electronics / environment	∷ -25 85 °C -40 85 °C		
Electrical protection	;	storage:	-40 05 C		
Electrical protection					
Short-circuit protection Reverse polarity protection		permanent no damage, but also no f	unction		
Electromagnetic		0			
compatibility		emission and immunity a	ccording to EN 61326		
Mechanical stability					
Vibration		10 g RMS (20 2000 Hi	z)		
Shock		100 g / 11 msec	,		
Materials		č			
Pressure port / diaphragm	:	stainless steel 1.4548 (17	7-4 PH)		
Housing		standard: stainless stee			
Seals (media wetted)		none (welded version)			
Media wetted parts		pressure port, diaphragm	1		
IS-protection (only for 4	. 20 mA / 2	2-wire)			
Approval DX17-DMP 304		zone 0: II 1G Ex ia IIC T4			
Safety technical maximum		U _i = 28 V, I _i = 93 mA, P _i =			
Permissible temperatures for			60 °C with p _{atm} 0.8 bar u	ip to 1.1 bar	
environment		zone 1 and higher: -25		signal ling/signal ling: 100	nE/m
Connecting cables (by factory)				signal line/signal line: 160 signal line/signal line: 1 µF	
Miscellaneous					
Insulation strength / resistar	nce				
moulation strength / resistal		standard: insulation st			
		S-version: insulation re	9	V _{DC} 0 V _{AC} (relative to housing)	
				a vac (relative to housing)	
2					
Current consumption		2-wire signal output curre			
		3-wire signal output volta			
Current consumption Weight Installation position					

DMP 304 Technical Data



This document contains product specifications; properties are not guaranteed. Subject to change without notice.

DMP 304	
Pressure	
	uge 2 2 0
Input [ar]
2	
4	
custo	ner 99999 consult
Output	
4 20 mA / 2-	
Intrinsic safety 4 20 mA / 2-	
0 10 V / 3-	
custo	ner 9 consult
Accuracy	
	5% 5
option 0.2	
custo	ner 9 consult
Electrical connection Male and female plug ISO 4	
Male plug Binder series 723 (5-	
Cable outlet with PVC-c	
Cable outlet with FVC-C	
Male plug M12x1 (4-pin), m	
Mile pidg M12X1 (4-pin), 1 MIL-/Bendix (Typ PT 02 A 10-	p) B G 0 consult
custo	
Mechanical connection	
9/16" UNF internal thr	ead V 0 0
M16x1.5 internal thr	
M20x1.5 internal thr	
custo	ner 9999 consult
Special version	
adjust	ble 0 4 1
custo	

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



DMK 351

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** Ex ia = intrinsically safe for gases and dusts
- 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





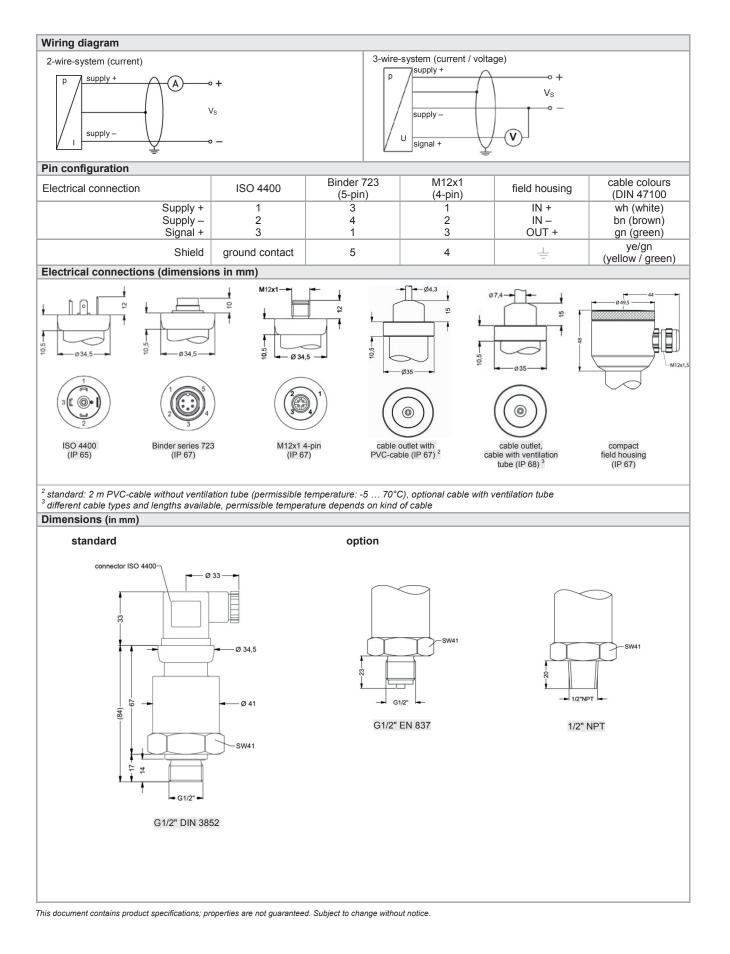
Preferred used for





Pressure ranges	orl 0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	20
	ar] 0.04	0.06	0.1	0.16		0.4	0.6	1	1.6	2.5	4	6	10	16	
•	O] 0.4 arl 2	0.6	1	1.6	2.5	4	6 8	10 8	16 15	25 25	40 25	60 35	100 35	160 45	200 45
	· .			1	6	6		0	15	25	25	<u> </u>	35	45	45
Low pressure [b	ar] -0).2	-().3		-().5					-1			
Output signal / Supply															
Standard	2-wire	ə:	4	20 m	A/Vs:	= 9 3	32 Vpc								
Option IS-protection															
option to-protection	2-wire Optio	e : n 3-wire			A / V _S = / / V _S										
Performance															
Accuracy ¹	stand optior	ard: n for P _N	≥ 0.6		$\leq \pm 0.3$ $\leq \pm 0.2$										
Permissible load	currer	nt 2-wir	e R _{max}	= [(V _s -	- V _{Smin})	/ 0.02	A] Ω	VO	Itage 3	-wire: F	$R_{min} = 1$	0 k Ω			
Influence effects		supply: 0.05 % FSO / 10 V													
Long term stability		.1 % FS													
Turn-on time	700 r		, je												
Mean measuring rate	5/sec														
Response time		respoi	nse tim	ne: < 20)0 msed	c		m	ax. res	ponse	time: 3	80 mse	ec		
¹ accuracy according to IEC 60770 -							eatabili								
Thermal errors (Offset and Sp					,,,	, i op									
Tolerance band	,	1 % FS	SO / 10	K			in com	pensat	ted ran	ae: -20		°C		_	
Permissible temperatures	0.	. ,,,,,							.su run	90. <u>2</u> 0	00	5			
Permissible temperatures		onics /	enviro	nment:	-40 .	125 ° 85 ° 100 °	°C								
Electrical protection	storaç	je.			-40.	100	0								
Short-circuit protection	norm	anont													
•		anent	hut ala	o no fu	notion										
Reverse polarity protection		mage,				to TN	61226								
Electromagnetic compatibility	emiss	sion and		mity ac	cording	IO EIN	01320								
Mechanical stability															
Vibration		RMS (20		00 Hz)			accord								
Shock	100 g	/ 1 mse	ec				accord	ing to I	DIN EN	60068	-2-27				
Materials															
Pressure port		ess ste			,										
Housing		ess ste													
Option compact field housing Seal (media wetted)	FKM EPDN	ess ste ⁄I	el 1.43	05 (303	3) with a	cable g	land br	ass, ni	ckel pla	ated	0	thers o	n requ	est	
Diaphragm	stand	ard: ce n: ce			96 % 99.9 %										
Media wetted parts	press	ure por	t, seals	s, diaph	ragm										
IS-protection (only for 4 20	mA / 2-w	vire)													
Approval DX 14-DMK 351		05 AT													
	Z	one 0: one 20:	II 10 II 1D	6 Ex ia l											
	Z	version one 0: one 20:	II 1G												
Safety technical maximum values		8 V _{DC} , I					≤ 27 nF	⁼ , L _i ≤ 5	5 μΗ						
Max. permissible temperature for environment		e 0: e 1 and	l highe		60 °C 70 °C		_{tm} 0.8 b	ar up t	o 1.1 b	ar					
Connecting cables (by factory)	capac		signal	line / s	hield al	so sigr					m				
Miscellaneous															
Installation position	any														
		l output	currer	nt: max	. 21 mA	1	signal o	output	voltage	: max.	5 mA				
Current consumption	orgina								5-						
Current consumption Weight	min. 2	200 g													
Weight	min. 2		oading	cycles											
•	min. 2	200 g x 10 ⁶ l directiv													

DMK 351 Technical Data



DMK 351		· 🛛 - 🔲 🕂
Pressure in bar, gauge	2 9 0	
in bar, absolute in bar, sealed gauge	2 9 1	consult
in mH ₂ O, gauge	2 9 2 2 9 3	
in mH ₂ O, absolute in mH ₂ O, sealed gauge	2 9 3	consult consult
Input [mH ₂ O] [bar]		
0.4 0.04 0.6 0.06		
1.0 0.10 1.6 0.16	1 0 0 0 1 6 0 0	
1.6 0.16 2.5 0.25	2 5 0 0	
4.0 0.40 6.0 0.60	4 0 0 0 0 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
10 1.0	1 0 0 1	
16 1.6 25 2.5	1 6 0 1 2 5 0 1	
25 2.5 40 4.0	4 0 0 1	
60 6.0	6 0 0 1	
100 10 160 16	1 0 0 2 1 6 0 2	
200 20	1 6 0 2 2 0 0 2 9 9 9 9	consult
Output	9 9 9 9	Consuit
4 20 mA / 2-wire 0 10 V / 3-wire		
Intrinsic safety 4 20 mA / 2-wire	3 E E E E E E E E E E E E E E E E E E E	
Accuracy	9	consult
standard 0.35 %	3	
option für P _N ≥0.6 bar: 0.25 % customer	2 9	consult
Electrical connection	9	Consult
Male and female plug ISO 4400	1 0 0	
Male plug Binder series 723 (5-pin) Cable outlet with PVC cable ¹	2 0 0 T A 0	
Cable outlet with cable	T R 0	
Male plug M12x1 (4-pin) / metal compact field housing	M 1 0	
stainless steel 1.4305	8 5 0	
Customer Mechanical connection	9 9 9	consult
G1/2" DIN 3852	1 0 0	
G1/2" EN 837 1/2" NPT	2 0 0 N 0 0	
customer	9 9 9	consult
Seals FKM	1	
EPDM	3 9	
Customer Pressure port	9	consult
Stainless steel 1.4404 (316L)	1	
Customer Diaphragm	9	consult
Ceramics Al ₂ O ₃ 96%		2
Ceramics Al ₂ O ₃ 99.9 % customer		C consult
Special version		
standard customer		0 0 0 9 9 9 consult
Gustomer		o o o o o o o o o o o o o o o o o o o

¹ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C), optionally cable with ventilation tube



DMK 331

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

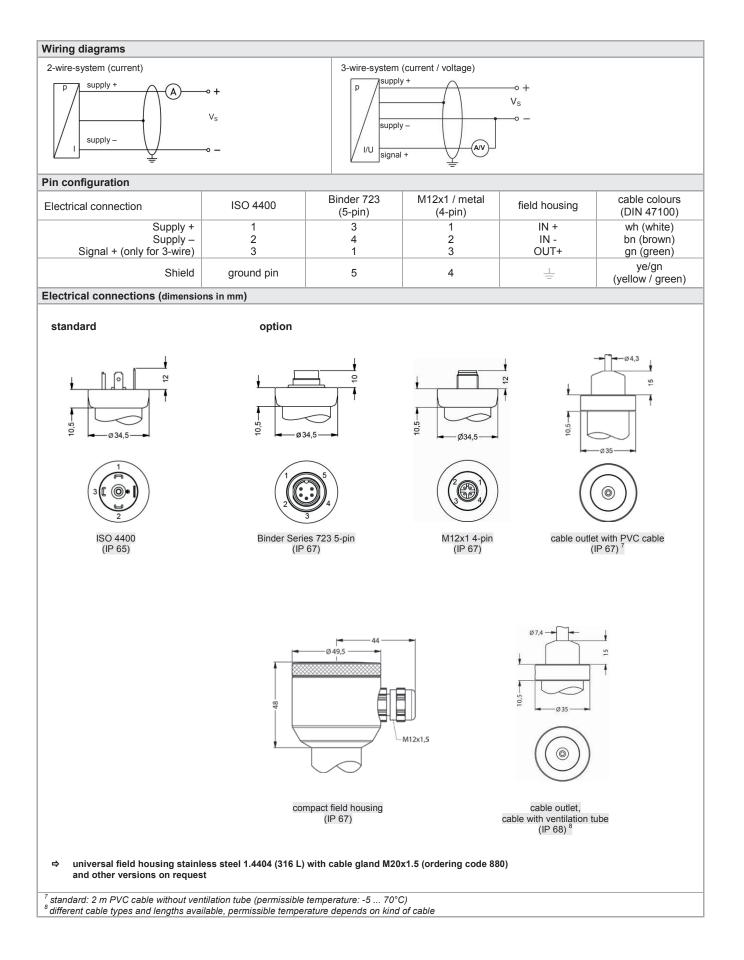


Environmental Engineering (water - sewage - recycling)

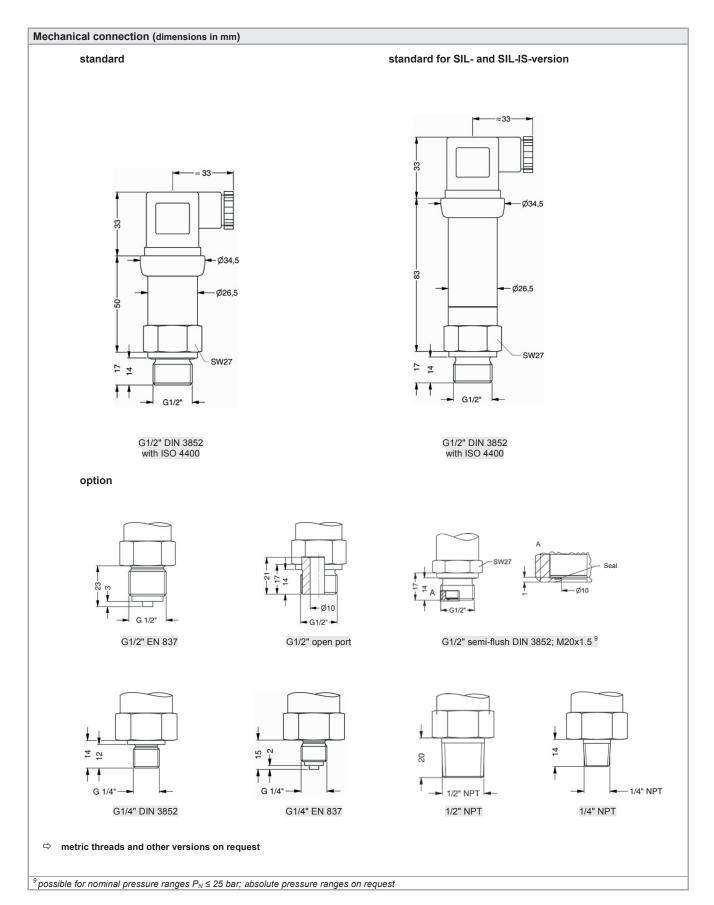


	[bar] -1	0 0.4	0.6	1	1,6	2,5	4 6	10	16	25	40	60	100	160	250	400	600
Nominal pressure abs.	[bar] - 1	J 0.4	0.6	1	1,6	2,5	4 6		16	25	40	60		160	250		600
	[bar] -	- 1	2	2	4		10 1		40	40		100		400	400	-	80
•		2	4	4	4 5				50								
								2 25	50	50					500		88
Vacuum resistance		1 bar: u				resistar	nce					$P_N <$	1 bar:	on re	equest	[
¹ PVDF pressure port possible fo ² nominal pressure 600 bar with	or nominal pi out UL certifi	essure ra cation	anges u	ip to 6	0 bar												
Output signal / Supply																	
Standard	2-wi	re: 4.	20 m	ηA /	Vs =	8 32	2 V _{DC}										
Option IS-protection		re: 4.															
Options 3-wire		3-wire: $0 \dots 20 \text{ mA} / \text{V}_{\text{S}} = 14 \dots 30 \text{V}_{\text{DC}}$															
						14 30											
Performance																	
Accuracy ³		0.5 % FS															
Permissible load		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		<u> </u>				2			100	d. 0 ()5 % F	-00/	lk0				
		oly: 0.0							108	10: 0.0	JO % F	-507	KC2				
Long term stability		0.3 % FS			t reter	ence c	ondition	S									
Response time		re: ≤ 10							3-1	wire: s	≤ 3 ms	sec					
³ accuracy according to IEC 607							sis, repe	atability)		_	_			_		_	_
Thermal effects (Offset an	d Span) / F	Permiss	ible T	empe	eratur	es											
Thermal error	≤±	0.2 % FS	SO / 1	0 K													
in compensated range	-25	85 °C															
Permissible temperatures ⁴		lium: -4		25 °C		electro	nics / e	nvironm	ent: -	40	85 °C		stora	age:	-40	100 °	С
⁴ for pressure port of PVDF the														5.			
Electrical protection		poratare	.5 50	5													
•																	
Short-circuit protection		nanent															
Reverse polarity protection		lamage,															
Electromagnetic compatibilit	iy emi	ssion an	d imm	unity	accor	ding to	EN 61	326									
Mechanical stability																	
Vibration	10 c	RMS (2	25 2	000	Hz)	accor	ding to	DIN EN	60068	3-2-6							
Shock		g / 1 ms			,			DIN EN									
Materials							0.13										
	otor	dard: si	lainlaa	o oto		404 (21											
Pressure port		onal for						essure i	range	up to	60 bai	r: PV	'DF				
		ers on re			P		le .										
Housing		nless ste		404 (3161)											
Option compact field housing		nless ste					nle alan	hrass	nicke	l nlate	d			other	s on r	eques	ŀ
Seals (media wetted)		dard: F		000 (505) 1			EPDM								eques	
Diaphragm		mic Al ₂)/			options.			N - 10	U Dai)	, NDF	<u>۱</u>	ouner	5 0111	eques	L
· · ·																	
Media wetted parts		sure po			apnra	gm											
•		0 m A / 2				505.											
Explosion protection (only				068		ECEY											
Explosion protection (only Approval	IBE	xU 10 A								_							
Explosion protection (only	IBE stair	xU 10 A	el pre			zone C): II 10	Ex ia I								85°C [85°C [
Explosion protection (only Approval DX19-DMK 331	IBE stair plas	xU 10 A nless ste tic press	el pre sure po	ort: z	one 1	zone C): 10 20	Ex ia l Ex ia ll	IC T4	Ga						85°C [85°C [
Explosion protection (only Approval DX19-DMK 331 Safety technical maximum	IBE staiı plas U _i =	xU 10 A nless ste tic press 28 V _{DC} ,	el pre sure po l _i = 93	ort: z 8 mA,	one 1 $P_i = 6$	zone 0 : 60 mV): II 10 II 20 V, C _i ≈ 0	Ex ia I Ex ia II nF, L _i ≈	IC T4 0 μΗ	Ga ,	zone	e 21: I	II 2D E				
Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values	IBE stain plas U _i = the	xU 10 A nless ste tic press 28 V _{DC} , supply c	eel pre sure po l _i = 93 onnec	ort: z 8 mA, tions	one 1 P _i = 6 have	zone 0 : 60 mV an inne): II 10 II 20 V, C _i ≈ 0 er capa	Ex ia l Ex ia ll nF, L _i ≈ ty of m	IC T4 20 μH ax. 27	Ga ,	zone	e 21: I	II 2D E				
Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo	r in zc	xU 10 A nless ste tic press 28 V _{DC} , supply c one 0: -2	eel pre sure po l _i = 93 onnec 20 6	ort: z 8 mA, tions 60 °C	P _i = 6 have with p	zone 0 : 660 mW an inne o _{atm} 0.8): II 10 II 20 V, C _i ≈ 0 er capa	Ex ia l Ex ia ll nF, L _i ≈ ty of m	IC T4 20 μH ax. 27	Ga ,	zone	e 21: I	II 2D E				
Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo environment	r in zc in zc	xU 10 A hless ste tic press 28 V _{DC} , supply c one 0: -2 one 1 or	el pre sure po l _i = 93 onnec 20 6 highe	ort: z 3 mA, tions 30 °C r: -20	one 1 P _i = 6 have with p	zone 0 : 60 mV an inne o _{atm} 0.8) °C): II 1(II 20 V, C _i ≈ (er capae bar up	Ex ia I Ex ia II nF, L _i ≈ sity of m to 1.1 b	IC T4 = 0 μH ax. 27 ar	Ga , nF to	zone	e 21: I ousin	II 2D E				
Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo environment Connecting cables	r in zc cabl	xU 10 A hless ste tic press 28 V _{DC} , supply c one 0: -2 one 1 or e capac	el pre sure po l _i = 93 onnec 20 6 highe itance	ort: z 3 mA, tions 30 °C r: -20 : sigi	nne 1 P _i = 6 have with p 0 70	zone 0 : 660 mW an inne o _{atm} 0.8) °C e/shield): II 10 II 20 V, C _i ≈ 0 er capae bar up d also s	G Ex ia I G Ex ia II nF, L _i ≈ ity of m to 1.1 ba gnal line	IC T4 20 μH ax. 27 ar e/signa	Ga ' nF to al line:	zone the he	e 21: I ousin	II 2D E				
Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo environment Connecting cables (by factory)	r in zc cabl	xU 10 A hless ste tic press 28 V _{DC} , supply c one 0: -2 one 1 or	el pre sure po l _i = 93 onnec 20 6 highe itance	ort: z 3 mA, tions 30 °C r: -20 : sigi	nne 1 P _i = 6 have with p 0 70	zone 0 : 660 mW an inne o _{atm} 0.8) °C e/shield): II 10 II 20 V, C _i ≈ 0 er capae bar up d also s	G Ex ia I G Ex ia II nF, L _i ≈ ity of m to 1.1 ba gnal line	IC T4 20 μH ax. 27 ar e/signa	Ga ' nF to al line:	zone the he	e 21: I ousin	II 2D E				
Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo environment Connecting cables (by factory) Miscellaneous	r in zc cabl	xU 10 A hless ste tic press 28 V _{DC} , supply c one 0: -2 one 1 or e capac	el pre sure po l _i = 93 onnec 20 6 highe itance	ort: z 3 mA, tions 30 °C r: -20 : sigi	nne 1 P _i = 6 have with p 0 70	zone 0 : 660 mW an inne o _{atm} 0.8) °C e/shield): II 10 II 20 V, C _i ≈ 0 er capae bar up d also s	G Ex ia I G Ex ia II nF, L _i ≈ ity of m to 1.1 ba gnal line	IC T4 20 μH ax. 27 ar e/signa	Ga ' nF to al line:	zone the he	e 21: I ousin	II 2D E				
Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo environment Connecting cables (by factory) Miscellaneous Option SIL ⁵ 2	IBE stain plas U _i = the in zc cabl cabl	xU 10 A hless ste tic press 28 V _{DC} , supply c one 0: -2 one 1 or e capac e induct	eel pre sure po $I_i = 93$ onnec 20 6 highe itance ance:s	ort: z 3 mA, tions 50 °C r: -20 : signal signal	None 1 P _i = 6 have with p 70 nal line l line/s	zone C : 660 mW an inne D _{atm} 0.8 0 °C e/shield a : 61511): II 1(II 2C V, C _i ≈ C er capae bar up d also s ilso sigr	E Ex ia I nF, L _i ≈ sity of m to 1.1 b gnal line al line/s	IC T4 ² 0 μH ax. 27 ar e/signa ignal I	Ga , nF to al line: line: 1	zone the he 160 p µH/m	e 21: l ousin oF/m	g	Ex ia I		85°C [
Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo environment Connecting cables (by factory) Miscellaneous Option SIL ⁵ 2	IBE stain plas U _i = the in zc cabl cabl	xU 10 A nless ste tic press 28 V _{DC} , supply c one 0: -2 one 1 or e capac e induct	eel pre sure po $I_i = 93$ onnec 20 6 highe itance ance:s	ort: z 3 mA, tions 50 °C r: -20 : signal signal	None 1 P _i = 6 have with p 70 nal line l line/s	zone C : 660 mW an inne D _{atm} 0.8 0 °C e/shield a : 61511): II 1(II 2C V, C _i ≈ C er capae bar up d also s ilso sigr	E Ex ia I nF, L _i ≈ sity of m to 1.1 b gnal line al line/s	IC T4 ² 0 μH ax. 27 ar e/signa ignal I	Ga , nF to al line: line: 1	zone the he 160 p µH/m	e 21: l ousin oF/m	g	Ex ia I		85°C [
Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo environment Connecting cables (by factory) Miscellaneous Option SIL ⁵ 2	IBE stain plas U _i = the the in zc in zc cabl cabl	xU 10 A hless ste tic press 28 V _{DC} , supply c one 0: -2 one 1 or e capac e induct	eel pre sure po $I_i = 93$ onnec 20 (highe itance ance:s 0 IEC (bar: (1 bar: ()	ort: z 3 mA, tions 50 °C r: -20 : signal 31508 0-ring 5 bal D-ring	P _i = 6 have with p 0 70 nal line l line/s J in 70 r / 60°	zone C : 660 mW an inne p _{atm} 0.8 0 °C e/shield a c 61511 C 61511 EPDM C and KM Vi 5): II 10 II 20 V, C _i ≈ 0 er capae bar up d also s also sigr 1 281 (w 10 bar	Ex ia I Ex ia II nF, $L_i \approx$ ity of m to 1.1 b gnal line/s ith BAW (90° C)	IC T4 ² 0 μH ax. 27 ar e/signal ignal I I-appro	Ga , nF to al line: 1 line: 1 oval);	zone the he 160 p µH/m	e 21: l ousin oF/m ssible	g 9 • maxi	Ex ia I	Values	85°C I	
Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo environment Connecting cables (by factory) Miscellaneous Option SIL ⁵ 2 Option oxygen application	IBE stain plas U _i = the in zc in zc cabl cabl cabl cabl for F	xU 10 A hless stetic press 28 V _{DC} , supply c one 0: -: one 1 or e capac e induct ording to $P_N \le 15$ k	eel pre sure po $I_i = 93$ onnec 20 (2 highe itance: ance: 0 IEC (2 par: (2) par: (2)	ort: z 3 mA, tions 50 °C r: -20 : signal 51508 0-ring 0-ring 25 bai 25 bai	P _i = 6 have with p 0 70 nal line l line/s J in 70 r / 60° J in FK r / 150	zone C : 660 mW an inne 0 atm 0.8 0 °C e/shield a c 61511 EPDM C and KM Vi 5 0 °C): II 10 II 20 V, C _i ≈ 0 er capae bar up d also s also sigr 1 281 (w 10 bar	Exia I Exia II nF, Li≈ ity of m to 1.1 bi gnal line/s ith BAM ′90° C BAM-a	IC T4 ² 0 µH ax. 27 ar e/signal ignal I I-approvi	Ga , al line: line: 1 oval); al); pe	zone the he 160 p µH/m permis	e 21: l ousin oF/m ssible ible m	g e maxi naximu	Ex ia I mum um va	Values	85°C I	
Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo environment Connecting cables (by factory) Miscellaneous Option SIL ⁵ 2 Option oxygen application Current consumption	IBE stain plas U _i = the the in zc cabl cabl cabl cabl	xU 10 A hless stetic press 28 V _{DC} , supply c one 0: one 1 or e capac e induct ording to $P_N \le 15$ k $P_N \le 25$ k al outpu	tel presure por $I_i = 93$ onnec 20 6 highe itance ance:s 0 IEC 6 par: 0 20 7 highe itance ance:s 0 IEC 6 par: 0 2 t curre	ort: z 3 mA, tions 50 °C r: -20 : signal 51508 0-ring 0-ring 25 bai 25 bai	P _i = 6 have with p 0 70 nal line l line/s J in 70 r / 60° J in FK r / 150	zone C : 660 mW an inne O _{atm} 0.8 0 °C e/shield a c 61511 EPDM C and KM Vi 5 0 °C): II 10 II 20 V, C _i ≈ 0 er capae bar up d also s also sigr 1 281 (w 10 bar	Exia I Exia II nF, Li≈ ity of m to 1.1 bi gnal line/s ith BAM ′90° C BAM-a	IC T4 ² 0 μH ax. 27 ar e/signal ignal I I-appro	Ga , al line: line: 1 oval); al); pe	zone the he 160 p µH/m permis	e 21: l ousin oF/m ssible ible m	g e maxi naximu	Ex ia I mum um va	Values	85°C I	
Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo environment Connecting cables (by factory) Miscellaneous Option SIL ⁵ 2 Option oxygen application Current consumption Weight	IBE stain plas U _i = the in zc in zc cabl cabl cabl cabl	xU 10 A hless stetic press 28 V _{DC} , supply c one 0: -: one 1 or e capac e induct ording to $P_N \le 15$ k	tel presure por $I_i = 93$ onnec 20 6 highe itance ance:s 0 IEC 6 par: 0 20 7 highe itance ance:s 0 IEC 6 par: 0 2 t curre	ort: z 3 mA, tions 50 °C r: -20 : signal 51508 0-ring 0-ring 25 bai 25 bai	P _i = 6 have with p 0 70 nal line l line/s J in 70 r / 60° J in FK r / 150	zone C : 660 mW an inne O _{atm} 0.8 0 °C e/shield a c 61511 EPDM C and KM Vi 5 0 °C): II 10 II 20 V, C _i ≈ 0 er capae bar up d also s also sigr 1 281 (w 10 bar	Exia I Exia II nF, Li≈ ity of m to 1.1 bi gnal line/s ith BAM ′90° C BAM-a	IC T4 ² 0 µH ax. 27 ar e/signal ignal I I-approvi	Ga , al line: line: 1 oval); al); pe	zone the he 160 p µH/m permis	e 21: l ousin oF/m ssible ible m	g e maxi naximu	Ex ia I mum um va	Values	85°C I	
Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo environment Connecting cables (by factory) Miscellaneous Option SIL ⁵ 2 Option oxygen application Current consumption Weight Installation position	IBE stain plas U _i = the in z cabl cabl cabl cabl cabl cabl cabl cabl	xU 10 A hless stetic press 28 V _{DC} , supply c one 0: -; one 1 or e capac e induct ording to $P_N \le 15$ k $P_N \le 25$ k al outpu rox. 140	eel pre sure po $I_i = 93$ onnec 20 6 highe itance ance:s o IEC 6 oar: 0 2 t curre 9	ort: z mA, tions 60 °C r: -20 : signal 51508 0-ring 25 bai 2-ring 25 bai ent: r	$P_i = 6$ have with p $0 \dots 70$ nal line l line/s 3 / IEC j in 70 r / 60° j in Fk r / 150 nax. 2	zone C : 660 mW an inne O _{atm} 0.8 0 °C e/shield a c 61511 EPDM C and KM Vi 5 0 °C): II 10 II 20 V, C _i ≈ 0 er capae bar up d also s also sigr 1 281 (w 10 bar	Exia I Exia II nF, Li≈ ity of m to 1.1 bi gnal line/s ith BAM ′90° C BAM-a	IC T4 ² 0 µH ax. 27 ar e/signal ignal I I-approvi	Ga , al line: line: 1 oval); al); pe	zone the he 160 p µH/m permis	e 21: l ousin oF/m ssible ible m	g e maxi naximu	Ex ia I mum um va	Values	85°C I	
Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo environment Connecting cables (by factory) Miscellaneous Option SIL ⁵ 2 Option oxygen application Current consumption Weight Installation position Operational life	IBE stain plas U _i = the in z in z cabl cabl cabl cabl cabl for F for F for F sign app any > 10	xU 10 A hless stetic press 28 V _{DC} , supply c one 0: -; one 1 or e capac e induct ording to $P_N \le 15$ k al outpur rox. 140	eel pre sure po $I_i = 93$ onnec 20 6 highe itance ance:s o IEC 6 oar: 0 2 t curre g	prt: z mA, tions 0°C °C r: -20 5 bai 0-ring 25 bai 25 bai ent: r	P _i = 6 have with p 070 nal line line/s in 70 r / 60° in Fk r / 150 nax. 2	zone C : 360 mV an inne batm 0.8) °C e/shield a c 61511 EPDM C and (M Vi 5)°C 25 mA): II 10 II 20 V, Ci ≈ 0 er capa bar up d also s also sigr 1 281 (w 10 bar 667 (with	G Ex ia I is Ex ia II nF, Li≈ ity of m to 1.1 b: gnal line/s ith BAM ′ 90° C BAM-a si	IC T4 = 0 µH, ax. 27 ar =/signal I ignal I I-approva gnal o	Ga nF to al line: line: 1 oval); al); pe output	zone the h 160 p H/m permis rmissi	e 21: I ousin oF/m ssible ible m	g e maxi naximi ax. 7 i	mum ma mA	Values a	s are	
Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo environment Connecting cables (by factory) Miscellaneous Option SIL ⁵ 2 Option oxygen application Current consumption Weight Installation position	IBE stain plas U _i = the the in zc cabl cabl cabl cabl cabl cabl cabl cab	xU 10 A hless stetic press 28 V _{DC} , supply c one 0: -; one 1 or e capac e induct ording to $P_N \le 15$ k $P_N \le 25$ k al outpu rox. 140	eel pre sure po $I_i = 93$ onnec 20 6 highe itance ance:s o IEC 6 oar: 0 2 t curre g	prt: z mA, tions 0°C °C r: -20 5 bai 0-ring 25 bai 0-ring 25 bai 0-ring 25 bai	P _i = 6 have with p 070 nal line line/s in 70 r / 60° in Fk r / 150 nax. 2	zone C : 360 mV an inne batm 0.8) °C e/shield a c 61511 EPDM C and (M Vi 5)°C 25 mA): II 10 II 20 V, Ci ≈ 0 er capa bar up d also s also sigr 1 281 (w 10 bar 667 (with	Exia I Exia II nF, Li≈ ity of m to 1.1 bi gnal line/s ith BAM ′90° C BAM-a	IC T4 = 0 µH, ax. 27 ar =/signal I ignal I I-approva gnal o	Ga nF to al line: line: 1 oval); al); pe output	zone the h 160 p H/m permis rmissi	e 21: I ousin oF/m ssible ible m	g e maxi naximi ax. 7 i	mum ma mA	Values a	s are	

DMK 331 Technical Data



DMK 331 Technical Data



DMK 331 Ordering Code

DMK 331		-	□-		- 🗌	-]-[-	- 🗌	-[-			
Pressure	2 5 0 2 5 1																
Input [bar]	2 5 1	4 0 0	0														
0.40 0.60 1.0		6 0 0	0 0 1														
1.6 2.5		1 6 0 2 5 0	1														
4.0		4 0 0	1														
10 16		1 0 0 1 6 0	2														
25 40		4 0 0	2 2														
60 100		6 0 0 1 0 0	3														
160 250 400		2 5 0	3 3 3														
600 -1 0		6 0 0	3 2														
Output	_	9999	9														consult
4 20 mA / 2-wire 0 20 mA / 3-wire				1 2													
0 … 10 V / 3-wire Intrinsic safety 4 … 20 mA / 2-wire				3 E													
SIL2 4 20 mA / 2-wire SIL2 with Intrinsic safety				1S ES													
4 20 mA / 2-wire customer				9													consult
Accuracy 0.5 %					5												
Electrical connection					9		0.0										consult
Male and female plug ISO 4400 Male plug Binder series 723 (5-pin) Cable outlet with PVC cable	1					2	0 0)									
Cable outlet with PVC cable Cable outlet with cable Male plug M12x1 (4-pin) / metal						T M	A 0 R 0 1 0)									
compact field housing stainless steel 1.4404 (316L)						8	5 0										
customer	2					9	99	9									consult
G1/2" DIN 3852 G1/2" EN 837									1 0 2 0	0 (
G1/4" DIN 3852 G1/4" EN 837									3 0 4 0	0 (
G1/2" DIN 3852 with semi-flush sensor	3								F 0								
G1/2" DIN 3852 open pressure port 1/2" NPT									H 0 N 0 N 4 9 9	0 0							
1/4" NPT customer	_	_							N 4 9 9	99							consult
Seals FKM EPDM	4										1						
NBR											1 3 5 9						consult
Pressure port Stainless steel 1.4404 (316L)											3	1					
PVDF customer	5											1 B 9					consult
Diaphragm Ceramics Al ₂ O ₃ 96%							-	-		-			2				
customer Special version													2 9				consult
standard oxygen application	6													0	0 0	0 7 9	
customer														9	9	9	consult

¹ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C)

² metric threads and others on request

 3 possible for nominal pressure ranges $\mathsf{P}_{\mathsf{N}} \leq 25$ bar; absolute pressure ranges on request

 4 possible for nominal pressure range $P_{\rm N}\,{\leq}\,160$ bar

⁵ PVDF only with G1/2" DIN 3852 open pressure port (up to 60 bar), minimum permissible temperature is -30 °C

 $^{\rm 6}$ oxygen application with FKM-seal up to 25 bar and with EPDM-seal up to 15 bar possible

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

76 INDUSTRIAL PRESSURE TRANSMITTER



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

- shipping approvals GL (Germanischer Lloyd), DNV (Det Norske Veritas) and CCS (China Classification Society)
- flush pressure port
 G 1/2" from 100 mbar
- excellent thermal behavior

Optional versions

- IS-version
 Ex 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 Germanischer Lloyd (GL), 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



DMP 457 Technical Data

Input pressure range ¹											
Nominal pressure gauge [k	oar] -1 0	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6
Nominal pressure abs. [b	bar] -	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6
Level gauge / abs. [mH	₂ O] -	1	1.6	2.5	4	6	10	16	25	40	60
	bar] 5	0.5	1	1	2	5	5	10	10	20	40
Burst pressure ≥ [b	oar] 7.5	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50
	40	10	05	40	00	400	100	050	400	00	20
	bar] 10	16	25	40	60	100	160	250	400	60	
	bar] 10	16	25	40	60	100	160	250	400	60	-
Level gauge / abs. [mH		160	250	400	-	-	-	-	-		
	bar] 40	80	80	105	210	600	600	1000	1000	10	
	bar] 50	120	120	210	420	1000	1000	1250	-	-	•
Vacuum resistance		ar: unlimi ar: on rec	ted vacuu	im resista	ance						
¹ from 60 bar: measurement starts w			Jucor								
Output signal / Supply											
Standard	2-wire:		mA /								
Option IS-protection	2-wire:	4 20	mA /	V _S = 10	28 V _{DC}						
Performance											
Accuracy ²	Standar	d: N	Nominal p	ressure <	< 0.4 bar:	$\leq \pm 0.5$ %	6 FSO				
					: 0.4 bar:						
	Option:				: 0.4 bar:	≤±0.25	% FSO				
Permissible load			_{in}) / 0.02 A	Δ[
Influence effects			SO / 10 V			load:	0.05 % F	SO / kΩ			
Long term stability			/ear by re	ference c	onditions						
Response time	< 10 ms										
² accuracy according to IEC 60770 -					is, repeatab	ility)					
Thermal effects (Offset and S	ipan) / Permi	ssible te	mperatur	es							
	oar]	-1	. 0			< 0.4			≥	0.40	
Tolerance band [% FS	SO]	≤ ± 0	.75			≤±1			≤∃	± 0.75	
	°C]	-20				0 70) 85	
Permissible temperatures	medium	: -40 12	25°C	elect	ronics / er	nvironmer	nt: -40	85°C	storage	: -40 10	0°C
Electrical protection											
Short-circuit protection	perman										
Reverse polarity protection	no dama	age, but a	llso no fur	nction							
Electromagnetic			nunity acc	ording to							
compatibility		V 61326									
			ner Lloyd								
	- De	et Norske	Veritas (I	JNV)							
Mechanical stability											
Vibration	4 g (acc	ordina to									
Materials		J	GL: CUIVE	e 2 / acco	rding to D	NV: Class	s B / basis	s: IEC 600	68-2-6)		
		0			rding to D	NV: Class	s B / basis	s: IEC 600	68-2-6)		
Pressure port	stainles	0	GL: curve		rding to D	NV: Class	s B / basis	s: IEC 600	068-2-6)		
Pressure port	standard	s steel 1.4	1404 (316 sta	L) inless ste	eel 1.4404	(316L)			068-2-6)		
Pressure port	standard	s steel 1.4	1404 (316 sta	L) inless ste		(316L))68-2-6)		
	standard option fi	s steel 1.4 d: eld housin for cable	1404 (316 sta ng: sta outlet	L) inless ste	eel 1.4404 eel 1.4404	(316L)	vith cable	gland	rmissible	temperati	ures
Pressure port Housing	standard option fi	s steel 1.4 d: eld housin for cable PVC - c	1404 (316 sta ng: sta outlet able	L) inless ste	eel 1.4404 eel 1.4404 for subm	(316L) (316L), v nersible ve	vith cable ersion	gland	rmissible -5	.70 °C	ures
Pressure port Housing	standard option fi	s steel 1.4 d: eld housin for cable	1404 (316 sta ng: sta outlet able	L) inless ste	eel 1.4404 eel 1.4404 for subm PUR -	(316L) (316L), v hersible ve	vith cable ersion ible	gland	rmissible -5 -25	.70 °C .70 °C	ures
Pressure port Housing	standard option fi	s steel 1.4 d: eld housin for cable PVC - c	1404 (316 sta ng: sta outlet able	L) inless ste	eel 1.4404 eel 1.4404 for subm PUR - FEP -	(316L) (316L), v ersible ve - probe ca probe ca	vith cable ersion ible ble	gland	rmissible -5 -25 -25	70 °C . 70 °C . 70 °C	ures
Pressure port Housing Cable sheath	standard option fi	s steel 1.4 d: eld housin for cable PVC - c PUR - c	1404 (316 sta ng: sta outlet able able	L) inless ste	eel 1.4404 eel 1.4404 for subm PUR - FEP -	(316L) (316L), v hersible ve	vith cable ersion ible ble	gland	rmissible -5 -25 -25	.70 °C .70 °C	ures
Pressure port Housing Cable sheath	standard option fi	s steel 1.4 d: eld housin for cable PVC - c PUR - c	1404 (316 sta ng: sta outlet able able FK	L) inless ste inless ste	eel 1.4404 eel 1.4404 for subm PUR - FEP - TPE -	(316L) (316L), v ersible ve probe ca probe ca probe ca	vith cable ersion ible ble	gland	rmissible -5 -25 -25	70 °C . 70 °C . 70 °C . 70 °C . 125 °C	
Pressure port Housing Cable sheath Seals (media wetted)	standard option fi	s steel 1.4 d: eld housin for cable PVC - c PUR - c d:	1404 (316 sta ng: sta outlet able able FK NB	L) inless ste inless ste M SR, welde	eel 1.4404 eel 1.4404 for subm PUR - FEP -	(316L) (316L), v ersible ve probe ca probe ca probe ca	vith cable ersion ible ble	gland	rmissible -5 -25 -25	70 °C . 70 °C . 70 °C	
Pressure port Housing Cable sheath Seals (media wetted) Diaphragm	standard option fi standard option: stainless	s steel 1.4 d: eld housin for cable PVC - c PUR - c d: s steel 1.4	1404 (316 sta ng: sta outlet able able FK NB 1435 (316	L) inless ste inless ste M R, welde L)	eel 1.4404 eel 1.4404 for subm PUR - FEP - TPE -	(316L) (316L), v ersible ve probe ca probe ca probe ca	vith cable ersion ible ble	gland	rmissible -5 -25 -25	70 °C . 70 °C . 70 °C . 70 °C . 125 °C	
Pressure port Housing Cable sheath Geals (media wetted) Diaphragm Media wetted parts	standard option fi standard option: stainless pressurd	s steel 1.4 d: eld housin for cable PVC - c PUR - c d: s steel 1.4 e port, sea	1404 (316 sta ng: sta outlet able able FK NB 1435 (316 als, diaphi	L) inless ste inless ste M iR, welde L) ragm	eel 1.4404 for subm PUR - FEP - TPE - d version ³	(316L) (316L), v ersible ve probe ca probe ca	vith cable ersion ible ble ble	gland	rmissible -5 -25 -25	70 °C . 70 °C . 70 °C . 70 °C . 125 °C	
Pressure port Housing Cable sheath Seals (media wetted) Diaphragm Media wetted parts ? welded version only with pressure	standard option fi standard option: stainless pressurd	s steel 1.4 d: eld housin for cable PVC - c PUR - c d: s steel 1.4 e port, sea	1404 (316 sta ng: sta outlet able able FK NB 1435 (316 als, diaphi	L) inless ste inless ste M iR, welde L) ragm	eel 1.4404 for subm PUR - FEP - TPE - d version ³	(316L) (316L), v ersible ve probe ca probe ca	vith cable ersion ible ble ble	gland	rmissible -5 -25 -25	70 °C . 70 °C . 70 °C . 70 °C . 125 °C	
Pressure port Housing Cable sheath Seals (media wetted) Diaphragm Media wetted parts ² welded version only with pressure S-protection	standard option fi standard option: stainless pressure ports according	s steel 1.4 d: eld housin for cable PVC - c PUR - c d: s steel 1.4 port, sea g to EN 83	1404 (316 sta ng: sta outlet able FK NB 1435 (316 als, diaph 7; possible	L) inless ste inless ste M R, welde L) ragm for nomina	eel 1.4404 for subm PUR - FEP - TPE - d version ³	(316L) (316L), v ersible ve probe ca probe ca probe ca	vith cable ersion ible ble ble	gland	rmissible -5 -25 -25	70 °C . 70 °C . 70 °C . 70 °C . 125 °C	
Pressure port Housing Cable sheath Seals (media wetted) Diaphragm Media wetted parts ³ welded version only with pressure IS-protection Approvals	standard option fi standard option: stainless pressure ports according IBExU 1 zone 0:	s steel 1.4 d: eld housin for cable PVC - c PUR - c d: s steel 1.4 e port, sea g to EN 83 0 ATEX II 10	1404 (316 sta ng: sta outlet able able FK NB 1435 (316 als, diaphi 7; possible 1068 X / B Ex ia IIB	L) inless ste inless ste BR, welde L) for nomina IECEx I T4 Ga	eel 1.4404 eel 1.4404 for subm PUR - FEP - TPE - d version ³ al pressure	(316L) (316L), v ersible ve probe ca probe ca probe ca	vith cable ersion ible ble ble	gland	rmissible -5 -25 -25	70 °C . 70 °C . 70 °C . 70 °C . 125 °C	
Pressure port Housing Cable sheath Seals (media wetted) Diaphragm Media wetted parts ³ welded version only with pressure IS-protection Approvals	standard option fi standard option: stainless pressure ports according IBExU 1 zone 0: zone 20	s steel 1.4 d: eld housin for cable PVC - c PUR - c d: s steel 1.4 e port, sea g to EN 83 0 ATEX II 10 : II 11	I404 (316 sta ng: sta outlet able able FK NB I435 (316 als, diaphi 7; possible I068 X / G Ex ia IIB D Ex ia III0	L) inless ste inless ste M R, welde L) ragm for nomina IECEx I T4 Ga C T 85°C	eel 1.4404 for subm PUR - FEP - TPE - d version ³ al pressure IBE 12.00 Da	(316L) (316L), v ersible ve probe ca probe ca probe ca	vith cable ersion ble ble ≤ 40 bar	gland	rmissible -5 -25 -25	70 °C . 70 °C . 70 °C . 70 °C . 125 °C	
Pressure port Housing Cable sheath Seals (media wetted) Diaphragm Media wetted parts ³ welded version only with pressure IS-protection Approvals DX 19-DMP 457	standard option fi standard option: stainless pressure ports according IBExU 1 zone 0: zone 20 Ui = 28	s steel 1.4 d: eld housin for cable PVC - c PUR - c d: s steel 1.4 e port, sea g to EN 83 0 ATEX II 10 : II 11 V, I _i = 93 1	1404 (316 sta ng: sta outlet able able FK NB 1435 (316 als, diaphi 7; possible 1068 X / B Ex ia IIB D Ex ia III D Ex ia III D Ex ia III D Ex ia III	L) inless ste inless ste M R, welde L) ragm for nomina for nomina T4 Ga C T 85°C 560 mW, 0	eel 1.4404 eel 1.4404 for subm PUR - FEP - TPE - d version ³ al pressure	(316L) (316L), v ersible ve probe ca probe ca probe ca ranges P_N 27X F, L _i = 5 p	vith cable ersion ble ble ≤ 40 bar	gland pe	rmissible -5 -25 -25 oth	70 °C . 70 °C . 70 °C . 70 °C . 125 °C	
Pressure port Housing Cable sheath Seals (media wetted) Diaphragm Media wetted parts ³ welded version only with pressure IS-protection Approvals DX 19-DMP 457 Safety technical maximum valu Permissible temperatures for	standard option fi standard option: stainless pressure ports according IBExU 1 zone 0: zone 20 es U _i = 28 V the supp in zone	s steel 1.4 d: eld housin for cable PVC - c PUR - c d: s steel 1.4 e port, sea g to EN 83 II 10 : II 11 V, I _i = 93 1 oly conner 0:	I404 (316 sta ng: sta outlet able able FK NB I435 (316 als, diaphi 7; possible 1068 X / B Ex ia IIB D Ex ia IIB D Ex ia IIIC mA, P _i = 6 ctions hav	L) inless ste inless ste M R, welde L) ragm for nomina for nomina for nomina for nomina for nomina for nomina for nomina for nomina	eel 1.4404 for subm PUR - FEP - TPE - d version ³ al pressure IBE 12.00 Da C _i = 105 n er capacity 0 °C bei p	(316L) (316L), v probe ca probe ca p	vith cable ersion ble ble ≤ 40 bar ≅ 40 bar	gland pe	rmissible -5 -25 -25 oth	70 °C . 70 °C . 70 °C . 70 °C . 125 °C	
Pressure port Housing	standard option fi stainless pressure ports according IBExU 1 zone 0: zone 20 es U _i = 28 the supp in zone in zone	s steel 1.4 d: eld housin for cable PVC - c PUR - c d: s steel 1.4 e port, sea g to EN 83 0 ATEX II 10 : II 11 V, I _i = 93 n oly conned	I404 (316 sta ng: sta outlet able able FK NB I435 (316 als, diaphi 7; possible I068 X / B Ex ia IIB D Ex ia IIB D Ex ia IIIC mA, P _i = 6 ctions hav	L) inless ste inless ste R, welde L) ragm for nomina for nomina for nomina for nomina for nomina for nomina for nomina for nomina	eel 1.4404 for subm PUR - FEP - TPE - d version ³ al pressure IBE 12.00 Da C _i = 105 n er capacity 0 °C bei p	(316L) (316L), v ersible ve probe ca probe ca probe ca probe ca f f f f f f f f f f	vith cable ersion ble ble ≤ 40 bar ≤ 40 bar uH, 140 nF to r bis 1.1 b	gland pe	rmissible -5 -25 -25 oth	70 °C . 70 °C . 70 °C . 70 °C . 125 °C	

78

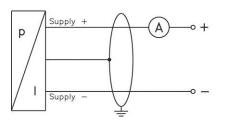
Miscellaneous	
Current consumption	max. 25 mA
Weight	approx. 140 g (with ISO 4400)
Installation position	any ⁴
Operational life	> 100 x 10 ⁶ pressure cycles
CE-confomity	EMC Directive: 2004/108/EC
CE-conionity	Pressure Equipment Directive: 97/23/EC (module A) ⁵
ATEX Directive	94/9/EC
4	

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

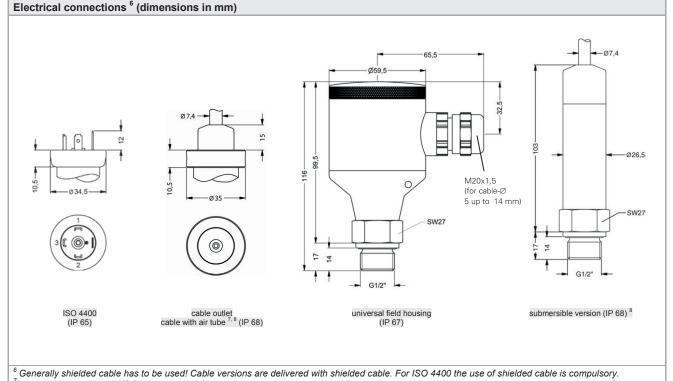
Wiring diagram





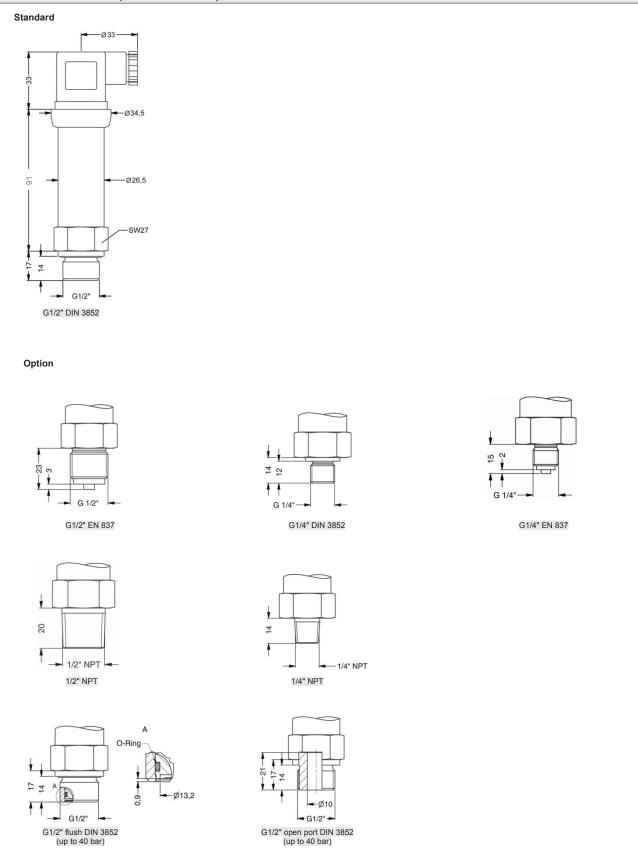
Pin configuration

Electrical connection	ISO 4400	field housing	cable colours (DIN 47100)
Supply +	1	IN +	wh (white)
Supply –	2	IN –	bn (brown)
Shield	ground pin		ye/gn (yellow / green)
0			



⁷ tested at 4 bar or 40 mH₂O for 24 hours ⁸ different cable types and lengths available,permissible temperature depends on kind of cable, see cable connection

Mechanical connection (dimensions in mm)



80

DMP 457				
Pressure in bar, gauge ¹	6 0 0			
in bar, absolute	6 0 1			
in mH ₂ O, gauge ¹ in mH ₂ O, absolute	6 0 2 6 0 3			
Input [mH₂O] [bar]				
1 0.1 1.6 0.16	1 0 0 0 1 6 0 0			
2.5 0.25	2 5 0 0			
4 0.4 6 0.6	4 0 0 0 6 0 0 0			
10 1	1 0 0 1			
16 1.6 25 2.5	1 6 0 1 2 5 0 1			
40 4	4 0 0 1			
60 6 100 10	6 0 0 1 1 0 0 2			
160 16	1 6 0 2			
250 25 400 40	2 5 0 2 4 0 0 2			
60	6 0 0 2			
100 160	1 0 0 3 1 6 0 3			
250	2 5 0 3			
400 600	4 0 0 3 6 0 0 3			
-1 0	X 1 0 2			
Output	9 9 9 9			consult
4 20 mA / 2-wire	1			
Intrinsic safety 4 20 mA / 2-wire customer	E 9			consult
Accuracy				
standard for $P_N \ge 0.4$ bar0.35 %standard for $P_N < 0.4$ bar0.50 %		3 5		
option for $P_N \ge 0.4$ bar 0.25 %		2		
Customer Electrical connection		9		consult
Male and female plug ISO 4400 ²		G 1 0		
(for cable Ø 46 mm) Male and female plug ISO 4400 GL ^{2,}	3			
(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 ² ,	4	T R 0		
Field housing stainless steel Submersible version (1.4404 / 316L)		8 8 0		
with PUR cable ^{2,}	4	T T 1		
Customer Mechanical connection		9 9 9		consult
G1/2" DIN 3852		$ \begin{array}{cccc} 1 & 0 & 0 \\ 2 & 0 & 0 \\ 3 & 0 & 0 \\ 4 & 0 & 0 \end{array} $		
G1/2" EN 837 G1/4" DIN 3852		200		
G1/4" EN 837		4 0 0		
G 1/2" DIN 3852 with 5 flush sensor		F 0 0		
G1/2" DIN 3852 open pressure port 5		H 0 0		
1/2" NPT 1/4" NPT		N 0 0 N 4 0		
customer		N 4 0 9 9 9		consult
Seals FKM			1	
NBR			5	
without (welded version) ⁶ customer			2 9	consult
Special version				
standard customer			0 0 0 9 9 9	consult
			- 1 - 1 - 1	

¹ from 60 bar: measurement starts with ambient pressure

² Shielded cable has to be used! Cable versions are delivered with shielded cable.

³ female plug is GL-approbated

⁴ different cable types and lengths deliverable

⁶ welded version only with pressure ports according to EN 837; possible with pressure ranges $P_N \le 40$ bar

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

INDUSTRIAL PRESSURE TRANSMITTER



DMK 458

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

- GL-shipping approval (Germanischer Lloyd)
- DVN-certificate (Det Norske Veritas)
- CCS-certificate (China Classification Society)
- high overpressure resistance
- excellent long term stability

Optionale Ausführungen

- IS-version
 Ex ia= intrinsically safe for gases and dusts
- ▶ diaphragm Al₂O₃ 99.9 %
- pressure port CuNiFe

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 Al_2O_3 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



Level measurement in ballast and storage tanks



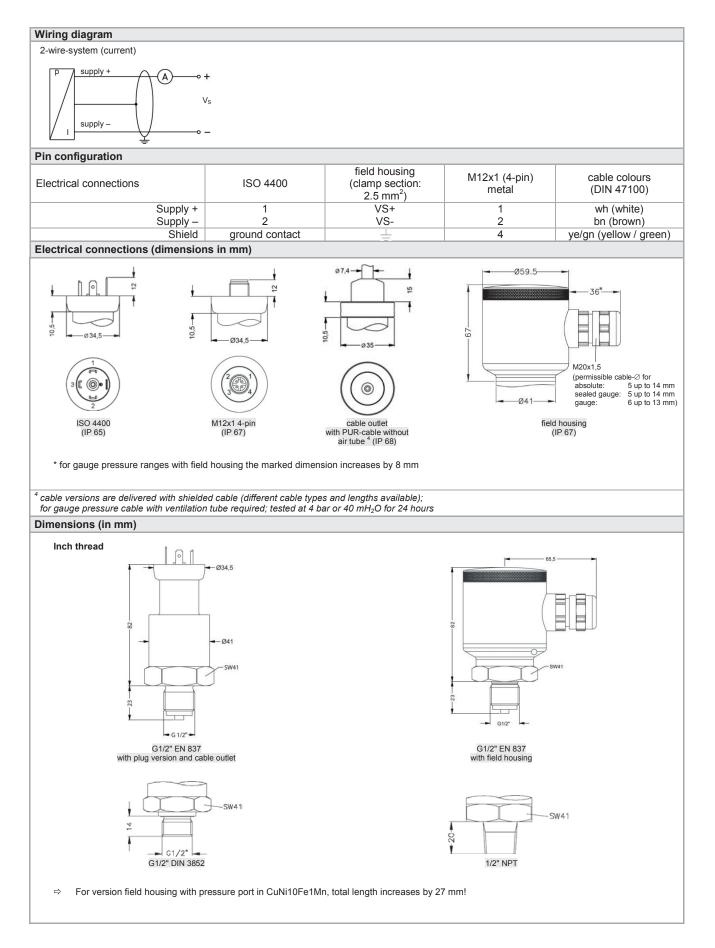




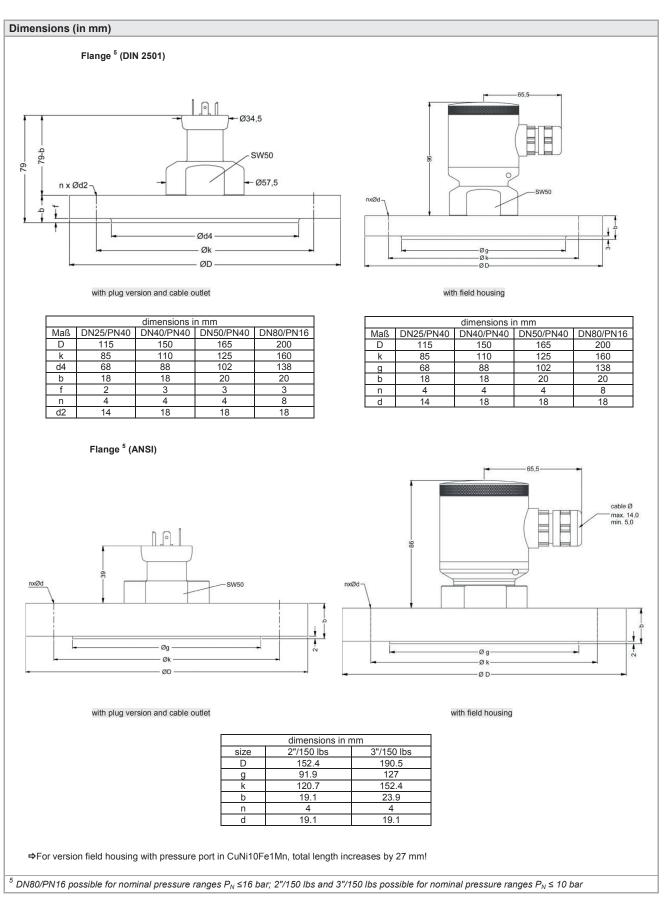


Pressure ranges																
Nominal pressure 1	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	20
Level	[mH ₂ O]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	200
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35	45	45
Permissible vacuum	[bar]	-0	.2	-	0.3		_(5					-1			
¹ available in gauge, sealed ga	auge and a	absolute	; nomir	nal pre	essure ra	anges se	ealed g	auge and	l absolu	te from	1 bar					
Output signal / Supply																
Standard		2-wir	'e' 4	20 n	nA/Vs	= 9	32 Vpc			V _{S rated}	= 24 V					
Option IS-version					nA/Vs					V _{S rated}						
Performance							0 . [• 3 Taleu		DC				
Accuracy ²		stand	lard:			< +	0.25	% FSO								
Accuracy				⊃ _N ≥ (0.6 bar											
Permissible load		-			_{min}) / 0.0											
Long term stability			.1 % F			02 A] 3	2									
Influence effects		supp			5 % FS	(10)	V									
		load:	-		5 % FS											
Turn-on time		700 r		0.0	J /01C	JO / KS2	2									
Mean response time) msec	<u>,</u>						moon	m00011	rina rot	0 5/000			
Max. response time		380 r		,						mean	neasu	ring rat	e b/set	,		
accuracy according to IEC 60	0770 //			ont /	on line	with a hard	torcai-	ronacta	bility ()							
² accuracy according to IEC 60 ³ Under the influence of disturb ³ Under the influence of disturb	bance hurs	it point à	aujustm dina to	EN 6	1001-110ea	1119, NYS 1 (2004)	2 kV a	curacy	ullity) lecreas	es on < .	+ 0 25 %	ESO				
Thermal effects			ang to	_,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		(2004)	- nv at	iouracy t		00 011 - 2	- 0.20 /	, 100.				
Thermal error		< + 0	.1 % F	SO /	10 K	in	romno	nsated	rance	-20	20 °C		_			_
Permissible temperature		1210	. 1 /0 1	307	TUR		Joinpe	IISaleu	lange ·	-20 0						
•	.5	medi					40 1	25 °C								
Permissible temperatures				1000	ironme		40 1 25									
		stora		/ env	IIOIIIIe		20 40 1									
Electrical protection		31014	ye.				+0	00 0								
		norm	anont													
Short-circuit protection	_		anent			fun ati										
Reverse polarity protection					also no				20		a se la ala a					
Electromagnetic compatib	ility	emis	sion ai		munity	accord	ling to	EN 613	26 and	Germa	anische	er Lloyc	I (GL)			
Mechanical stability		4 (01			DINE								
Vibration		4 g (a	accord	ing to	GL: C	urve 2	basis	: DIN EI	N 6006	08-2-6)						
Materials																
Pressure port					ess stee											
							is: Cur	vi10Fe1	IVIn - o	n reque	est					
Housing		stain	less st	eel 1	.4404 (316 L)										
Cable sheath		PUR														
for version cable outlet																
Cable gland								l plated		,						
for version field housing				amic	le (with	integra	ated pr	essure	referer	nce)				ers on		
Seals (media wetted)		FKM											oth	ers on	request	t
Diaphragm		stanc			nics Al											
		optio			nics Al											
Media wetted parts		press	sure po	ort, se	eals, dia	aphrag	m									
IS protection																
Approval DX14A-DMK 458	3				1180 >	<										
			housin					ne 0: II 1								
		-						ne 0: II 1	IG Ex i	a IIB T	4					
Safety technical					mA; P	= 660								_		
maximum values			housin					= 52.3 n								
				W12x				= 105 nl				opposit	e GND			
	for		ne 0:					h p _{atm} 0	.8 bar	up to 1	1 bar					
		zone	1 and	high	er: -2	5 70	°C									
environment	,			`												
Permissible temperatures environment Permissible temperatures	for	-40	. 85 °C	<i>,</i>										_	_	
environment Permissible temperatures medium	for	-40	. 85 °C	,		_	_	_								
environment Permissible temperatures medium Miscellaneous	for															
environment Permissible temperatures medium Miscellaneous Ingress protection	for		. 85 °(, IP 67		8											
environment Permissible temperatures medium Miscellaneous Ingress protection Installation position	for	IP65 any	, IP 67	, IP6	8											
environment Permissible temperatures medium Miscellaneous Ingress protection Installation position Current consumption	for	IP65 any max.	, IP 67 21 m/	, IP6												
environment Permissible temperatures medium	for	IP65 any max.	, IP 67 21 m/	, IP6		on hou	sing a	nd mech	nanical	conne	ction)					
environment Permissible temperatures medium Miscellaneous Ingress protection Installation position Current consumption	for	IP65 any max. min.	, IP 67 21 m/	, IP68 A (depe	ending	on hou	sing a	nd mech	nanical	conne	ction)					
environment Permissible temperatures medium Miscellaneous Ingress protection Installation position Current consumption Weight	for	IP65 any max. min. > 100	, IP 67 21 m/ 400 g) x 10 ⁶	, IP6	ending		sing a	nd mech	nanical	conne	ction)					

DMK 458 Technical Data



DMK 458 Technical Data



DMK 458 Ordering Code

DMK 458]-[]-[]-[]]]
Pressure		
in bar, gauge in bar, absolute ¹	5 9 A 5 9 B	
in bar, sealed gauge ¹	5 9 E	consult
in mH ₂ O, gauge	5 9 C	
in mH ₂ O, absolute ¹	5 9 D	consult
in mH ₂ O, sealed gauge ¹ Input [mH ₂ O] [bar]	5 9 F	consult
0.4 0.04	0 4 0 0	
0.6 0.06	0 6 0 0	
1.0 0.1		
1.6 0.16 2.5 0.25	1 6 0 0 2 5 0 0	
4.0 0.40		
6.0 0.60		
10 1.0	1 0 0 1	
16 1.6	1 6 0 1	
25 2.5 40 4.0	2 5 0 1 4 0 0 1	
40 4.0 60 6.0		
100 10	1 0 0 2	
160 16	1 6 0 2	
200 20	2 0 0 2	
Output	9999	consult
4 20 mA / 2-wire	1	
Intrinsic safety 4 20 mA / 2-wire	E	
Accuracy	9	consult
standard: 0.25%	2	
option for $P_n > 0.6$ bar: 0.1%	1	
customer	9	consult
Electrical connection Male and female plug ISO 4400 ²		
(for cable Ø 4 6 mm)	G 1 0	
Male and female plug ISO 4400 GL ²	GOO	
(for cable Ø 10 … 14 mm) Male and female plug ISO 4400 GL ²		
(for cable Ø 4.5 11 mm)	G 0 1	
Male plug M12x1 (4-pin) /	M 1 0	
metal version		
Cable outlet with PUR-cable (with ventilation tube)	T R 1	
Field housing, absolute, sealed gauge	8 8 0	
customer	9 9 9	consult
Mechanical connection		
G 1/2" DIN 3852 G 1/2" EN 837	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	
1/2" NPT		
Flange DN 25 / PN 40 (DIN 2501)	F 2 0	
Flange DN 40 / PN 40 (DIN 2501)	N 0 0 F 2 0 F 2 2 F 2 3	
Flange DN 50 / PN 40 (DIN 2501)	F 2 3	
Flange DN 80 / PN 16 (DIN 2501) ³ Flange DN 2" / 150 lbs (ANSI B 16.5)	F 1 4 F 3 2	
Flange DN 3" / 150 lbs (ANSI B 16.5)	F 3 3	
customer	F 3 3 9 9 9	consult
Seals		1
FKM andere		1 consult
Pressure port		
Stainless steel 1.4404 (316L)		8
Copper-Nickel-alloy (CuNi10Fe1Mn) ⁴		K consult
Customer Diaphragm		9 consult
Ceramics Al ₂ O ₃ 96%		2
Ceramics Al ₂ O ₃ 99.9%		C
customer		9 consult
Special version standard		0.0.0
customer		0 0 0 9 9 9 consult
¹ nominal pressure ranges absolute and sealed gauge fro	1 har	

¹ nominal pressure ranges absolute and sealed gauge from 1 bar

² female plug is GL-approbated

 3 DN80/PN16 possible for nominal pressure ranges PN ≤ 16 bar; 2"/150 lbs and 3"/150 lbs possible for nominal pressure ranges PN≤ 10 bar

⁴ CuNi10Fe1Mn only possible in combination with inch thread

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INDUSTRIAL PRESSURE TRANSMITTER



DMK 457

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

- shipping approvals GL (Germanischer Lloyd), DNV (Det Norske Veritas) and CCS (China Classification Society)
- pressure port CuNiFe (sea water resistant)
- oxygen application

Optional versions

IS-version Ex 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.

The DMK 457 is approved by Germanischer Lloyd (GL), Det Norske Veritas (DNV) and China Classification Society (CCS).

Preferred areas of use are

Drives Compressors



Boiler Pneumatic Control Systems **Oxygen Applications**



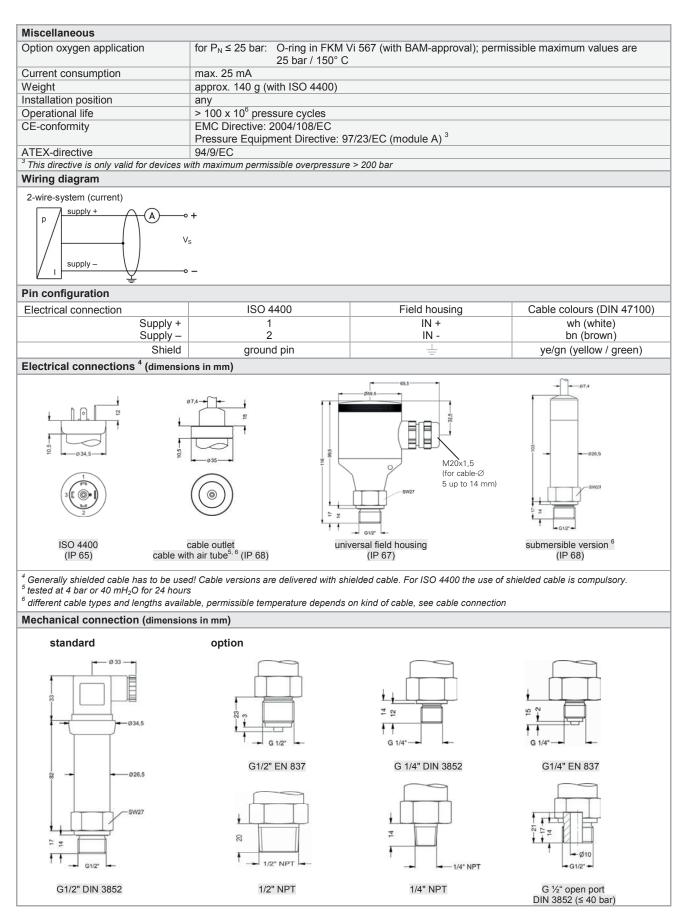
Fuel and Oil



Water and Sea Water



Input pressure range																			
Nominal pressure gauge	[bar]	-1 0	04	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		2.5		6	10	16	25	40	60	100	160	250	400	600
Level gauge / abs.	[mH ₂ O]	-	-	6	10	16	25		60	100		250			-	-	-	-	-
Overpressure	[bar]		1	2	2	4	4	10	10	20	40	40	100	100	200	400	400	600	80
Burst pressure ≥	[bar]	7	2	4	4	5	5	12	12	25	50	50	120	120	250			650	88
Vacuum resistance		P _N ≥ 1	bar: u	Inlimit	ed va	acuur		istan	ce		1	1							
		P _N < 1																	
Output signal / Supply																			
Standard		2-wire:	·	1 20) mA	/ Vo	= 8	32	Vee										
Option IS-protection		2-wire:		1 20															
· ·		2-0010		τ <i>Ζ</i> ι		/vs	- 10	20	V DC										
Performance					/														
Accuracy ¹		IEC 60																	
Permissible load		R _{max} =																	
Influence effects		supply					V												
		load:		05 %	FSO	/ KΩ													
Response time	770 //	< 10 m					h			4 - 1- : ! : 4	.)								
¹ accuracy according to IEC 60								resis,	repea	itability	/)								
Thermal effects (Offset an	nd Span	,			•	ature	es												
Thermal error		≤ ± 0.2 in com				: -25	85	°C											
Permissible temperatures		mediu						12	25 °C										
		electro	nics	/ envi	ronm	ent:		8											
		storag	e:				-40	10	0° 00										
Electrical protection																			
Short-circuit protection		perma	nent																
Reverse polarity protection		no dan		but a	also r	no fur	oction												
Electromagnetic compatibil		emissi																	
	-9		N 61			,		0											
		- 0	Germa	anisch	ner Ll	oyd (GL)												
		- C	et No	orske	Verit	as (D	NV)												
Mechanical stability					0		• <i>i</i>												
Vibration		4 g (ac	cordi	ng to	GL:	curve	2/a	ccorc	ling to	0 DN	V: Clas	SS B /	basis	E IEC 6	50068	-2-6)			
Materials																			
Pressure port		Standa								04 (3									
		option	-:								er resi								
											352, G EN 837								
							uNi1			1/4 C					VILLI LIC	Jusing			
Housing		standa	urd:							04 (3	161.)								
riousing		option									er resi	stant)	- in co	mhin	ation v	with nr	essur	þ	
		option	•				in C				51 1001	stanty				nur pi	oooun	•	
		option	field	housi	na:	stai	nless	stee	1.44	104 (3	816L);	with c	able c	aland					
Cable sheath				ble ou							le vers				ermiss	sible te	emper	atures	;
				- cab						-						-5 7	<u> </u>		
			PUR	- cab	le						e cable				-2	25 `	70 °C		
											e cable				-2	25 `	70 °C		
								Т	PE -	probe	e cable	Э			-2	25 1	25 °C	;	
						FKN	Л												
Seals (media wetted)		standa						KN1 (1	- nlv f										
Seals (media wetted)		option				NB	х, гг		July 1	or P _N	≤ 100	bar)							
		option: others	on re			NBI	х, гг		JIIIY I	or P _N	≤ 100	bar)							
Diaphragm		option: others ceram	on re	O₃ 96	%					or P _N	≤ 100	bar)							
Diaphragm Media wetted parts		option: others	on re	O₃ 96	%					or P _N	≤ 100	bar)							
Diaphragm Media wetted parts ² IS-version on request	20	option: others ceram pressu	on re ic Al ₂ ire po	O₃ 96	%					or P _N	≤ 100	bar)							
Diaphragm Media wetted parts ² <i>IS-version on request</i> IS-protection (only for 4	20 m/	option: others ceram pressu	on re ic Al ₂ ire po e)	O₃ 96 ort, se	% als, c	liaphi	agm					bar)							
Diaphragm Media wetted parts ² <i>IS-version on request</i> IS-protection (only for 4 Approvals	20 m/	option: others ceram pressu A / 2-wir IBExU	on re ic Al ₂ ire po e) 10 A	O ₃ 96 ort, se	% als, c 1068	liaphi	ragm IEC	Ex IE				bar)							
Diaphragm Media wetted parts ² <i>IS-version on request</i> IS-protection (only for 4 Approvals	20 m/	option: others ceram pressu A / 2-win IBExU zone 0	on re ic Al ₂ ire po e) 10 A	0 ₃ 96 ort, se TEX II 1G	% als, c 1068 Ex ia	liaphi X / IIB T	agm IEC 4 Ga	Ex IE				bar)							
Diaphragm Media wetted parts ² <i>IS-version on request</i> IS-protection (only for 4 Approvals	20 m/	option: others ceram pressu A / 2-win IBExU zone 0 zone 2	on re ic Al ₂ ire po e) 10 A	O ₃ 96 ort, se TEX II 1G II 1D I	% als, c 1068 Ex ia Ex ia	liaphi X / IIB T IIIC	гадт IEC ⁻ 4 Gа Г 85°(Ex IE	BE 12	2.0027	7X								
Diaphragm Media wetted parts ² <i>IS-version on request</i> IS-protection (only for 4 Approvals DX19-DMK 457		option: others ceram pressu A / 2-win IBExU zone 0 zone 2 U _i = 28	on re ic Al ₂ ire po e) 10 A : 20: 1 3 V, I _i	0 ₃ 96 ort, se TEX II 1G II 1D I = 93	% als, c 1068 Ex ia Ex ia mA,	liaphi IIB 7 IIIC ⁻ P _i = 6	гадт IEC ⁻ 4 Gа Г 85° (660 m	Ex IE C Da W, C	BE 12	2. 002 7	7 X , L _i = 5			the he					
Diaphragm Media wetted parts ² <i>IS-version on request</i> IS-protection (only for 4 Approvals DX19-DMK 457 Safety technical maximum	values	option: others ceram pressu A / 2-wir IBExU zone 0 zone 2 U _i = 28 the su	on re ic Al ₂ ire po e) 10 A : : : : : : : : : : : : : : : : : : :	0 ₃ 96 ort, se TEX II 1G II 1D I = 93	% als, c 1068 Ex ia Ex ia mA, l ction	liaphi IIB T IIIC ⁻ P _i = 6 s hav	гадт IEC 4 Ga Г 85° 60 m ге ап	Ex IE C Da W, C inner	BE 12 i = 10 capa	2. 0027 05 nF	7 X , L _i = 5 of max	6 μH, . 140		the ho	using				
Diaphragm Media wetted parts ² IS-version on request	values	option: others ceram pressu 1 / 2-win 1 BExU zone 0 zone 2 U _i = 28 the su in zone	on re ic Al ₂ (ire po e) 10 A : : : : : : : : : : : : : : : : : : :	0 ₃ 96 ort, se ATEX II 1G II 1D I = 93 conne	% als, c 1068 Ex ia Ex ia mA, ction	liaphi IIB T IIIC ⁻ P _i = 6 s hav 20	гадт IEC 74 Ga Г 85° (660 m ге ап 60 ° (Ex IE C Da W, C inner C with	BE 12 i = 10 capa	2. 0027 05 nF	7 X , L _i = 5	6 μH, . 140		the ho	using				
Diaphragm Media wetted parts ² <i>IS-version on request</i> IS-protection (only for 4 Approvals DX19-DMK 457 Safety technical maximum	values	option: others ceram pressu A / 2-wir IBExU zone 0 zone 2 U _i = 28 the su	e) 10 Al ₂ (10 PC 10 A 10	0 ₃ 96 ort, se ATEX II 1G II 1D I = 93 conne	% als, c 1068 Ex ia Ex ia mA, ction	liaphi IIB T IIIC ⁻ P _i = 6 s hav 20 20	ragm IEC 4 Ga 7 85°(60 m 7 85°(60 °(70 °(Ex IE C Da W, C inner C with C	BE 12 i = 10 capa n p _{atm}	2.0027 05 nF acity c 0.8 b	7 X , L _i = 5 of max	i μH, . 140 to 1.1	bar						



DMK 457 Ordering Code

DMK 457		-]-[_	-[-]-[Π].	- 🗌	-	-□	- 🗌]
Pressure	5 0 0														
in bar, gauge in bar, absolute	5 9 0 5 9 1 5 9 2														
in mH ₂ O, gauge in mH ₂ O, absolute	5 9 2 5 9 3														
Input [mH ₂ O] [bar]	0 0 0														
4 0.4 6 0.6		4 0 0 0													
10 1.0		1 0 0 1													
16 1.6 25 2.5		1 6 0 1 2 5 0 1													
40 4.0		4 0 0 1								_	_				
60 6.0 100 10		6 0 0 1 1 0 0 2													
160 16 250 25		1 6 0 2													
400 40		4 0 0 2													
600 60 100		6002								_					
160		1 6 0 3													
250 400		2 5 0 3													
600		6 0 0 3													
-1 0 customer		$ \begin{array}{cccccccccccccccccccccccccccccccccccc$								_					consult
Output		0 0 0 0													Conoun
4 20 mA / 2-wire Intrinsic safety 4 20 mA / 2-wire			1 E												
customer			9												consult
Accuracy 0.5 %				5											
customer				9						_	_		_		consult
Electrical connection Male and female plug ISO 4400	_	_			0	1 0									
(for cable Ø 46 mm)	2				G	1 0									
Male and female plug ISO 4400 GL ¹ (for cable Ø 1014 mm)					G	0 0									
Male and female plug ISO 4400 GL ¹	, 2				G	0 1									
(for cable Ø 4.511 mm) Cable outlet ¹	, 3				т	R 0									
Field housing stainless steel Submersible version (1.4404 / 316L)					8	8 0									
with PUR cable ¹	, 3				Т	T 1									
Submersible version (CuNiFe) with PUR cable ¹	, 3				т	S 1									
customer					9	99									consult
Mechanical connection G1/2" DIN 3852							1	0	0						
G1/2" EN 837							2	0	0						
G1/4" DIN 3852 G1/4" EN 837							3 4	0	0						
G1/2" DIN 3852 open pressure port ⁴							H	0	0						
1/2" NPT 1/4" NPT							N	0 0 4 9	0						
customer							9	9	9						consult
Seals FKM										1					
FFKM 5										7					
option NBR ^o customer										5 9					consult
Pressure port Stainless steel 1.4404 (316L)											1				
Copper-Nickel-alloy (CuNi10Fe1Mn) 6											1 K 9				
customer Diaphragm											9				consult
Ceramics Al ₂ O ₃ 96%												2			
customer Special version												9			consult
standard													0	0 0	
oxygen application ⁷ customer													0	0 0 0 7 9 9	consult
Gustomer													5	0 0	consult

¹ Shielded cable has to be used! Cable versions are delivered with shielded cable.

² female plug is GL-approbated
 ³ different cable types and lengths deliverable, permissible temperature depends on kind of cable

 4 only for $P_{\rm N}$ \leq 40 bar possible

 5 only for $\rm P_N \le 100$ 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 port,

G1/4" DIN 3852, G1/4" EN837 in combination with housing in CuNi10Fe1Mn

 $^{7}\,$ oxygen application with FKM seal possible up to 25 bar

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

⁹⁰ INDUSTRIAL PRESSURE TRANSMITTER



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 according to IEC 61508 / IEC 61511
- Diaphragm in Hastelloy[®] or Tantalum
- cooling element for media temperatures up to 300 °C

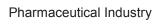
The pressure transmitter DMP 331P was designed for use in the food / beverage and pharmaceutical industry. The compact design with hygienic versions makes it possible to achieve an outstanding performance in terms of accuracy, temperature behavior and long term stability.

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



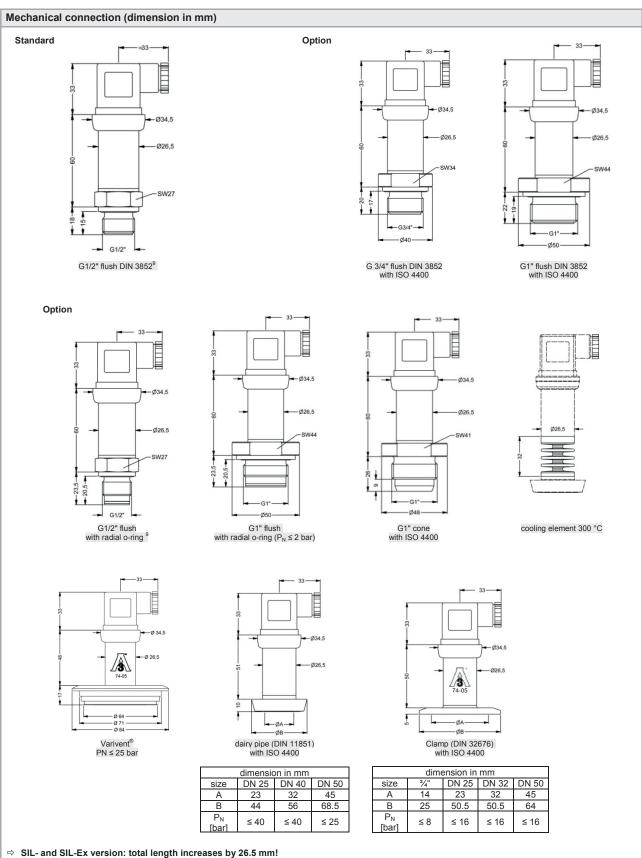
Material and test certificates

- inspection certificate 3.1 according to EN 10204
- test report 2.2 according to EN 10204



Input pressure range ¹									
Nominal pressure									
gauge / abs.	[bar]	-10	0.10	0.16	0.25	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
•	[bai]	1.5	1.0	1.5	1.5	0	1.5	1.5	10
Nominal pressure	[bar]	2.5	4	6	10	16	25	40	
gauge / abs.									
Overpressure	[bar]	10	20	40	40	80	80	105	
Burst pressure ≥	[bar]	15	25	50	50	120	120	210	
Vacuum resistance				cuum resistan	се				
1		$P_N \le 1$ bar: (•						
¹ consider the pressure resis	stance of fitt	ing and clamps	5						
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 2	28 V _{DC}				
Options 3-wire		3-wire: 0	20 mA	/ V _s = 14 3	30 V _{DC}				
				/ V _s = 14 3					
Performance									
Accuracy ²		standard:	nominal pr	essure < 0.4 l	oar: ≤±0	.5 % FSO			
,				essure ≥ 0.4 k		.35 % FSO			
		option:	nominal pr	essure ≥ 0.4 ł	oar: ≤±0	.25 % FSO			
Permissible load		current 2-w		= [(V _S - V _{S min})					
i cimiosibic ludu		current 3-w		- [(vs — vs min) = 500 Ω	1 0.02 AJ 32				
		voltage 3-v							
Influence offacto				10 kΩ	lood: 0		kO		
Influence effects			.05 % FSO /			.05 % FSO /	K75		
Long term stability				t reference co					
Response time		2-wire: < 1				≤ 3 msec			
² accuracy according to IEC					, repeatability)				
Thermal effects (Offset	t and Spar	n) ° / Permiss	sible temper	atures					
Nominal pressure P _N	[bar]		-1 0		< (.40		≥ 0.40	
Tolerance band	[% FSO]		≤±0.75		≤ ±	1,5		≤ ± 0.75	
in compensated range	[°C]		-20 85		0	. 50		-20 85	
Permissible temperature	es ⁴	medium:		-40 1 -10 1	25 °C for filli	ng fluid silico ng fluid food	n oil compatible o	vil	
		electronics	/ environme			ing hald lood		 ige: -40 10	D°C
Permissible temperature	medium	filling fluid				-40 300 °		um: -40 15	
						-10 250 °C		um: -10 15	
		tilling fluid t	food compati	ible oil o	vernressure.				
for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m	°C nt can influer	ice thermal eff	food compati fects for offset e gauge > 0 ba	and span depe	nding on instal	lation position a	and filling cond	litions.	0.0
for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for $P_{abs} \le 1$ bar	°C nt can influer	ice thermal eff	ects for offset	and span depe	nding on instal	lation position a	and filling cond	litions.	
for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection	°C nt can influer	nce thermal eff pminal pressur	ects for offset e gauge > 0 ba	and span depe	nding on instal	lation position a	and filling cond	litions.	
for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection	°C nt can influer nedium for no	nce thermal eff ominal pressur	ects for offset e gauge > 0 ba	and span depe ar: 150 °C for 6	nding on instal	lation position a	and filling cond	litions.	
for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protecti	°C nt can influer nedium for no	nce thermal eff ominal pressur	ects for offset e gauge > 0 ba	and span depe ar: 150 °C for 6	nding on instal	lation position a	and filling cond	litions.	
for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protecti Electromagnetic	°C nt can influer nedium for no	permanent	ects for offset e gauge > 0 ba e, but also no	and span dependent of the span dependent of	nding on instal 0 minutes with	lation position a	and filling cond	litions.	
for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protecti Electromagnetic compatibility	°C nt can influer nedium for no	permanent	ects for offset e gauge > 0 ba e, but also no	and span depe ar: 150 °C for 6	nding on instal 0 minutes with	lation position a	and filling cond	litions.	
for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protecti Electromagnetic compatibility Mechanical stability	°C nt can influer nedium for no	permanent	ects for offset e gauge > 0 ba e, but also no	and span dependent of the span dependent of	nding on instal 0 minutes with	lation position a	and filling cond	litions.	
for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protecti Electromagnetic compatibility Mechanical stability Vibration	C nt can influen nedium for no	permanent no damage emission a	ects for offset e gauge > 0 ba e, but also no nd immunity	and span depe ar: 150 °C for 6 b function according to	nding on instal 0 minutes with EN 61326	lation position a a max. environ	and filling cond mental temper	iltions. rature of 50 °C	
for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protecti Electromagnetic compatibility Mechanical stability Vibration according to DIN EN 600	C nt can influen nedium for no	permanent no damage emission a	ects for offset e gauge > 0 ba e, but also no	and span depe ar: 150 °C for 6 b function according to	nding on instal 0 minutes with EN 61326	lation position a	and filling cond mental temper	iltions. rature of 50 °C	
for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protecti Electromagnetic compatibility Mechanical stability Vibration according to DIN EN 600 Shock	C nt can influence nedium for no ion 068-2-6	permanent no damage emission a G 1/2": 20	ects for offset e gauge > 0 ba e, but also no nd immunity	and span depear: 150 °C for 60 o function according to 2000 Hz)	nding on instal 0 minutes with EN 61326 others: 1	lation position a a max. environ	and filling cond mental temper	iltions. rature of 50 °C	
for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protecti Electromagnetic compatibility Mechanical stability Vibration according to DIN EN 600 Shock according to DIN EN 600	C nt can influence nedium for no ion 068-2-6	permanent no damage emission a G 1/2": 20	ects for offset e gauge > 0 ba e, but also no nd immunity g RMS (25	and span depear: 150 °C for 60 o function according to 2000 Hz)	nding on instal 0 minutes with EN 61326 others: 1	lation position a a max. environ	and filling cond mental temper	iltions. rature of 50 °C	
for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protecti Electromagnetic compatibility Mechanical stability Vibration according to DIN EN 600 Shock according to DIN EN 600 Filling fluids	C nt can influence nedium for no ion 068-2-6	permanent no damage emission a G 1/2": 20 G 1/2": 50	ects for offset e gauge > 0 ba e, but also no nd immunity g RMS (25	and span depear: 150 °C for 60 o function according to 2000 Hz)	nding on instal 0 minutes with EN 61326 others: 1	lation position a a max. environ	and filling cond mental temper	iltions. rature of 50 °C	
for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protecti Electromagnetic compatibility Mechanical stability Vibration according to DIN EN 600 Shock according to DIN EN 600 Filling fluids Standard	C nt can influence nedium for no ion 068-2-6	permanent no damage emission a G 1/2": 20 G 1/2": 50	ects for offset e gauge > 0 ba , but also no nd immunity g RMS (25 0 g / 1 msec	and span deperant deperant is and span deperant is an and span deperant is a span dependent of the span dependent is a span dependent of the span dependent is a span dependent of the span dependent	ending on instal o minutes with EN 61326 others: 1 others: 1	lation position a a max. environ	and filling cond mental temper	iltions. rature of 50 °C	
for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protecti Electromagnetic compatibility Mechanical stability Vibration according to DIN EN 600 Shock according to DIN EN 600 Filling fluids Standard	C nt can influence nedium for no ion 068-2-6	permanent no damage emission a G 1/2": 20 G 1/2": 50 silicon oil food compa	ects for offset e gauge > 0 ba , but also no nd immunity g RMS (25 0 g / 1 msec atible oil with	and span depear: 150 °C for 60 o function according to 2000 Hz)	ending on instal o minutes with EN 61326 others: 1 others: 1	lation position a a max. environ 0 g RMS (25 00 g / 1 msec	and filling cond mental temper 2000 Hz)	iltions. rature of 50 °C	
for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protecti Electromagnetic compatibility Mechanical stability Vibration according to DIN EN 600 Shock according to DIN EN 600 Filling fluids Standard Options	C nt can influence nedium for no ion 068-2-6	permanent no damage emission a G 1/2": 20 G 1/2": 50 silicon oil food compa	ects for offset e gauge > 0 ba , but also no nd immunity g RMS (25 0 g / 1 msec atible oil with	and span deperant of the span deperant of the span dependent of th	ending on instal o minutes with EN 61326 others: 1 others: 1	lation position a a max. environ 0 g RMS (25 00 g / 1 msec	and filling cond mental temper 2000 Hz)	itions. rature of 50 °C	
for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protecti Electromagnetic compatibility Mechanical stability Vibration according to DIN EN 600 Shock according to DIN EN 600 Filling fluids Standard Options Materials	C nt can influence nedium for no ion 068-2-6	ce thermal eff permanent no damage emission a G 1/2": 20 G 1/2": 50 silicon oil food compa (Mobil DTE	ects for offset e gauge > 0 ba e, but also no nd immunity g RMS (25 . 0 g / 1 msec atible oil with FM 32; Cat	and span deperant and span deperant of function according to 2000 Hz) FDA approvategory Code: H	ending on instal o minutes with EN 61326 others: 1 others: 1	lation position a a max. environ 0 g RMS (25 00 g / 1 msec istration No.:	and filling cond mental temper 2000 Hz)	itions. rature of 50 °C	
for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protecti Electromagnetic compatibility Mechanical stability Vibration according to DIN EN 600 Shock according to DIN EN 600 Filling fluids Standard Options Materials Pressure port	C nt can influence nedium for no ion 068-2-6	ce thermal eff permanent no damage emission a G 1/2": 20 G 1/2": 50 silicon oil food compa (Mobil DTE stainless st	ects for offset e gauge > 0 ba , but also no nd immunity g RMS (25 0 g / 1 msec atible oil with	and span deperant and span deperant of function according to 2000 Hz) FDA approvategory Code: H 316 L)	ending on instal o minutes with EN 61326 others: 1 others: 1 al 11; NSF Reg	lation position a a max. environ 0 g RMS (25 00 g / 1 msec istration No.:	and filling cond mental temper 2000 Hz)	itions. rature of 50 °C	
for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protecti Electromagnetic compatibility Mechanical stability Vibration according to DIN EN 600 Shock according to DIN EN 600 Filling fluids Standard Options Materials Pressure port Housing	C nt can influence addium for no ion D68-2-6 D68-2-27	ce thermal eff permanent no damage emission a G 1/2": 20 G 1/2": 50 silicon oil food compa (Mobil DTE stainless st stainless st	ects for offset e gauge > 0 ba e, but also no nd immunity g RMS (25 . 0 g / 1 msec atible oil with FM 32; Cat teel 1.4404 (teel 1.4404 (and span deperant of the span deperant is and span deperant is a span deperant is a span deperant is a span deperant is a span dependent is a span	ending on instal o minutes with EN 61326 others: 1 others: 1 al H1; NSF Reg others on	ation position a a max. environ 0 g RMS (25 00 g / 1 msec istration No.:	and filling cond mental temper 2000 Hz)	itions. rature of 50 °C	equest
for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protecti Electromagnetic compatibility Mechanical stability Vibration according to DIN EN 600 Shock according to DIN EN 600 Filling fluids Standard Options Materials Pressure port Housing Option compact field hou	C nt can influence addium for no ion D68-2-6 D68-2-27	ce thermal eff permanent no damage emission a G 1/2": 20 G 1/2": 50 silicon oil food compa (Mobil DTE stainless st stainless st	ects for offset e gauge > 0 ba e, but also no nd immunity g RMS (25 . 0 g / 1 msec atible oil with FM 32; Cat teel 1.4404 (teel 1.4404 (and span deperant and span deperant of function according to 2000 Hz) FDA approvategory Code: H 316 L)	ending on instal o minutes with EN 61326 others: 1 others: 1 al H1; NSF Reg others on	ation position a a max. environ 0 g RMS (25 00 g / 1 msec istration No.:	and filling cond mental temper 2000 Hz)	itions. rature of 50 °C	equest
for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protecti Electromagnetic compatibility Mechanical stability Vibration according to DIN EN 600 Shock according to DIN EN 600 Filling fluids Standard Options Materials Pressure port Housing Option compact field hou Seals (media wetted)	C nt can influence addium for no ion D68-2-6 D68-2-27	ce thermal eff permanent no damage emission a G 1/2": 20 G 1/2": 50 silicon oil food compa (Mobil DTE stainless st stainless st stainless st	ects for offset e gauge > 0 ba e, but also no nd immunity g RMS (25 . 0 g / 1 msec atible oil with EFM 32; Cati teel 1.4404 (teel 1.4405 (and span deperant deperant is pain deperant in the span deperant is paint in the span dependent in the span dependent is paint in the span dependent in the span dependent is paint in the span dependent in the span dependent is paint in the span dependent in	ending on instal o minutes with EN 61326 others: 1 others: 1 al H1; NSF Reg others on and brass, n	ation position a a max. environ 0 g RMS (25 00 g / 1 msec istration No.: request ickel plated	and filling cond mental temper 2000 Hz)	itions. rature of 50 °C	equest
for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protecti Electromagnetic compatibility Mechanical stability Vibration according to DIN EN 600 Shock according to DIN EN 600 Filling fluids Standard Options Materials Pressure port Housing Option compact field hou Seals (media wetted) Standard	C nt can influence addium for no ion D68-2-6 D68-2-27	ce thermal eff permanent no damage emission a G 1/2": 20 G 1/2": 50 silicon oil food compa (Mobil DTE stainless st stainless st stainless st	ects for offset e gauge > 0 ba e, but also no nd immunity g RMS (25 . 0 g / 1 msec atible oil with E FM 32; Cat teel 1.4404 (teel 1.4404 (teel 1.4305 (and span deperant deperant is pain deperant in the span deperant is paint in the span dependent in the span dependent is paint in the span dependent in the span dependent is paint in the span dependent	ending on instal 0 minutes with EN 61326 others: 1 others: 1 al H1; NSF Reg others on and brass, n uperatures ≤ ≤	ation position a a max. environ 0 g RMS (25 00 g / 1 msec istration No.: request ickel plated 200 °C)	and filling cond mental temper 2000 Hz)	itions. rature of 50 °C	equest
for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protecti Electromagnetic compatibility Mechanical stability Vibration according to DIN EN 600 Shock according to DIN EN 600 Filling fluids Standard Options Materials Pressure port Housing Option compact field hou Seals (media wetted) Standard	C nt can influence addium for no ion D68-2-6 D68-2-27	ce thermal eff permanent no damage emission a G 1/2": 20 G 1/2": 50 silicon oil food compa (Mobil DTE stainless si stainless si stainless si stainless si	ects for offset e gauge > 0 ba e, but also no nd immunity g RMS (25 0 g / 1 msec atible oil with EFM 32; Cat teel 1.4404 (teel 1.4404 (teel 1.4305 (mmended fo oommended fo	and span deperar: 150 °C for 60 ar: 150 °C for 60 according to 2000 Hz) FDA approva egory Code: I 316 L) 316 L) 303), cable gl r medium tem or medium tem	ending on instal o minutes with EN 61326 others: 1 others: 1 al -11; NSF Reg others on and brass, n operatures ≤ 3 mperatures ≤	ation position a a max. environ 0 g RMS (25 00 g / 1 msec istration No.: request ickel plated 200 °C)	and filling cond mental temper 2000 Hz)	itions. rature of 50 °C	equest
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for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protecti Electromagnetic compatibility Mechanical stability Vibration according to DIN EN 600 Shock according to DIN EN 600 Filling fluids Standard Options Materials Pressure port Housing Option compact field hou Seals (media wetted) Standard Optional Diaphragm	C nt can influence addium for no ion D68-2-6 D68-2-27	ce thermal eff permanent no damage emission a G 1/2": 20 G 1/2": 50 Silicon oil food compa (Mobil DTE stainless si stainless si stainless si stainless si stainless si	ects for offset e gauge > 0 ba e, but also no nd immunity g RMS (25 . 0 g / 1 msec atible oil with E FM 32; Cat teel 1.4404 (teel 1.4404 (teel 1.4305 (mmended fo ommended fo	and span deperant of the span deperant is and span deperant is a span dependent is a span de	ending on instal o minutes with EN 61326 others: 1 others: 1 al -11; NSF Reg others on and brass, n operatures ≤ 3 mperatures ≤	ation position a a max. environ 0 g RMS (25 00 g / 1 msec istration No.: request ickel plated 200 °C)	and filling cond mental temper 2000 Hz)	itions. rature of 50 °C	equest
for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protecti Electromagnetic compatibility Mechanical stability Vibration according to DIN EN 600 Shock according to DIN EN 600 Filling fluids Standard Options Materials Pressure port Housing Option compact field hou Seals (media wetted) Standard Optional	C nt can influence addium for no ion D68-2-6 D68-2-27	permanent no damage emission a G 1/2": 20 G 1/2": 50 silicon oil food compa (Mobil DTE stainless st stainless st stainless st stainless st stainless st stainless st stainless st stainless st stainless st	ects for offset e gauge > 0 ba e, but also no nd immunity g RMS (25 0 g / 1 msec atible oil with EFM 32; Cat teel 1.4404 (teel 1.4404 (teel 1.4305 (mmended fo oommended fo	and span deperant of the span deperant is a span dependent of the	ending on instal o minutes with EN 61326 others: 1 others: 1 al -11; NSF Reg others on and brass, n operatures ≤ 3 mperatures ≤	ation position a a max. environ 0 g RMS (25 00 g / 1 msec istration No.: request ickel plated 200 °C)	and filling cond mental temper 2000 Hz)	itions. rature of 50 °C	equest equest equest

Explosion protection (only for 4 .					
Approvals DX 19-DMP 331P	IBExU 10 ATEX 10 zone 0: II 1G Ex	68 X / IECEx IBI ia IIC T4 Ga		II 1D Ex ia IIIC T 8	5°C Da
Safety technical maximum values	$U_i = 28 V, I_i = 93 mA$ the supply connection		≈ 0 nF, L _i ≈ 0 μH, capacity of max. 27 nF	to the housing	
Max. temperatures for environment	in zone 0: in zone 1 or higher:		n p _{atm} 0.8 bar up to 1.1		
Connecting cables by factory)	cable capacitance: cable inductance:	signal line/shiel	d also signal line/signa d also signal line/signa		
Miscellaneous					
Option SIL ⁶ 2	according to IEC 61	508 / IEC 61511			
Current consumption	signal output curren		signal outp	ut voltage: ma	x. 7 mA
Veight	min. 200 g (dependi			at voltago. ma	
installation position	any (standard calibr	ation in a vertical p	position with the pressu bar have to be specifi	ure port connection ed in the order)	down;
Operational life	> 100 x 10 ⁶ pressure	e cycles			
CE-conformity	EMC Directive: 2004	4/108/EC			
ATEX Directive	94/4/EG				
³ only for 4 20 mA / 2-wire					
Wiring diagrams					
2-wire-system (current)		2 wir	e-system (current / voltag	<u>م)</u>	
			supply +		
p supply + A a supply - E	-• + Vs -• -	p	I/U signal +	-(AV)	
Pin configuration					
Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	field housing	cable colours (DIN 47100)
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		ye/gn
	<u> </u>	•		=	(yellow / green)
Electrical connections (dimensio	,				
standard	option	1	M12x1		Ø4,3
	900	9 9 1	2 2 2 2 2 2 2 2 2 2 2 2 2 2 3 4,5 -		¢35
ISO 4400 (IP 65)	Binder Series 72 (IP 67)	3	M12x1 4-pin (IP 67)	cabl	e outlet with PVC cable (IP 67) ⁷
		49,5 49,5 M12x1,5 0 26,5	- SOI		
..	(1	ield housing P 67)		, cable with ventilation tub (IP 68) ⁸	De
universal field housing stainle and other versions on reques		with cable gland M	· -	80)	
standard: 2 m PVC cable without ventil					



⇒ metric threads and other versions on request

⁹ possible only for $P_N \ge 1$ bar

DMP 331P	<u></u>	
Pressure gauge	5 0 0 5 0 1	
absolute Input [bar]		
0.10 0.16		
0.25 0.40	2 5 0 0 4 0 0 0	
0.60	6 0 0 0	
1.0 1.6	1 0 0 1 1 1 6 0 1	
2.5 4.0	2 5 0 1 4 0 0 1	
6.0	6 0 0 1	
10 16	1 6 0 2	
25 40	2 5 0 2 4 0 0 2	
-1 0 customer	4 0 0 2 X 1 0 2 9 9 9 9	consult
Output		Consult
4 20 mA / 2-wire 0 20 mA / 3-wire	1 2	
0 10 V / 3-wire Intrinsic safety 4 20 mA / 2-wire	3 E E E E E E E E E E E E E E E E E E E	
SIL2 4 20 mA / 2-wire	1S	
SIL2 with Intrinsic safety 4 20 mA / 2-wire customer	ES	consult
Accuracystandard for $P_N \ge 0.4$ bar0.35 %	3	
standard for $P_N < 0.4$ bar 0.5% option for $P_N \ge 0.4$ bar 0.25%	5 2	
customer	9	consult
Electrical connection Male and female plug ISO 4400	1 0 0	
Male plug Binder series 723 (5-pin) Cable outlet with PVC-cable ¹	2 0 0 T A 0	
Cable outlet ²	TRO	
Male plug M12x1 (4-pin) / metal Compact field housing stainless steel	M 1 0 8 5 0	
stainless steel 1.4305 ³ customer	999	consult
Mechanical connection G1/2" with flush		
welded diaphragm (DIN 3852) ⁴	Z 0 0	
G3/4" with flush welded diaphragm (DIN 3852)	Z 3 0	
G1" with flush welded diaphragm (DIN 3852)	Z 3 1	
G1" DIN 3852 with rad. o-ring and flush diaphragm ⁵	Z 5 7	
G1/2" DIN 3852 with rad. o-ring and flush diaphragm ⁴	Z 6 1	
G 1" cone	K 3 1 C 6 1	
Clamp DN 25 / 1" (DIN 32676) / 3A Clamp DN 32 / 1 1/2" (DIN 32676) / 3A	C 6 2	
Clamp DN 50 / 2" (DIN 32676) / 3A Clamp 3/4" (DIN 32676) / 3A	C 6 3	
Dairy pipe DN 25 (DIN 11851) ³ Dairy pipe DN 40 (DIN 11851) ³	C 6 9 M 7 3 M 7 5	
Dairy pipe DN 50 (DIN 11851) 3	M 7 6	
Varivent [®] DN 40/50 / 3A customer	P 4 1 9 9 9	consult
Diaphragm Stainless steel 1.4435 (316L)	1	
Tantalum	Т	consult
Hastellov [®] C-276 (2.4819) customer	H 9	consult
Seals for clamp, dairy pipe, Varivent [®] : without	0	
for inch thread - standard: FKM for inch thread - option: FFKM	1 7	
customer	9	consult
Filling Fluids silicon oil	1	
food grade oil (FDA) / 3A customer	2 9	consult
Special version		oonouit
standard with cooling element up to 300°C / 3A	0 0 0 2 0 0	
customer	9 9 9	consult

¹ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C), others on request
² cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, price without cable

³ 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. ⁴ possible only for $P_N \ge 1$ bar ⁵ possible only for $P_N \le 2$ bar

 $\mathsf{Varivent}^{\circledast} \text{ is a brand name of GEA Tuchenhagen GmbH, } \mathsf{Hastelloy}^{\circledast} \text{ is a brand name of Haynes International Inc.}$

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

INDUSTRIAL PRESSURE TRANSMITTER



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 BD|SENSORS, 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

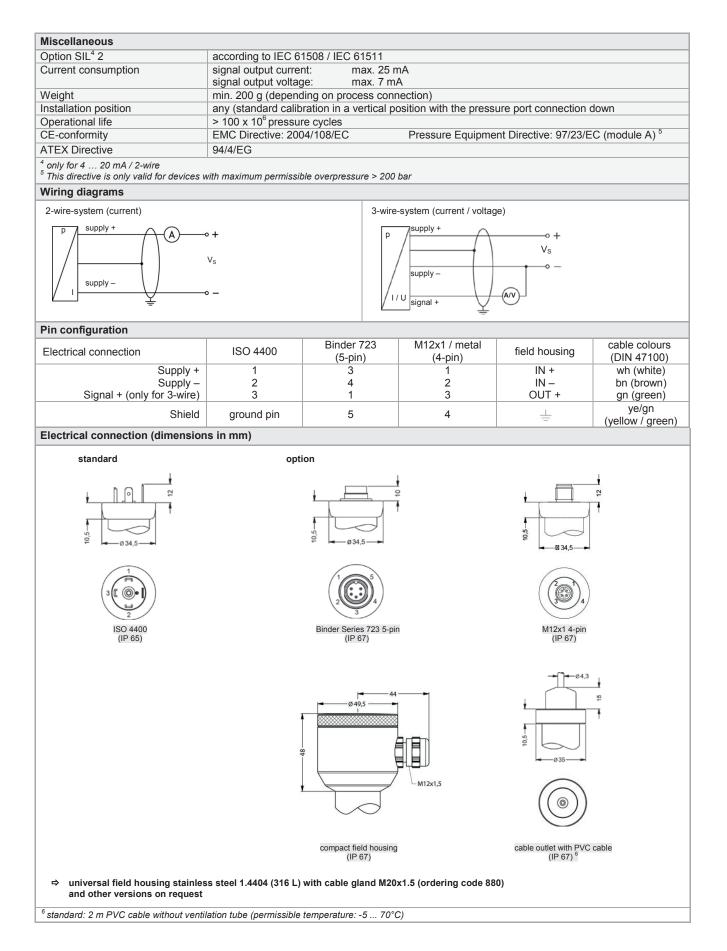


Viscous and Pasty Media



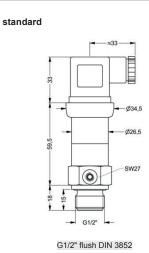
96

Input pressure range						
Nominal pressure			400	400	050	400
gauge / abs.	[bar]	60	100	160	250	400
Overpressure	[bar]	100	200	400	400	600
Burst pressure ≥	[bar]	120	250	500	500	650
Output signal / Supply						
Standard	2	-wire: 4 20 r	mA / V _S = 832	2 V _{DC}		
Option IS-protection	2		$mA / V_s = 10 \dots 28$			
Options 3-wire	3		$mA / V_s = 14 30$			
		0 10 \	V / V _s = 14 30) V _{DC}		
Performance						
Accuracy ¹	<	± 0.5 % FSO				
Permissible load			$m_{max} = [(V_{S} - V_{S min}) / ($).02 Al Ω		
		urrent 3-wire: R				
		oltage 3-wire: R				
Influence effects			FSO / 10 V			
		11.2	FSO / kΩ			
Long term stability			ar at reference cond	tions		
Response time		-wire: ≤ 10 mse				
		-wire: ≤ 3 mse				
¹ accuracy according to IEC 6	60770 – limit p	oint adjustment (non-	linearity, hysteresis, re	peatability)		
Thermal effects (Offset a				•		
Thermal error		± 0.2 % FSO / 10	•			
in compensated range		20 85°C				
Permissible temperatures		nedium:	-40 125	°C for filling fluid silice	n oil	
	· ''			°C for filling fluid food		
	e	lectronics / enviror			compatible of	
		torage:	-40 100			
Permissible temperature r		lling fluid silicon oil		pressure: -40 300 °	°C vacuur	n: -40 150 °C
for cooling element 300°C	、	lling fluid food com		pressure: -10 250 °		n: -10 150 °C
² an optional cooling element						
³ max. temperature of the me						
Electrical protection	alannion or or p		0.00.00		iporataro or oo	<u> </u>
Short-circuit protection		ormonont				
		ermanent o damage, but also	a no function			
Reverse polarity protectio Electromagnetic compatib			nity according to EN	61006		
				01320		
Mechanical stability						
Vibration		0 g RMS (25 20		ling to DIN EN 60068-2		
Shock	5	00 g / 1 msec	accord	ing to DIN EN 60068-2	2-27	
Filling fluids						
Standard	S	ilicon oil				
Options			(with FDA approval)			
	(Mobil DTE FM 32;	Category Code: H1;	NSF Registration No.	: 130662)	
	0	thers on request				
Materials						
Pressure port	s	tainless steel 1.44	04 (316 L)			
		tainless steel 1.44 tainless steel 1.44				
Housing	S	tainless steel 1.440	04 (316 L)	gland brass, nickel plat	ied	others on request
Pressure port Housing Option compact field hous Seals (media wetted)	S	tainless steel 1.440	04 (316 L)	gland brass, nickel plat	ied	others on request
Housing Option compact field hous Seals (media wetted) Standard	sing s	tainless steel 1.440 tainless steel 1.430 KM (recommende	04 (316 L) 05 (303) with cable (d for medium tempe	ratures ≤ 200 °C)	ied	others on request
Housing Option compact field hous Seals (media wetted)	sing s F F	tainless steel 1.44(tainless steel 1.43) KM (recommender FKM (recommend	04 (316 L) 05 (303) with cable (ratures ≤ 200 °C)	ted	others on request
Housing Option compact field hous Seals (media wetted) Standard Option	sing s F F o	tainless steel 1.440 tainless steel 1.430 KM (recommender FKM (recommend thers on request	04 (316 L) 05 (303) with cable (d for medium tempe ed for medium temp	ratures ≤ 200 °C)	ted	others on request
Housing Option compact field hous Seals (media wetted) Standard Option Diaphragm	sing s F F o s	tainless steel 1.440 tainless steel 1.430 KM (recommender FKM (recommend thers on request tainless steel 1.443	04 (316 L) 05 (303) with cable (d for medium tempe ed for medium temp 35 (316 L)	ratures ≤ 200 °C)	led	others on request
Housing Option compact field hous Seals (media wetted) Standard Option Diaphragm	sing s F F o s	tainless steel 1.440 tainless steel 1.430 KM (recommender FKM (recommend thers on request	04 (316 L) 05 (303) with cable (d for medium tempe ed for medium temp 35 (316 L)	ratures ≤ 200 °C)	led	others on request
Housing Option compact field hous Seals (media wetted) Standard Option Diaphragm	sing s F F o s p	tainless steel 1.440 tainless steel 1.430 KM (recommender FKM (recommend thers on request tainless steel 1.443 ressure port, seals	04 (316 L) 05 (303) with cable of d for medium tempe ed for medium temp 35 (316 L)	ratures ≤ 200 °C)	led	others on request
Housing Option compact field hous Seals (media wetted) Standard Option Diaphragm Media wetted parts	sing s F F o s p nly for 4	tainless steel 1.440 tainless steel 1.430 KM (recommender FKM (recommend thers on request tainless steel 1.443 ressure port, seals 20 mA / 2-wire)	04 (316 L) 05 (303) with cable of d for medium tempe ed for medium temp 35 (316 L)	ratures ≤ 200 °C) eratures > 200 °C)	ied	others on request
Housing Option compact field hous Seals (media wetted) Standard Option Diaphragm Media wetted parts Explosion protection (or	sing s sing f F o s p nly for 4	tainless steel 1.440 tainless steel 1.430 KM (recommender FKM (recommend thers on request tainless steel 1.443 ressure port, seals 20 mA / 2-wire) 3ExU 10 ATEX 10	04 (316 L) 05 (303) with cable (d for medium tempe ed for medium temp 35 (316 L) 5, diaphragm	ratures ≤ 200 °C) eratures > 200 °C)	ied	others on request
Housing Option compact field hous Seals (media wetted) Standard Option Diaphragm Media wetted parts Explosion protection (or Approvals	sing s sing f F o s p nly for 4 z	tainless steel 1.440 tainless steel 1.430 KM (recommender FKM (recommend thers on request tainless steel 1.443 ressure port, seals 20 mA / 2-wire) 3ExU 10 ATEX 10 one 0: II 1G Ex	04 (316 L) 05 (303) with cable (d for medium tempe ed for medium temp 35 (316 L) s, diaphragm 68 X / IECEx IBE	ratures ≤ 200 °C) eratures > 200 °C) 12.0027X	ied	others on request
Housing Option compact field hous Seals (media wetted) Standard Option Diaphragm Media wetted parts Explosion protection (or Approvals DX 19 - DMK 331P	sing s sing f F o s p nly for 4 : z	tainless steel 1.440 tainless steel 1.430 KM (recommender FKM (recommend thers on request tainless steel 1.443 ressure port, seals 20 mA / 2-wire) 3ExU 10 ATEX 10 one 0: II 1G Ex one 20: II 1D Ex	04 (316 L) 05 (303) with cable (d for medium tempe ed for medium temp 35 (316 L) 5, diaphragm 68 X / IECEx IBE 68 IIC T4 Ga 6 i al IIC T4 Ga 6 i al IIC T85°C Da, 1	ratures ≤ 200 °C) eratures > 200 °C) 12.0027X P65	ied	others on request
Housing Option compact field hous Seals (media wetted) Standard Option Diaphragm Media wetted parts Explosion protection (or Approvals DX 19 - DMK 331P Safety technical maximum	sing s sing f F o s p nly for 4 : z n values L	tainless steel 1.440 tainless steel 1.430 KM (recommender FKM (recommend thers on request tainless steel 1.443 ressure port, seals 20 mA / 2-wire) 3ExU 10 ATEX 10 one 0: II 1G Ex one 20: II 1D Ex	04 (316 L) 05 (303) with cable (d for medium tempe ed for medium temp 35 (316 L) 5, diaphragm 68 X / IECEx IBE 1 a IIC T4 Ga (a IIIC T 85°C Da, 1 A, Pi = 660 mW, Ci ≈	ratures ≤ 200 °C) eratures > 200 °C) 12.0027X P65 0 nF, L _i ≈ 0 μH		others on request
Housing Option compact field hous Seals (media wetted) Standard Option Diaphragm Media wetted parts Explosion protection (or Approvals	sing s sing s F F o s p nly for 4 z n values L for ir	tainless steel 1.440 tainless steel 1.430 KM (recommender FKM (recommend thers on request tainless steel 1.443 ressure port, seals 20 mA / 2-wire) 3ExU 10 ATEX 10 one 0: II 1G Ex one 20: II 1D Ex	04 (316 L) 05 (303) with cable (d for medium tempe ed for medium temp 35 (316 L) a, diaphragm 68 X / IECEx IBE (a IIIC T4 Ga (a IIIC T 85°C Da, 1 A, Pi = 660 mW, Ci ≈ -20 60 °C with 1	ratures ≤ 200 °C) eratures > 200 °C) 12.0027X P65		others on request
Housing Option compact field hous Seals (media wetted) Standard Option Diaphragm Media wetted parts Explosion protection (or Approvals DX 19 - DMK 331P Safety technical maximum Permissible temperatures	sing s sing s F F o s p nly for 4 z n values L for ir	tainless steel 1.440 tainless steel 1.430 KM (recommender FKM (recommend thers on request tainless steel 1.443 ressure port, seals 20 mA / 2-wire) 3ExU 10 ATEX 10 one 0: II 1G Ex one 20: II 1D Ex b ₁ = 28 V, l ₁ = 93 m/	04 (316 L) 05 (303) with cable (d for medium tempe ed for medium temp 35 (316 L) 68 X / IECEx IBE (a IIIC T4 Ga (a IIIC T4 Ga (a IIIC T 85°C Da, 1 A, Pi = 660 mW, Ci ≈ -20 60 °C with (-20 70 °C	ratures ≤ 200 °C) eratures > 200 °C) 12.0027X P65 0 nF, L _i ≈ 0 μH	ar	others on request

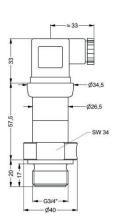


98

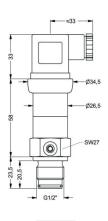
Mechanical connection (dimensions in mm)



option



G3/4" flush DIN 3852

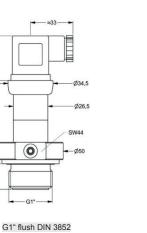


G1/2" flush with radial o-ring

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

⁷ possible for nominal pressure ranges $P_N \leq 160$ bar

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DMK 331P Ordering Code

Pressure gauge 0 5 0 6 0 2 0 <t< th=""><th>DMK 331P</th><th></th><th>0-0-</th><th></th><th>-</th><th>]-[]- </th><th>]-[]</th><th>-[]</th><th></th><th></th></t<>	DMK 331P		0-0-		-]-[]-]-[]	-[]		
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	customer							9	99	consult

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

² only for $P_N \le 100$ bar possible ³ only for $P_N \le 160$ bar possible

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

100 INDUSTRIAL PRESSURE TRANSMITTER



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 high overpressure resistance and high 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

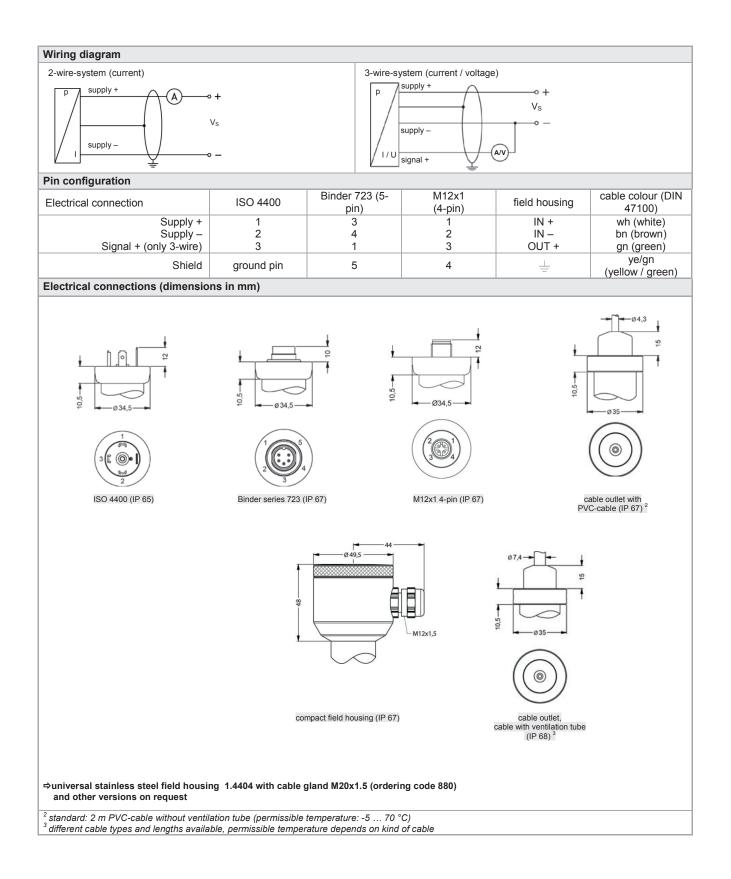


Viscous and Pasty Media

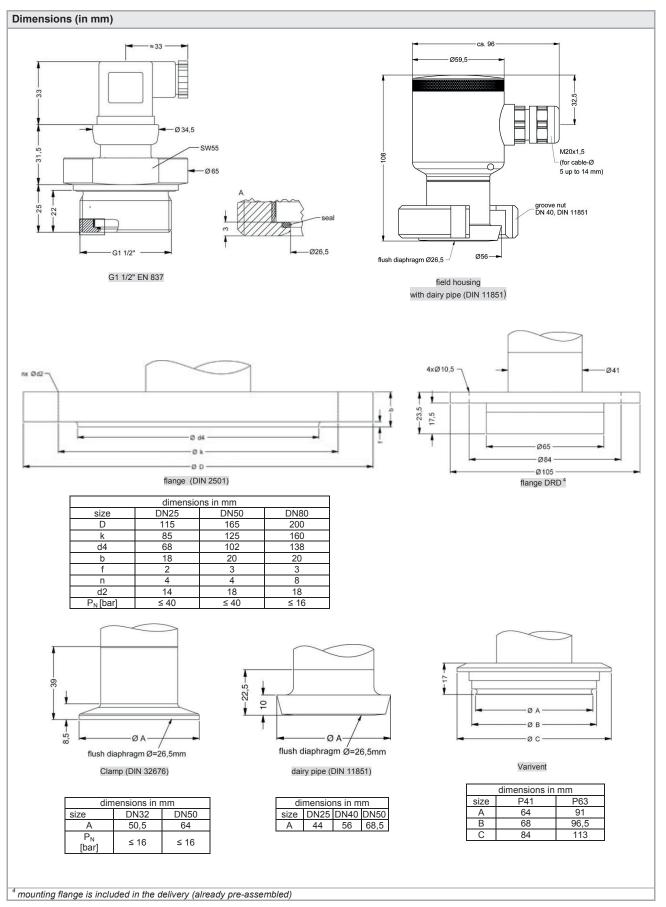


Pressure ranges									
1 0 0 1	bar] 0.04 0.06 0.1 0.16 0.25 0.4 0.6 1 1.6 2.5 4 6 10 16 20								
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	bar] 2 2 4 4 6 6 8 8 15 25 35 35 45 45								
Permissible vacuum [I	bar] -0.2 -0.3 -0.5 -1								
Output signal / Supply									
Standard									
	2-wire: $4 \dots 20 \text{ mA} / V_{\text{S}} = 9 \dots 32 V_{\text{DC}}$								
Option IS-protection	2-wire: $4 \dots 20 \text{ mA} / V_{\text{S}} = 14 \dots 28 V_{\text{DC}}$								
Option 3-wire	3-wire: 0 10 V / V_S = 12.5 32 V_{DC}								
Performance									
Accuracy ¹									
Standard	≤ ± 0.35 % FSO								
Option	≤ ± 0.25 % FSO								
Long term stability	≤ ± 0.1 % FSO / year								
Influence effects	supply: 0.05 % FSO / 10 V								
	load: 0.05 % FSO / kΩ								
Permissible load	current 2-wire: $R_{max} = [(V_S - V_{S min}) / 0.02 \text{ A}] \Omega$								
	voltage 3-wire: $R_{min} = 10 k\Omega$								
Turn-on time	700 msec								
	5 / sec								
Mean measuring rate									
Response time	mean response time: ≤ 200 msec								
1	max. response time: 380 msec								
	- limit point adjustment (non-linearity, hysterisis, repeatability								
Thermal errors (offset and sp	oan) / -Permissible temperatures								
Thermal error	≤ ±0.1 % FSO / 10 K 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	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									
Pressure port	stainless steel 1.4404								
Housing									
Standard	stainless steel 1.4404								
compact field housing	stainless steel 1.4435								
Seal (media wetted)	FKM								
	EPDM								
	others on request								
Diaphragm									
Standard	ceramic Al ₂ O ₃ 96 %								
Option	ceramic Al ₂ O ₃ 99.9 %								
Media wetted parts	pressure port, seals, diaphragm								
IS-protection (only for 4 20									
Approval DX 14-DMK 351 P									
Approval DX 14-DIVIK 351 P	male (connector)-version:								
	zone 0: II 1 G Ex ia IIC T4								
	zone 20: II 1 D Ex IP6X T=85°C								
	cable-version:								
	zone 0: II 1 G EEx ia IIB T4								
O-fat-task 1 - 1	zone 0: II 1 G EEX la IIB 14 zone 20: II 1 D EEX IP6X T=85°C								
Safety technical	zone 20: II 1 D EEX IP6X T=85°C								
maximum values	zone 20: II 1 D EEX IP6X T=85°C U _i = 28 V, I _i = 93 mA, P _i = 660 mW, C _i = 27 nF, L _i = 5 μH								
maximum values Max. permissible temperature for	zone 20: II 1 D EEX IP6X T=85°C U _i = 28 V, I _i = 93 mA, P _i = 660 mW, C _i = 27 nF, L _i = 5 μH or zone 0: -20 60 °C for p _{atm} 0.8 bar up to 1.1 bar								
maximum values Max. permissible temperature for environment	zone 20: II 1 D EEX IP6X T=85°C $U_i = 28 V, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C_i = 27 \text{ nF}, L_i = 5 \mu\text{H}$ or zone 0: -20 60 °C for patm 0.8 bar up to 1.1 bar zone 1: -25 70 °C								
maximum values Max. permissible temperature freenvironment Connecting cables	zone 20: II 1 D EEX IP6X T=85°C $U_i = 28 V, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C_i = 27 \text{ nF}, L_i = 5 \mu\text{H}$ or zone 0: -20 60 °C for p _{atm} 0.8 bar up to 1.1 bar zone 1: -25 70 °C capacity: signal line / shield also signal line / signal line: 160 pF/m								
maximum values Max. permissible temperature for environment	zone 20: II 1 D EEX IP6X T=85°C $U_i = 28 V, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C_i = 27 \text{ nF}, L_i = 5 \mu\text{H}$ or zone 0: -20 60 °C for patm 0.8 bar up to 1.1 bar zone 1: -25 70 °C								
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maximum values Max. permissible temperature for environment Connecting cables (by factory) Miscellaneous	$\label{eq:constraint} \begin{array}{ c c c c c } \hline zone 20: & II 1 D EEX IP6X T=85^{\circ}C \\ \hline U_i = 28 \ V, \ I_i = 93 \ mA, \ P_i = 660 \ mW, \ C_i = 27 \ nF, \ L_i = 5 \ \mu H \\ \hline or & zone 0: & -20 \ \ 60 \ ^{\circ}C \ for \ p_{atm} \ 0.8 \ bar \ up \ to \ 1.1 \ bar \\ zone \ 1: & -25 \ \ 70 \ ^{\circ}C \\ \hline capacity: & signal \ line \ / \ shield \ also \ signal \ line \ / \ signal \ line: \ 160 \ pF/m \\ inductance: & signal \ line \ / \ shield \ also \ signal \ line \ / \ signal \ line: \ 1 \ \mu H/m \\ \hline \end{array}$								
maximum values Max. permissible temperature freenvironment Connecting cables (by factory) Miscellaneous Current consumption	$\label{eq:constraint} \begin{array}{ c c c c c } \hline zone 20: & II 1 D EEX IP6X T=85^{\circ}C \\ \hline U_i = 28 \ V, \ I_i = 93 \ mA, \ P_i = 660 \ mW, \ C_i = 27 \ nF, \ L_i = 5 \ \mu H \\ \hline or & zone 0: & -20 \ \ 60 \ ^{\circ}C \ for \ p_{atm} \ 0.8 \ bar \ up \ to \ 1.1 \ bar \\ zone 1: & -25 \ \ 70 \ ^{\circ}C \\ \hline capacity: & signal \ line \ / \ shield \ also \ signal \ line \ / \ signal \ line: \ 160 \ pF/m \\ \hline inductance: & signal \ line \ / \ shield \ also \ signal \ line \ / \ signal \ line: \ 1 \ \mu H/m \\ \hline \hline max. \ 21 \ mA \end{array}$								
maximum values Max. permissible temperature freenvironment Connecting cables (by factory) Miscellaneous Current consumption Weight	$\label{eq:constraint} \begin{array}{ c c c c c } \hline zone 20: & II 1 D EEX IP6X T=85^{\circ}C \\ \hline U_i = 28 \ V, \ I_i = 93 \ mA, \ P_i = 660 \ mW, \ C_i = 27 \ nF, \ L_i = 5 \ \mu H \\ \hline or & zone 0: & -20 \ \ 60 \ ^{\circ}C \ for \ p_{atm} \ 0.8 \ bar \ up \ to \ 1.1 \ bar \\ zone 1: & -25 \ \ 70 \ ^{\circ}C \\ \hline capacity: & signal \ line \ / \ shield \ also \ signal \ line \ / \ signal \ line: \ 160 \ pF/m \\ \hline inductance: & signal \ line \ / \ shield \ also \ signal \ line \ / \ signal \ line: \ 1 \ \mu H/m \\ \hline \hline max. \ 21 \ mA \\ \hline min. \ 200 \ g \end{array}$								
maximum values Max. permissible temperature freenvironment Connecting cables (by factory) Miscellaneous Current consumption Weight Installation position	$\begin{tabular}{ c c c c c } \hline zone 20: II 1 D EEX IP6X T=85°C \\ U_i = 28 V, I_i = 93 mA, P_i = 660 mW, C_i = 27 nF, L_i = 5 \muH \\ \hline or zone 0: -20 60 °C for patm 0.8 bar up to 1.1 bar zone 1: -25 70 °C \\ \hline capacity: signal line / shield also signal line / signal line: 160 pF/m inductance: signal line / shield also signal line / signal line: 1 \muH/m \\ \hline max. 21 mA min. 200 g any \\ \hline \end{tabular}$								
maximum values Max. permissible temperature freenvironment Connecting cables (by factory) Miscellaneous Current consumption Weight	$\label{eq:constraint} \begin{array}{ c c c c c } \hline zone 20: & II 1 D EEX IP6X T=85^{\circ}C \\ \hline U_i = 28 \ V, \ I_i = 93 \ mA, \ P_i = 660 \ mW, \ C_i = 27 \ nF, \ L_i = 5 \ \mu H \\ \hline or & zone 0: & -20 \ \ 60 \ ^{\circ}C \ for \ p_{atm} \ 0.8 \ bar \ up \ to \ 1.1 \ bar \\ zone 1: & -25 \ \ 70 \ ^{\circ}C \\ \hline capacity: & signal \ line \ / \ shield \ also \ signal \ line \ / \ signal \ line: \ 160 \ pF/m \\ \hline inductance: & signal \ line \ / \ shield \ also \ signal \ line \ / \ signal \ line: \ 1 \ \mu H/m \\ \hline \hline max. \ 21 \ mA \\ \hline min. \ 200 \ g \end{array}$								

DMK 351P Technical Data



DMK 351P Technical Data



DMK 351P		□-□-┯━-	Щ-О-О	-П-Щ	П
Pressure					
gauge absolute 1	2 9 5 1 2 9 6				
Input [mH ₂ O] [bar]	296				
0.4 0.04	0 4 0 0				
0.6 0.06	0 6 0 0				
1.0 0.10	1 0 0 0				
1.6 0.16	1 6 0 0				
2.5 0.25	2 5 0 0				
4.0 0.40	4 0 0 0				
6.0 0.60	6 0 0 0				
10 1.0 16 1.6	1 0 0 1 1 6 0 1				
25 2.5	1 6 0 1 2 5 0 1				
40 4.0	4 0 0 1				
60 6.0	6 0 0 1				
100 10	1 0 0 2				
160 16	1 6 0 2				
200 20	2 0 0 2				
customer	9 9 9 9				consult
Output					
4 20 mA / 2-wire		1			
0 10 V / 3-wire		3			consult
Intrinsic safety 4 20 mA / 2-wire		E			
customer		9			consult
Accuracy standard 0.35 %		3			
standard 0.35 % option 0.25 %					
customer		2 9			consult
Electrical connection					Contourt
Male and female plug ISO 4400		1 0 0			
Cable outlet with PVC cable 2	2	T A O			
Binder series 723		2 0 0			
Compact field housing		8 5 0			
Cable outlet		T R 0			
Male plug M12x1 (4-pin) / metal		M 1 0 9 9 9			
customer		9 9 9			consult
Mechanical connection					
G 1 1/2" DIN flush (DIN 3852)			M 0 0		
Clamp DN 32 (DIN 32676) Clamp DN 50 (DIN 32676)			C 6 2 C 6 3		
Dairy pipe DN 40 (DIN 11851) ³	3		M 7 5		
Dairy pipe DN 50 (DIN 11851)	3		M 7 6		
Varivent [®] DN 40/50					consult
Flange DN 25 / PN 40 (DIN 2501)			P 4 1 F 2 0 F 2 3		consult
Flange DN 50 / PN 40 (DIN 2501)			F 2 3		consult
Flange DN 80 / PN 16 (DIN 2501)			F 1 4		consult
customer			999		consult
Seals					
FKM			1		
EPDM			3 9		a a martine
Customer			9		consult
Pressure port Stainless steel 1.4404 (316L)			1		
customer			1		consult
Diaphragm			9		Consult
Ceramics Al ₂ O ₃ 96 %				2	
Ceramics Al ₂ O ₃ 99.9 %				C	
customer				9	consult
Special version					
standard				0 0	0 0
customer				9 9	9 9 consult

 $^{\rm 1}$ absolute pressure from 0.04 bar up to 0.25 bar on request

² standard: 2 m PVC cable without ventilation tube

³ 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.

 $\mathsf{Varivent}^{\circledast}$ is a brand name of GEA Tuchenhagen GmbH

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OEM PRESSURE TRANSMITTER



18.600 G

OEM Pressure Transmitter Pneumatics

Applications

- ► compressed air network
- ▶ general mechanical engineering

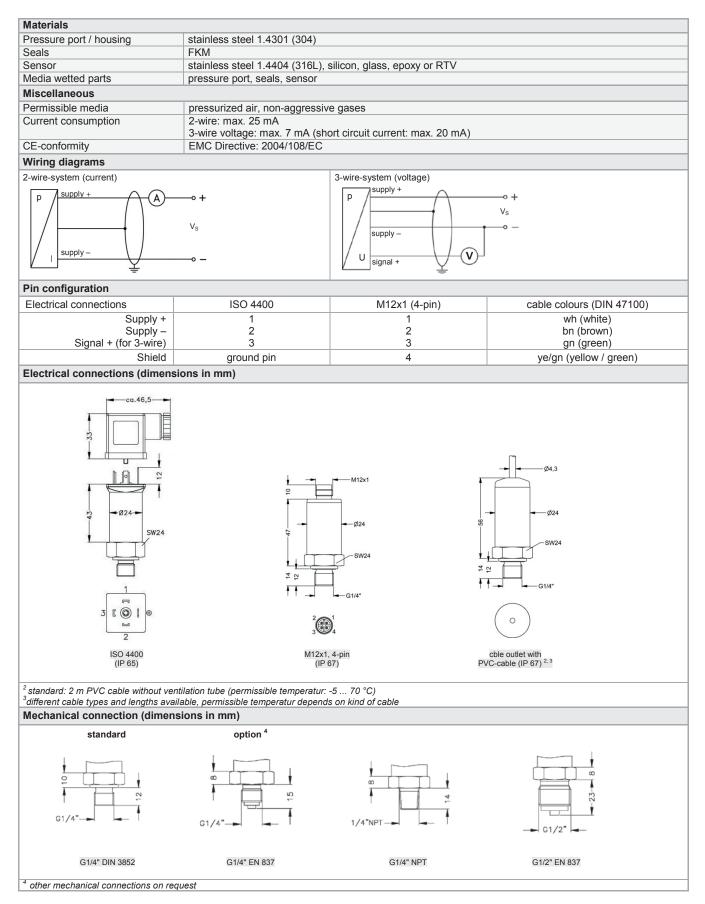
Characteristics

- 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

Technical Data

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			
F	L			1	1				-					
Output signal / Supply														
Standard		2-wire:		4	20 mA	/	V _S = 8	32 V _{DC}						
Option		3-wire:		0	10 V	1	V _s = 14	30 V _{DC}						
		3-wire rat	iometric:	0	.5 4.5 \	/ /	$V_{s} = 5 \pm$	6.5 V _{DC}						
Performance														
Accuracy ¹		≤±0.5 %	FSO											
Permissible load		2-wire:	R _{max}	$= [(V_{s} - V_{s})]$	/ _{Smin}) / 0.02	2 A] Ω								
		3-wire:		= 10 kΩ		-								
Influence effects		supply:	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ											
Response time		2-wire: ≤ 10 msec 3-wire: ≤ 3 msec												
Measuring rate		1 kHz												
¹ accuracy according to IEC 6	0770 – lim	it point adju	istment (no	n-linearity, l	hysteresis, i	repeatabilit	y)							
Thermal effects (Offset a	and Spar	ı)												
Nominal pressure P _N	[bar]		-1	0			≤ 0.4		> ().4				
Tolerance band [[% FSO]		≤±	1			≤ ± 1		≤ ± 0.75					
in compensated range	[°C]				0 7	0				-20 .	. 85			
Permissible temperature	es													
Permissible temperatures		medium:	-25 12	5 °C	electronic	cs / enviro	nment: -25	5 85 °C	storag	ge: -40 85	°C			
Electrical protection														
Short-circuit protection permanent														
Reverse polarity protection no damage, but also no function														
Electromagnetic compatib	Electromagnetic compatibility emission and immunity according to EN 61326													
Mechanical stability														
Vibration		10 g, 25	Hz 2 kł	Ηz	accord	according to DIN EN 60068-2-6								
Shock		100 g / 1	1 msec		accord	ling to DI	N EN 6006	8-2-27						





18.600 G]-[]-[]	- 🗌]-	ГЦ]-		-			
Input [bar] 0.10	1 0 0 0													
0.10	$\begin{array}{ccccc} 1 & 0 & 0 & 0 \\ 2 & 5 & 0 & 0 \\ 4 & 0 & 0 & 0 \\ 6 & 0 & 0 & 0 \end{array}$													
0.23	4 0 0 0													
0.40	6 0 0 0													
1.0	1 0 0 1													
1.6	1 6 0 1													
2.5	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$													
4.0	4 0 0 1													
6.0	6 0 0 1													
-1 0	X 1 0 2													
customer	X 1 0 2 9 9 9 9													consult
Pressure														
gauge	F	ર												
Output														
4 20 mA / 2-wire		1												
0 10 V / 3-wire		3												
0.5 4.5 V / 3-wire ratiometric		R												
customer		9												consult
Accuracy														
0.5 % FSO			5 9											
customer			9											consult
Electrical connection														
Male and female plug ISO 4400				1	0 0									
Male plug M12x1 (4-pin), plastic				Μ	0 0									
Cable outlet with PVC-cable ¹				Т	0 0 A 0 9 9									
customer				9	99		_		_	_				consult
Mechanical connection								-						
G1/4" DIN 3852							3	0	0					
G1/4" EN 837							4	0	0					
1/4" NPT							N 9	4 9	0					
Seals				_			9	9	9		_			consult
FKM										1				
customer										1 9				oc soult
Special version										9				consult
special version standard											0	0	0	
customer											9		0 9	consult
Customer											9	9	9	consuit

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

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108 OEM PRESSURE TRANSMITTER



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

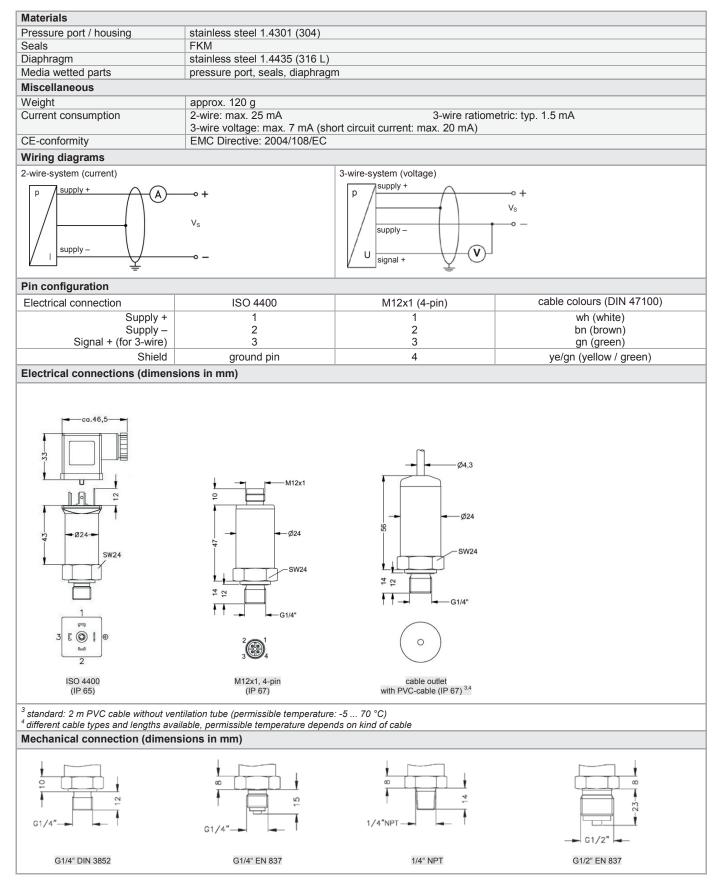
nominal pressure ranges from
 0 ... 100 mbar up to 0 ... 6 bar

Technical Data

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 mA / V _S = 8 32 V _{DC}
Options 3-wire	3-wire: $0 \dots 10 V$ / $V_{\rm S} = 14 \dots 30 V_{\rm DC}$
	3-wire ratiometric: $V_{Sig} = 0.5 \dots 4.5 \text{ V} / V_S = 5 \pm 0.5 \text{ V}_{DC}$
Performance	
Accuracy ^{1,2}	≤±0.5 % FSO
Permissible load	2-wire: $R_{max} = [(V_S - V_{S min}) / 0.02 A] \Omega$
	3-wire: $R_{min} = 10 k\Omega$
Influence effects	supply: 0.05 % FSO / 10 V
	load: 0.05 % FSO / kΩ
Response time	2-wire: ≤ 10 msec 3-wire: ≤ 3 msec
Measuring rate	1 kHz
1 accuracy according to IEC 60770 – lim 2 for pressure ranges \leq 160 mbar accura	nit point adjustment (non-linearity, hysteresis, repeatability) acy is ≤ ± 1% FSO
Thermal effects (Offset and Spar	n) / Permissible temperatures
Thermal error	≤ ± 0.3 % FSO / 10 K in compensated range 0 70 °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
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

18.601 G Technical Data



18.601 G		- 🗌 - 🔲 -	- []		-[]-[]	-		
Input [bar]										
0.10 1	1 0 0 0									
0.16 1	1 6 0 0									
0.25	2 5 0 0 4 0 0 0									
0.40	4 0 0 0									
0.60	6 0 0 0									
1.0	1 0 0 1									
1.6 2.5	1 6 0 1 2 5 0 1									
2.5 4.0	2 5 0 1 4 0 0 1									
4.0 6.0	6 0 0 1									
customer	1 0 0 1 1 6 0 1 2 5 0 1 4 0 0 1 6 0 0 1 9 9 9 9									cons
Pressure	0 0 0 0 0									0013
gauge	R				_					
Output										
4 20 mA / 2-wire		1								
0 10 V / 3-wire		3								
0.5 4.5 V / 3-wire ratiometric		R								
customer		9								cons
Accuracy										
0.5 % FSO		5								
customer		9								cons
Electrical connection Male and female plug ISO 4400			1 (0 0						
Male plug M12x1 (4-pin), plastic			M	0 0						
Cable outlet with 2 m PVC cable ²			TA							
customer			9 9	A 0 9 9						cons
Mechanical connection										
G1/4" DIN 3852					3	00				
G1/4" EN 837					4	0 0				
1/4" NPT					N	4 0				
G1/2" EN 837					2	0 0				
customer					9	99				cons
Seals										
FKM							1			
customer				_			9			cons
Special version								0		0
standard customer								0	0 9	0
customer								9	9	9 cons

¹ for pressure ranges \leq 160 mbar accuracy is $\leq \pm$ 1 % FSO

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

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OEM PRESSURE TRANSMITTER



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



Technical Data

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
Overpressure	[bar]	3	3	5	5	12	12	20	50	50	120	120	200	400	400	650
Burst pressure ≥	[bar]	4	4	7	7	15	15	25	70	70	150	150	250	500	500	700
Vacuum resistance		unlimit	ed													
¹ for this pressure range accura	acy is ≤ 1	1 % FSO	IEC 607	70												
Output signal / Supply																
Standard		2-wire:			4 2	0 mA		/ V _S =	832	2 Vpc						
Options		3-wire:			01	0 V		$/V_{s} =$								
		3-wire	ratiome	etric:				/ V _s =								
Performance																
Accuracy ²		≤ ± 0.5	% FS(C												
Permissible load		2-wire:	R _{max}	= [(V _s -	- V _{S min})	/ 0.02 /	Α] Ω		3-wire	: R _{min} :	= 10 kΩ					
Influence effects		supply	: 0.05	% FSC) / 10 V		-		load:	0.05	% FSO	/ kΩ				
Response time		2-wire:	≤ 10 n	nsec					3-wire	: ≤ 3 ms	sec					
Measuring rate		1 kHz														
² accuracy according to IEC 60)770 — lin	nit point a	djustme	nt (non-l	inearity,	hysteres	sis, repea	atability)								
Thermal effects (Offset a	nd Spa	n) / Perr	nissibl	e temp	erature	s										
Thermal error		$\leq \pm 0.3$	% FS) / 10 K	[in com	pensat	ed rang	e: -	25 85	5 °C					
Permissible temperatures		mediur	n: -25	125 °	С	electro	nics / e	environn	nent: -2	5 85	°C	stora	age: -40) 85 °	С	
Electrical protection																
Short-circuit protection		perma	nent			3-wire	ratiom	etric: no	ne							
Reverse polarity protection		no dan	nage, b	ut also	no func	tion										
Electromagnetic protection		emissi	on and	immun	ty acco	rding to	EN 61	326								
Mechanical stability																
Vibration		10 g, 2	5 Hz	. 2 kHz		accor	ding to	DIN EN	60068	-2-6						
Shock		500 g /	1 mse	С				DIN EN								

Materials							
Pressure port / housing	stainless steel 1.4301 (3	04)					
Seals (media wetted)	FKM	,	on request				
Diaphragm	ceramics Al ₂ O ₃ 96 %						
Media wetted parts	pressure port, seals, dia	phragm					
Miscellaneous	,, ooulo, ulu						
Option oxygen application	for $P_{\rm ell} \leq 15$ har: O ring in		M-approval); permissible	maximum values are			
	15 bar /	60° C and 10 bar / 90° C		aximum values are 25 bar / 150° (
Weight	approx. 120 g	(
Current consumption	2-wire: max. 25 mA 3-wire voltage: max. 7 m		3-wire ratiometric: typ. 1. nax. 20 mA)	5 mA			
Long term stability	≤ ± 0.3 % FSO / year at	reference conditions	,				
Operational life	> 100 x 10 ⁶ cycles						
CE-conformity	EMC Directive: 2004/108	B/EC Pressur	e Equipment Directive: 9	7/23/EC (module A) ³			
³ This directive is only valid for devices				. ,			
Wiring diagrams							
2-wire-system (current)	• + ∨s • -	3-wire-system (voltag supply + supply - U signal +	ye) Vs Vs				
Pin configuration							
		Micro (contact	M12x1 (4-pin),	cable colours			
Electrical connection	ISO 4400	distance 9.4 mm)	plastic	(DIN 47100)			
Supply + Supply – Signal + (for 3-wire)	1 2 3	1 2 3	1 2 3	wh (white) bn (brown) gn (green)			
Shield	ground pin	ground pin	4	ye/gn (yellow / green)			
Electrical connections (dimension		<u> </u>		<u> </u>			
	Pg7 Pg7 Pg7 Pg7 Pg7 Pg7 Pg7 Pg7		M12x1 Ø24 5W24 G1/4"	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9			
ISO 4400 (IP 65)	Micro, contact distance 9.4 mm (IP 65)	M12x (IF	1, 4-pin 2 67)	cable outlet with PVC-cable (IP 67) ^{4,5}			
* pressure range P _N = 400 bar: tota							
⁴ standard: 2 m PVC cable without venti ⁵ different cable types and lengths available	lation tube (permissible temperature	erature: -5 70 °C) depends on kind of cable					
Mechanical connection (dimensi	ions in mm)						
G1/4"	61/4"	00 1/4"NPT		→ G1/2" →			

26.600 G	-	-[]-[]-[- 🗌]-[Ш]-[]-[
Input [bar]												
1.0	1 0 0 1							_				
1.6												
2.5	1 6 0 1 2 5 0 1 4 0 0 1											
4.0	4 0 0 1											
6.0	6 0 0 1											
10	1 0 0 2											
16	1 6 0 2											
25	2 5 0 2											
40	2 5 0 2 4 0 0 2 6 0 0 2											
60	6 0 0 2											
100	1 0 0 3											
160	1 6 0 3 2 5 0 3 4 0 0 3 X 1 0 2											
250	2 5 0 3 4 0 0 3											
400	4 0 0 3											
-1 0 ¹	X 1 0 2 9 9 9 9											
customer	9999											consult
Pressure												
gauge		R										
absolute		A							_			
Output												
4 20 mA / 2-wire												
0 10 V / 3-wire		3	5		_				_			
0.5 4.5 V / 3-wire ratiometric		F	2									
customer		ç	,									consult
Accuracy 0.5 % FSO			E									
customer			5 9									consult
Electrical connection	_		9									Consult
Male and female plug ISO 4400		_	_	1	0 0							
Male and female plug Micro				C	1 0							
Male plug M12x1 (4-pin), plastic				M	0 0							
Cable outlet with PVC cable ²				Т								
customer				9	A 0 9 9							consult
Mechanical connection				Ű	0 0	1						Contourt
G1/4" DIN 3852						3	00)				
G1/4" EN 837						4)				
1/4" NPT						N	4 0)				
G1/2" EN 837						2	0 0)				
customer						9	00)				consult
Seal												
FKM									1			
EPDM									3			
customer									9			consult
Special version												
standard									(0 0	0 7	
oxygen application ³									0	0 0	7	
oil and grease free									0	0 0	8 9	
customer									ç	9	9	consult
Prices EXW Thierstein, excluding packag	e											

~~~~~

<sup>1</sup> for nominal pressure range -1 ... 0 bar accuracy is 1 % FSO
 <sup>2</sup> standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)
 <sup>3</sup> oxygen application with FKM seal up to 25 bar or with EPDM seal up to 15 bar posible

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# 114 OEM PRESSURE TRANSMITTER



# 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

#### Technical Data

| 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   | 15 | 15 | 25 | 70 | 70 | 150 | 150 | 250 | 500 | 500 |
| Vacuum resistance      |       | unlimited | d   |    |    |    |    |    |     |     |     |     |     |

#### Output signal / Supply

| output orginal / ouppij                            |                                                                            |
|----------------------------------------------------|----------------------------------------------------------------------------|
| Standard                                           | 2-wire: 4 20 mA / V <sub>s</sub> = 8 32 V <sub>DC</sub>                    |
| Options                                            | 3-wire: 010 V / V <sub>S</sub> = 14 30 V <sub>DC</sub>                     |
|                                                    | 3-wire ratiometric: $V_{Sig} = 0.5 \dots 4.5 V / V_S = 5 \pm 0.5 V_{DC}$   |
| Performance                                        |                                                                            |
| Accuracy <sup>1</sup>                              | ≤ ± 1 % 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                                  | supply: 0.05 % FSO / 10 V                                                  |
|                                                    | load: 0.05 % FSO / kΩ                                                      |
| Response time                                      | 2-wire: ≤ 10 msec                                                          |
|                                                    | 3-wire: ≤ 3 msec                                                           |
| Measuring rate                                     | 1 kHz                                                                      |
| <sup>1</sup> accuracy according to IEC 60770 – lin | nit point adjustment (non-linearity, hysteresis, repeatability)            |
| Thermal effects (Offset and Span                   | n) / Permissible temperatures                                              |
| Thermal error                                      | ≤ ± 0.5 % FSO / 10 K (typ.) in compensated range -25 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                                            |
| 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                      |
|                                                    |                                                                            |

# 30.600 G Technical Data

| Pressure port / housing                                                                                     |                                                                                                                          |                                                                                   |                                                                |                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                             | stainless steel 1.4301 (                                                                                                 |                                                                                   |                                                                |                                                                                                                                                        |
| Seals (media wetted)                                                                                        | FKM                                                                                                                      | other                                                                             | s on request                                                   |                                                                                                                                                        |
| Diaphragm                                                                                                   | ceramics Al <sub>2</sub> O <sub>3</sub> 96 %                                                                             |                                                                                   |                                                                |                                                                                                                                                        |
| Media wetted parts                                                                                          | pressure port, seals, di                                                                                                 | aphragm                                                                           |                                                                |                                                                                                                                                        |
| Miscellaneous                                                                                               |                                                                                                                          |                                                                                   |                                                                |                                                                                                                                                        |
| Weight                                                                                                      | approx. 120 g                                                                                                            |                                                                                   |                                                                |                                                                                                                                                        |
| Current consumption                                                                                         | 2-wire: max. 25 mA                                                                                                       | 3-wire                                                                            | e ratiometric: typ. 1.5 mA                                     |                                                                                                                                                        |
| -                                                                                                           |                                                                                                                          | mA (short circuit current                                                         | :: max. 20 mA)                                                 |                                                                                                                                                        |
| Long term stability                                                                                         | ≤ ± 0.3 % FSO / year a                                                                                                   | t reference conditions                                                            |                                                                |                                                                                                                                                        |
| Operational life                                                                                            | > 100 x 10 <sup>6</sup> cycles                                                                                           |                                                                                   |                                                                | 2                                                                                                                                                      |
| CE-conformity                                                                                               | EMC Directive: 2004/10                                                                                                   |                                                                                   | sure Equipment Directive                                       | : 97/23/EC (module A) <sup>2</sup>                                                                                                                     |
| <sup>2</sup> This directive is only valid for devices                                                       | with maximum permissible o                                                                                               | verpressure > 200 bar                                                             |                                                                |                                                                                                                                                        |
| Wiring diagrams                                                                                             |                                                                                                                          |                                                                                   |                                                                |                                                                                                                                                        |
| 2-wire-system (current)                                                                                     |                                                                                                                          | 3-wire-system (v                                                                  | oltage)                                                        |                                                                                                                                                        |
| p A A A A A A A A A A A A A A A A A A A                                                                     | • +<br>∨s<br>• -                                                                                                         | p supply +                                                                        |                                                                |                                                                                                                                                        |
| <u> </u>                                                                                                    |                                                                                                                          |                                                                                   | ÷                                                              |                                                                                                                                                        |
| Pin configuration                                                                                           | 1                                                                                                                        |                                                                                   |                                                                |                                                                                                                                                        |
| Electrical connection                                                                                       | ISO 4400                                                                                                                 | Micro (contact<br>distance 9.4 mm)                                                | M12x1 (4-pin),                                                 | cable colours                                                                                                                                          |
| Supply +                                                                                                    | 1                                                                                                                        | 1                                                                                 | plastic<br>1                                                   | (DIN 47100)<br>wh (white)                                                                                                                              |
| Supply –                                                                                                    | 2                                                                                                                        | 2                                                                                 | 2                                                              | bn (brown)                                                                                                                                             |
| Signal + (for 3-wire)                                                                                       | 3                                                                                                                        | 3                                                                                 | 3                                                              | gn (green)                                                                                                                                             |
| Shield                                                                                                      | ground pin                                                                                                               | ground pin                                                                        | 4                                                              | ye/gn (yellow / green)                                                                                                                                 |
| Electrical connections (dimension                                                                           | ons in mm)                                                                                                               |                                                                                   | ·                                                              |                                                                                                                                                        |
|                                                                                                             | N Pg7                                                                                                                    |                                                                                   |                                                                | Ø4,3                                                                                                                                                   |
| 224<br>5W24                                                                                                 | 90<br>90<br>1<br>1                                                                                                       |                                                                                   | - Ø24<br>- Ø24<br>- SW24<br>- G1/4*                            | ₩<br>₩<br>₩<br>₩<br>₩<br>₩<br>₩<br>₩<br>₩<br>₩<br>₩<br>₩<br>₩<br>₩                                                                                     |
| 1<br>3<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1            | B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B                              | 2 22<br>27<br>27<br>27<br>27<br>27<br>27<br>27<br>27<br>27<br>27<br>27<br>27<br>2 | - Ø24                                                          | S<br>S<br>SW24<br>SW24<br>C<br>G<br>G<br>G<br>G<br>I/4"<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C |
| 1<br>3<br>1<br>2<br>1<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5  | SW24<br>SW24<br>J<br>J<br>Micro, contact-<br>distance 9.4 mm (IP 65)                                                     | W                                                                                 | - Ø24<br>- SW24<br>- G1/4*                                     | 5 SW24<br>5 SW24<br>5 SW24<br>6 J/4"<br>0                                                                                                              |
| 1<br>3<br>1<br>2<br>1<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5  | Nicro, contact-<br>distance 9.4 mm (IP 65)                                                                               | 2 2<br>7 1 1 -                                                                    | - Ø24<br>- SW24<br>- G1/4*<br>2<br>3<br>12x1, 4-pin<br>(IP 67) | S<br>S<br>W24<br>S<br>S<br>G<br>G<br>G<br>I/4"<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C          |
| ISO 4400<br>(IP 65)<br>3 standard: 2 m PVC cable without vent                                               | 1<br>3<br>Wicro, contact-<br>distance 9.4 mm (IP 65)<br>tilation tube (permissible temp<br>lable, permissible temperatur | 2 2<br>7 1 1 -                                                                    | - Ø24<br>- SW24<br>- G1/4*<br>2<br>3<br>12x1, 4-pin<br>(IP 67) | S<br>S<br>W24<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S                                           |
| ISO 4400<br>(IP 65)<br>3 standard: 2 m PVC cable without vent.<br>4 different cable types and lengths avail | 1<br>3<br>Wicro, contact-<br>distance 9.4 mm (IP 65)<br>tilation tube (permissible temp<br>lable, permissible temperatur | 2 2<br>7 1 1 -                                                                    | - Ø24<br>- SW24<br>- G1/4*<br>2<br>3<br>12x1, 4-pin<br>(IP 67) | S<br>S<br>W24<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S                                           |

| 30.600 G                                                    | -                                                    | -0-0 | - ] | - 🗌 |                   | -[ |   |   | -2- | ]- | ·П | T      |   |          |
|-------------------------------------------------------------|------------------------------------------------------|------|-----|-----|-------------------|----|---|---|-----|----|----|--------|---|----------|
| Input [bar]                                                 |                                                      |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| 1.6                                                         | 1 6 0 1                                              |      |     |     |                   |    |   |   | _   |    |    |        |   |          |
| 2.5                                                         | 2 5 0 1                                              |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| 4.0                                                         | 2 5 0 1<br>4 0 0 1                                   |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| 6.0                                                         | 6 0 0 1                                              |      |     |     |                   |    |   |   |     |    |    |        | T |          |
| 10                                                          |                                                      |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| 16                                                          | 1 6 0 2                                              |      |     |     |                   |    |   |   |     |    |    |        | T |          |
| 25                                                          | $\begin{array}{cccccccccccccccccccccccccccccccccccc$ |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| 40                                                          | 4 0 0 2                                              |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| 60                                                          | 6 0 0 2                                              |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| 100                                                         | 1 0 0 3                                              |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| 160                                                         | 1 6 0 3                                              |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| 250                                                         | 2 5 0 3                                              |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| customer                                                    | 2 5 0 3<br>9 9 9 9                                   |      |     |     |                   |    |   |   |     |    |    |        |   | consult  |
| Pressure                                                    |                                                      |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| gauge                                                       |                                                      | R    |     |     |                   |    |   |   |     |    |    |        |   |          |
| Output                                                      |                                                      |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| 4 20 mA / 2-wire                                            |                                                      | 1    |     |     |                   |    |   |   |     |    |    |        |   |          |
| 0 10 V / 3-wire                                             |                                                      | 3    |     |     |                   |    |   |   |     |    |    |        |   |          |
| 0.5 4.5 V / 3-wire ratiometric                              |                                                      | R    |     |     |                   |    |   |   |     |    |    |        |   |          |
| customer                                                    |                                                      | 9    |     |     |                   |    |   |   |     |    |    |        | _ | consult  |
| Accuracy                                                    |                                                      |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| 1.0 % FSO                                                   |                                                      |      | 8   |     |                   |    |   |   |     |    |    |        |   |          |
| customer                                                    |                                                      |      | 9   | _   |                   |    |   |   |     |    | _  |        | _ | consult  |
| Electrical connection<br>Male and female plug ISO 4400      |                                                      |      |     | 4   | 0 0               |    |   |   |     |    |    |        |   |          |
| Male and female plug ISO 4400<br>Male and female plug Micro |                                                      |      |     |     | 0 0               |    |   |   |     |    |    |        |   |          |
| Male plug M12x1 (4-pin), plastic                            |                                                      |      |     | C   | 10                |    |   |   |     |    |    |        |   |          |
| Cable outlet with PVC cable 1                               |                                                      |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| customer                                                    |                                                      |      |     | 9   | 0 0<br>A 0<br>9 9 |    |   |   |     |    |    |        |   | consult  |
| Mechanical connection                                       |                                                      |      |     | 3   | 5 5               |    |   |   |     |    |    |        |   | Consult  |
| G1/4" DIN 3852                                              |                                                      |      | _   | _   | _                 | 3  | 0 | 0 | _   |    |    |        |   |          |
| 1/4" NPT                                                    |                                                      |      |     |     |                   | N  | 4 | 0 |     |    |    |        |   |          |
| customer                                                    |                                                      |      |     |     |                   | 9  |   | 9 |     |    |    |        |   | consult  |
| Seal                                                        |                                                      |      |     |     |                   | Ű  |   |   |     |    |    |        |   | Contourt |
| FKM                                                         |                                                      |      |     |     |                   |    |   |   |     | 1  |    |        |   |          |
| customer                                                    |                                                      |      |     |     |                   |    |   |   |     | 9  |    |        |   | consult  |
| Special version                                             |                                                      |      | _   |     | _                 |    |   |   |     |    |    |        |   |          |
| standard                                                    |                                                      |      |     |     |                   |    |   |   |     |    | 0  | 0      | 0 |          |
| customer                                                    |                                                      |      |     |     |                   |    |   |   |     |    | 9  | 0<br>9 | 9 | consult  |
|                                                             |                                                      |      |     |     |                   |    |   |   |     |    |    |        |   |          |

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

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

# OEM PRESSURE TRANSMITTER



# 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

#### Technical Data

| Pressure ranges                           |           |                              |                                            |                       |                              |               |          |
|-------------------------------------------|-----------|------------------------------|--------------------------------------------|-----------------------|------------------------------|---------------|----------|
| Nominal pressure gauge                    | [bar]     | 6                            | 10                                         | 16                    | 25                           | 40            | 60       |
| Overpressure                              | [bar]     | 14                           | 35                                         | 35                    | 70                           | 140           | 140      |
| Burst pressure ≥                          | [bar]     | 28                           | 70                                         | 70                    | 140                          | 280           | 280      |
| Vacuum resistance                         |           | unlimited                    |                                            | 1                     | 1                            |               |          |
| Vacuum ranges                             |           |                              |                                            |                       |                              |               |          |
| Nominal pressure gauge                    | [bar]     | -1 6                         | -1 10                                      | -1 16                 | -1 25                        | -1 40         | -1 60    |
| Overpressure                              | [bar]     | 14                           | 35                                         | 35                    | 70                           | 140           | 140      |
| Burst pressure                            | [bar]     | 28                           | 70                                         | 70                    | 140                          | 280           | 280      |
| Output signal / Supply                    |           |                              |                                            | ·                     |                              |               |          |
| Standard                                  |           | 2-wire:                      | 4 20 mA                                    | / V <sub>S</sub> = 8  | 32 V <sub>DC</sub>           |               |          |
| Options 3-wire                            |           | 3-wire:                      | 0 10 V                                     | / V <sub>S</sub> = 14 | 30 V <sub>DC</sub>           |               |          |
|                                           |           | 3-wire ratiomet              | ric: V <sub>Sig</sub> = 0.5                | $.4.5 V / V_s = 5$    | $\pm 0.5 V_{DC}$             |               |          |
| Performance                               |           |                              |                                            |                       |                              |               |          |
| Accuracy <sup>1</sup>                     |           | ≤ ± 0.5 % FSO                |                                            |                       |                              |               |          |
| Permissible load                          |           | 2-wire: R <sub>max</sub> = [ | (V <sub>s</sub> – V <sub>s</sub> min) / 0. | 02 A] Ω               | 3-wire: R <sub>min</sub> = 1 | 0 kΩ          |          |
| Influence effects                         |           | supply: 0.05 %               | FSO / 10 V                                 |                       | load: 0.05 % F               | SO / kΩ       |          |
| Response time                             |           | 2-wire: ≤ 10 ms              | ec                                         |                       | 3-wire: ≤ 3 mse              | ec .          |          |
| Measuring rate                            |           | 1 kHz                        |                                            |                       |                              |               |          |
| <sup>1</sup> accuracy according to IEC 60 | 770 – lin | nit point adjustment         | (non-linearity, hyst                       | eresis, repeatability | 1)                           |               |          |
| Thermal effects (Offset ar                | nd Spa    | n) / Permissible             | temperatures                               |                       |                              |               |          |
| Thermal error                             |           | ≤ ± 0.3 % FSO                | / 10 K in (                                | compensated rar       | nge 070                      | °C            |          |
| Permissible temperatures                  |           | medium: -40                  | 125 °C ele                                 | ectronics / enviror   | nment: -40 85                | °C storage: - | 40 85 °C |
| Electrical protection                     |           |                              |                                            |                       |                              |               |          |
| Short-circuit protection                  |           | permanent                    | 3-1                                        | vire ratiometric: r   | none                         |               |          |
| Reverse polarity protection               |           | no damage, bu                | t also no function                         |                       |                              |               |          |
| Electromagnetic protection                |           | emission and in              | nmunity accordin                           | g to EN 61326         |                              |               |          |
| Mechanical stability                      |           |                              |                                            |                       |                              |               |          |
| Vibration                                 |           | 20 g, 25 Hz                  | 2 kHz ac                                   | cording to DIN E      | N 60068-2-6                  |               |          |
| Shock                                     |           | 500 g / 1 msec               | ac                                         | cording to DIN E      | N 60068-2-27                 |               |          |

# 118 **17.609 G** Technical Data

| Pressure port<br>Housing<br>Seal of sensor<br>Diaphragm<br>Media wetted parts<br><b>Miscellaneous</b><br>Mechanical connection<br>Weight<br>Current consumption<br>Long term stability<br>Operational life<br>CE-conformity<br><b>Wiring diagrams</b><br>2-wire-system (current)<br>P<br><br>Pin configuration<br>Electrical connection | stainless steel 1.4571 (316<br>stainless steel 1.4301 (304<br>none (welded)<br>stainless steel 1.4542 (630<br>pressure port, diaphragm<br>7/16"-20 UNF<br>approx. 120 g<br>2-wire: max. 25 mA<br>3-wire voltage: max. 7 mA<br>$\leq \pm 0.3 \%$ FSO / year at ref<br>> 100 x 10 <sup>6</sup> pressure cycles<br>EMC Directive: 2004/108/E | )<br>)<br>3-wire rat<br>(short circuit current: ma<br>erence conditions<br>s                                                    |                    |                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------------------------------------------|
| Housing<br>Seal of sensor<br>Diaphragm<br>Media wetted parts<br>Miscellaneous<br>Mechanical connection<br>Weight<br>Current consumption<br>Long term stability<br>Operational life<br>CE-conformity<br>Wiring diagrams<br>2-wire-system (current)<br>$p = \frac{supply + b}{supply - b}$<br>Pin configuration<br>Electrical connection  | stainless steel 1.4301 (304<br>none (welded)<br>stainless steel 1.4542 (630<br>pressure port, diaphragm<br>7/16"-20 UNF<br>approx. 120 g<br>2-wire: max. 25 mA<br>3-wire voltage: max. 7 mA<br>$\leq \pm 0.3 \%$ FSO / year at ref<br>> 100 x 10 <sup>6</sup> pressure cycles<br>EMC Directive: 2004/108/E                                | )<br>3-wire rat<br>(short circuit current: ma<br>erence conditions<br>s<br>C<br>3-wire-system (voltage<br>supply +<br>supply -  | e)<br>$V_{s}$      |                                                      |
| Seal of sensor<br>Diaphragm<br>Media wetted parts<br>Miscellaneous<br>Mechanical connection<br>Weight<br>Current consumption<br>Long term stability<br>Operational life<br>CE-conformity<br>Wiring diagrams<br>2-wire-system (current)<br>P<br>supply<br>Pin configuration<br>Electrical connection                                     | none (welded)<br>stainless steel 1.4542 (630<br>pressure port, diaphragm<br>7/16"-20 UNF<br>approx. 120 g<br>2-wire: max. 25 mA<br>3-wire voltage: max. 7 mA<br>$\leq \pm 0.3 \%$ FSO / year at ref<br>> 100 x 10 <sup>6</sup> pressure cycles<br>EMC Directive: 2004/108/E                                                               | )<br>3-wire rat<br>(short circuit current: ma<br>ierence conditions<br>s<br>C<br>3-wire-system (voltage<br>supply +<br>supply - | e)<br>$V_{s}$      |                                                      |
| Diaphragm<br>Media wetted parts<br>Miscellaneous<br>Mechanical connection<br>Weight<br>Current consumption<br>Long term stability<br>Operational life<br>CE-conformity<br>Wiring diagrams<br>2-wire-system (current)<br>P<br>Pin configuration<br>Electrical connection                                                                 | stainless steel 1.4542 (630<br>pressure port, diaphragm<br>7/16"-20 UNF<br>approx. 120 g<br>2-wire: max. 25 mA<br>3-wire voltage: max. 7 mA<br>$\leq \pm 0.3 \%$ FSO / year at ref<br>> 100 x 10 <sup>6</sup> pressure cycles<br>EMC Directive: 2004/108/E                                                                                | 3-wire rat<br>(short circuit current: ma<br>erence conditions<br>s<br>:C<br>3-wire-system (voltage<br>supply +<br>supply -      | e)<br>$V_{s}$      |                                                      |
| Media wetted parts<br>Miscellaneous<br>Mechanical connection<br>Weight<br>Current consumption<br>Long term stability<br>Operational life<br>CE-conformity<br>Wiring diagrams<br>2-wire-system (current)<br>p<br><br>Pin configuration<br>Electrical connection                                                                          | pressure port, diaphragm<br>7/16"-20 UNF<br>approx. 120 g<br>2-wire: max. 25 mA<br>3-wire voltage: max. 7 mA<br>$\leq \pm 0.3 \%$ FSO / year at ref<br>> 100 x 10 <sup>8</sup> pressure cycles<br>EMC Directive: 2004/108/E                                                                                                               | 3-wire rat<br>(short circuit current: ma<br>erence conditions<br>s<br>:C<br>3-wire-system (voltage<br>supply +<br>supply -      | e)<br>$V_{s}$      |                                                      |
| Miscellaneous<br>Mechanical connection<br>Weight<br>Current consumption<br>Long term stability<br>Operational life<br>CE-conformity<br>Wiring diagrams<br>2-wire-system (current)<br>P<br>P                                                                                                                                             | 7/16"-20 UNF<br>approx. 120 g<br>2-wire: max. 25 mA<br>3-wire voltage: max. 7 mA<br>$\leq \pm 0.3 \%$ FSO / year at ref<br>> 100 x 10 <sup>6</sup> pressure cycles<br>EMC Directive: 2004/108/E                                                                                                                                           | (short circuit current: ma<br>erence conditions<br>s<br>C<br>3-wire-system (voltage<br>supply +<br>supply -                     | e)<br>$V_{s}$      |                                                      |
| Mechanical connection<br>Weight<br>Current consumption<br>Long term stability<br>Operational life<br>CE-conformity<br>Wiring diagrams<br>2-wire-system (current)<br>P<br>supply +<br>P in configuration<br>Electrical connection                                                                                                        | approx. 120 g<br>2-wire: max. 25 mA<br>3-wire voltage: max. 7 mA<br>$\leq \pm 0.3 \%$ FSO / year at ref<br>> 100 x 10 <sup>6</sup> pressure cycles<br>EMC Directive: 2004/108/E                                                                                                                                                           | (short circuit current: ma<br>erence conditions<br>s<br>C<br>3-wire-system (voltage<br>supply +<br>supply -                     | e)<br>$V_{s}$      |                                                      |
| Weight<br>Current consumption<br>Long term stability<br>Operational life<br>CE-conformity<br>Wiring diagrams<br>2-wire-system (current)<br>P                                                                                                                                                                                            | approx. 120 g<br>2-wire: max. 25 mA<br>3-wire voltage: max. 7 mA<br>$\leq \pm 0.3 \%$ FSO / year at ref<br>> 100 x 10 <sup>6</sup> pressure cycles<br>EMC Directive: 2004/108/E                                                                                                                                                           | (short circuit current: ma<br>erence conditions<br>s<br>C<br>3-wire-system (voltage<br>supply +<br>supply -                     | e)<br>$V_{s}$      |                                                      |
| Current consumption<br>Long term stability<br>Operational life<br>CE-conformity<br>Wiring diagrams<br>2-wire-system (current)<br>P A A A A A A A A A A A A A A A A A A A                                                                                                                                                                | 2-wire: max. 25 mA<br>3-wire voltage: max. 7 mA<br>$\leq \pm 0.3 \%$ FSO / year at ref<br>> 100 x 10 <sup>6</sup> pressure cycles<br>EMC Directive: 2004/108/E                                                                                                                                                                            | (short circuit current: ma<br>erence conditions<br>s<br>C<br>3-wire-system (voltage<br>supply +<br>supply -                     | e)<br>$V_{s}$      |                                                      |
| Long term stability<br>Operational life<br>CE-conformity<br>Wiring diagrams<br>2-wire-system (current)<br>P<br>p                                                                                                                                                                                                                        | 3-wire voltage: max. 7 mA<br>$\leq \pm 0.3 \%$ FSO / year at ref<br>> 100 x 10 <sup>6</sup> pressure cycles<br>EMC Directive: 2004/108/E                                                                                                                                                                                                  | (short circuit current: ma<br>erence conditions<br>s<br>C<br>3-wire-system (voltage<br>supply +<br>supply -                     | e)<br>$V_{s}$      |                                                      |
| Operational life<br>CE-conformity<br>Wiring diagrams<br>2-wire-system (current)<br>p<br>supply +<br>(current)<br>P<br>P<br>P<br>n configuration<br>Electrical connection                                                                                                                                                                | $\leq \pm 0.3 \%$ FSO / year at ref<br>> 100 x 10 <sup>6</sup> pressure cycles<br>EMC Directive: 2004/108/E                                                                                                                                                                                                                               | 3-wire-system (voltage                                                                                                          | e) $V_{s}$ $-$     |                                                      |
| Operational life<br>CE-conformity<br>Wiring diagrams<br>2-wire-system (current)<br>p<br>supply +<br>(current)<br>P<br>P<br>P<br>n configuration<br>Electrical connection                                                                                                                                                                | > 100 x 10 <sup>6</sup> pressure cycles<br>EMC Directive: 2004/108/E                                                                                                                                                                                                                                                                      | S<br>C<br>3-wire-system (voltage<br>p<br>supply +<br>supply -                                                                   | v <sub>s</sub>     |                                                      |
| CE-conformity<br>Wiring diagrams<br>2-wire-system (current)                                                                                                                                                                                                                                                                             | EMC Directive: 2004/108/E                                                                                                                                                                                                                                                                                                                 | 3-wire-system (voltage                                                                                                          | v <sub>s</sub>     |                                                      |
| Wiring diagrams<br>2-wire-system (current)                                                                                                                                                                                                                                                                                              | -• +                                                                                                                                                                                                                                                                                                                                      | 3-wire-system (voltage                                                                                                          | v <sub>s</sub>     |                                                      |
| 2-wire-system (current)  P Supply + Supply - P in configuration Electrical connection                                                                                                                                                                                                                                                   | -• +<br>Vs<br>-• -                                                                                                                                                                                                                                                                                                                        | p supply + supply -                                                                                                             | v <sub>s</sub>     |                                                      |
| Pin configuration<br>Electrical connection                                                                                                                                                                                                                                                                                              | -• +<br>V <sub>S</sub><br>-• -                                                                                                                                                                                                                                                                                                            | p supply + supply -                                                                                                             | v <sub>s</sub>     |                                                      |
| Electrical connection                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                 | - <u>-</u>         |                                                      |
|                                                                                                                                                                                                                                                                                                                                         | 1                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                 |                    |                                                      |
|                                                                                                                                                                                                                                                                                                                                         | ISO 4400                                                                                                                                                                                                                                                                                                                                  | Micro (contact                                                                                                                  | M12x1 (4-pin),     | cable colours                                        |
| 0                                                                                                                                                                                                                                                                                                                                       | 150 4400                                                                                                                                                                                                                                                                                                                                  | distance 9.4 mm)                                                                                                                | plastic            | (DIN 47100)                                          |
| Supply +                                                                                                                                                                                                                                                                                                                                | 1                                                                                                                                                                                                                                                                                                                                         | 1                                                                                                                               | 1                  | wh (white)                                           |
| Supply –                                                                                                                                                                                                                                                                                                                                | 2                                                                                                                                                                                                                                                                                                                                         | 2                                                                                                                               | 2                  | bn (brown)                                           |
| Signal + (for 3-wire)                                                                                                                                                                                                                                                                                                                   | 3                                                                                                                                                                                                                                                                                                                                         | 3                                                                                                                               | 3                  | gn (green)                                           |
| Shield<br>Dimensions (in mm)                                                                                                                                                                                                                                                                                                            | ground pin                                                                                                                                                                                                                                                                                                                                | ground pin                                                                                                                      | 4                  | ye/gn (yellow / green)                               |
|                                                                                                                                                                                                                                                                                                                                         | Ca.35,5                                                                                                                                                                                                                                                                                                                                   | 13,5                                                                                                                            | M12x1              | - Ø4,3<br>- Ø24<br>- SW24<br>- 7/16 UNF              |
| 2<br>ISO 4400<br>(IP 65)<br>standard: 2 m PVC cable without ven<br>different cable types and lengths avai                                                                                                                                                                                                                               | 2<br>Micro, contact<br>distance 9.4 mm (IP 65)                                                                                                                                                                                                                                                                                            | (11                                                                                                                             | x1, 4-pin<br>P 67) | cable outlet with<br>PVC-cable (IP 67) <sup>23</sup> |

| 17.609 G                         |                               |   | - 🗌 - | - 🗌 | Τ   | ]-∏ |            | ]-[]   | - 🗌 |     | ]       |
|----------------------------------|-------------------------------|---|-------|-----|-----|-----|------------|--------|-----|-----|---------|
|                                  |                               |   |       |     |     |     |            |        |     |     |         |
| Input [bar]                      |                               |   |       |     |     |     |            |        |     |     |         |
| 6                                | 6 0 0 1                       |   |       |     |     |     |            |        |     |     |         |
| 10                               | 1 0 0 2                       |   |       |     |     |     |            |        |     |     |         |
| 16                               | 1 6 0 2                       |   |       |     |     |     |            |        |     |     |         |
| 25                               | 2 5 0 2                       |   |       |     |     |     |            |        |     |     |         |
| 40                               | 1 6 0 2<br>2 5 0 2<br>4 0 0 2 |   |       |     |     |     |            |        |     |     |         |
| 60                               | 6 0 0 2                       |   |       |     |     |     |            |        |     |     |         |
| -1 6                             | V 6 0 2                       |   |       |     |     |     |            |        |     |     |         |
| -1 10                            | V 1 0 3                       |   |       |     |     |     |            |        |     |     |         |
| -1 16                            | V 1 6 3<br>V 2 5 3            |   |       |     |     |     |            |        |     |     |         |
| -1 25                            | V 2 5 3                       |   |       |     |     |     |            |        |     |     |         |
| -1 40                            | V 4 0 3                       |   |       |     |     |     |            |        |     |     |         |
| -1 60                            | V 6 0 3                       |   |       |     |     |     |            |        |     |     |         |
| customer                         | 9999                          |   |       |     |     |     |            |        |     |     | consult |
| Pressure                         |                               |   |       |     |     |     |            |        |     |     |         |
| gauge                            |                               | R |       |     |     |     |            |        |     |     |         |
| Output                           |                               |   |       |     |     |     |            |        |     |     |         |
| 4 20 mA / 2-wire                 |                               | 1 |       |     |     |     |            |        |     |     |         |
| 0 10 V / 3-wire                  |                               | 3 |       |     |     |     |            |        |     |     |         |
| 0.5 4.5 V / 3-wire ratiometric   |                               | R |       |     |     |     |            |        |     |     |         |
| Accuracy                         |                               | I |       |     |     |     |            |        |     |     |         |
| 0.5 % FSO                        |                               |   | 5     |     |     |     |            |        |     |     |         |
| customer                         |                               |   | 9     |     |     |     |            |        |     |     | consult |
| Electrical connection            |                               |   |       |     |     |     |            |        |     |     |         |
| Male and female plug ISO 4400    |                               |   |       | 1 ( | 0 0 |     |            |        |     |     |         |
| Male and female plug Micro       |                               |   |       |     | 1 0 |     |            |        |     |     |         |
| Male plug M12x1 (4-pin), plastic |                               |   |       |     | 0 0 |     |            |        |     |     |         |
| Cable outlet with PVC-cable      |                               |   |       |     | A 0 |     |            |        |     |     |         |
| customer                         |                               |   |       | 9 9 | 9 9 |     |            |        |     |     | consult |
| Mechanical connection / Seal     |                               |   |       |     |     |     |            |        |     |     |         |
| 7/16"-20 UNF                     |                               |   |       |     |     | U   | 0 0        | 2      |     |     |         |
| customer                         |                               |   |       |     |     | 9 9 | 0 0<br>9 9 | 2<br>9 |     |     | consult |
| Special version                  |                               | _ |       |     | _   |     |            |        |     |     |         |
| standard                         |                               |   |       |     |     |     |            |        | 0   | 0 0 |         |
| customer                         |                               |   |       |     |     |     |            |        | 9   | 9 9 | consult |
|                                  |                               |   |       |     |     |     |            |        | 5   |     |         |

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

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

# 120 OEM PRESSURE TRANSMITTER



# 17.600 G

## OEM Pressure Transmitter Heavy Duty

#### Applications:

- ▶ mobile hydraulic
- presses
- general mechanical engineering
- oxygen application

#### Characteristics:

- ▶ stainless steel sensor, welded
- accuracy 0.5 % FSO according to IEC 60770
- nominal pressure ranges from
   6 bor up to 0
  - 0 ... 6 bar up to 0 ... 600 bar

#### Technical Data

| Input pressure range   |       |          |    |    |     |     |     |     |     |       |       |       |
|------------------------|-------|----------|----|----|-----|-----|-----|-----|-----|-------|-------|-------|
| Nominal pressure gauge | [bar] | 6        | 10 | 16 | 25  | 40  | 60  | 100 | 160 | 250   | 400   | 600   |
| Overpressure (static)  | [bar] | 14       | 35 | 35 | 70  | 140 | 140 | 350 | 350 | 700   | 1 200 | 1 200 |
| Burst pressure ≥       | [bar] | 28       | 70 | 70 | 140 | 280 | 280 | 700 | 700 | 1 400 | 1 500 | 1 500 |
| Vacuum resistance      |       | unlimite | d  |    |     |     |     |     |     |       |       |       |

| Output signal / Supply                            |                                         |                                                                              |
|---------------------------------------------------|-----------------------------------------|------------------------------------------------------------------------------|
| Standard                                          | 2-wire: 4 20 m                          | A / $V_{\rm S} = 8 \dots 32 V_{\rm DC}$                                      |
| Options                                           | 3-wire: 0 10 V                          | / V <sub>S</sub> = 14 30 V <sub>DC</sub>                                     |
| -                                                 | 3-wire ratiometric: $V_{Sig} = 0.5$     | $\dots 4.5 \text{ V} / \text{V}_{\text{S}} = 5 \pm 0.5 \text{V}_{\text{DC}}$ |
| Performance                                       |                                         |                                                                              |
| Accuracy <sup>1</sup>                             | ≤±0.5 % FSO                             |                                                                              |
| Permissible load                                  | 2-wire: $R_{max} = [(V_S - V_S n)]$     | nin) / 0.02 A] Ω                                                             |
|                                                   | 3-wire: $R_{min} = 10 k\Omega$          |                                                                              |
| Influence effects                                 | supply: 0.05 % FSO / 10 V               |                                                                              |
|                                                   | load: 0.05 % FSO / kΩ                   |                                                                              |
| Response time                                     | 2-wire: ≤ 10 msec                       | 3-wire: ≤ 3 msec                                                             |
| Measuring rate                                    | 1 kHz                                   |                                                                              |
| <sup>1</sup> accuracy according to IEC 60770 - li | nit point adjustment (non-linearity, hy | vsteresis, repeatability)                                                    |
| Thermal effects (Offset and Spa                   | n) / Permissible temperatures           |                                                                              |
| Thermal error                                     | ≤ ± 0.3 % FSO / 10 K in                 | n compensated range 0 70 °C                                                  |
| Permissible temperatures                          | medium: -40 125 °C e                    | electronics / environment: -40 85 °C storage: -40 85 °C                      |
| Electrical protection                             |                                         |                                                                              |
| Short-circuit protection                          | permanent 3                             | B-wire ratiometric: none                                                     |
| Reverse polarity protection                       | no damage, but also no function         | n                                                                            |
| Electromagnetic protection                        | emission and immunity accord            | ing to EN 61326                                                              |
| Mechanical stability                              |                                         |                                                                              |
| Vibration                                         | 20 g, 25 Hz 2 kHz a                     | according to DIN EN 60068-2-6                                                |
| Shock                                             | 500 g / 1 msec a                        | according to DIN EN 60068-2-27                                               |

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# 17.600 G Technical Data

| Materials                                                               |                                                                                                                                    |                              |                                      |                                                        |
|-------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|------------------------------|--------------------------------------|--------------------------------------------------------|
| Pressure port                                                           | stainless steel 1.4571 (31                                                                                                         | 6Ti)                         |                                      |                                                        |
| Housing                                                                 | stainless steel 1.4301 (30                                                                                                         |                              |                                      |                                                        |
| Seal of pressure port                                                   | FKM: G 1/4" DIN 3852                                                                                                               | others on                    | request                              |                                                        |
| Seal of sensor                                                          | none (welded)                                                                                                                      |                              |                                      |                                                        |
| Diaphragm                                                               | stainless steel 1.4542 (63)                                                                                                        | 0)                           |                                      |                                                        |
|                                                                         |                                                                                                                                    | ,                            |                                      |                                                        |
| Media wetted parts                                                      | pressure port, seal of pres                                                                                                        | sure port, diaphragm         |                                      |                                                        |
| Miscellaneous                                                           |                                                                                                                                    |                              |                                      |                                                        |
| Weight                                                                  | approx. 120 g                                                                                                                      |                              |                                      |                                                        |
| Current consumption                                                     | 2-wire: max. 25 mA<br>3-wire voltage: max. 7 mA                                                                                    |                              | ometric: typ. 3 mA<br>ax. 20 mA)     |                                                        |
| Long term stability                                                     | ≤ ± 0.3 % FSO / year                                                                                                               |                              |                                      |                                                        |
| Operational life                                                        | > 100 x 10 <sup>6</sup> pressure cycle                                                                                             | es                           |                                      |                                                        |
| CE-conformity                                                           | EMC Directive: 2004/108/                                                                                                           | EC Pressure I                | Equipment Directive: 97/             | 23/EC (module A) <sup>2</sup>                          |
| <sup>2</sup> This directive is only valid for devices                   | s with maximum permissible ove                                                                                                     | erpressure > 200 bar         |                                      |                                                        |
| Wiring diagrams                                                         |                                                                                                                                    |                              |                                      |                                                        |
| 2-wire-system (current)                                                 |                                                                                                                                    | 3-wire-system (voltage       | <i>ه</i> )                           |                                                        |
| p supply + A supply -                                                   |                                                                                                                                    | p supply + supply - signal + |                                      |                                                        |
| Pin configuration                                                       |                                                                                                                                    | <b>'</b>                     |                                      |                                                        |
| Electrical connection                                                   | ISO 4400                                                                                                                           | Micro (contact               | M12x1 (4-pin),                       | cable colour                                           |
| Electrical connection                                                   | 150 4400                                                                                                                           | distance 9.4 mm)             | plastic                              | (DIN 47100)                                            |
| 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                                    | ye/gn (yellow / green)                                 |
| Electrical connections (dimens                                          | ions in mm)                                                                                                                        |                              |                                      |                                                        |
| 1<br>3<br>2<br>2                                                        | Pg7<br>Pg7<br>024<br>SW24<br>1<br>3<br>2<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0 |                              | - M12x1<br>- Ø24<br>- Ø24<br>- G1/4* | 5W24                                                   |
| ISO 4400<br>(IP 65)<br><sup>3</sup> standard: 2 m PVC cable without ven | Micro, contact<br>distance 9.4 mm (IP 65)                                                                                          | (IF                          | (1, 4-pin<br>2 67)                   | cable outlet with 2 m PVC-cable (IP 67) <sup>3,4</sup> |
| <sup>4</sup> different cable types and lengths ava                      | ilable, permissible temperature                                                                                                    | depends on kind of cable     |                                      |                                                        |
| Mechanical connection (dimens                                           | sions in mm)                                                                                                                       |                              |                                      |                                                        |
|                                                                         |                                                                                                                                    |                              | 4                                    |                                                        |
| G1/4"                                                                   | G1/4"                                                                                                                              | 1/4"NPT-                     |                                      |                                                        |

| 17.600 G                                     | -                                                    | -0-0-0 | ]-[            | Щ-О                                                                                               | -             |         |
|----------------------------------------------|------------------------------------------------------|--------|----------------|---------------------------------------------------------------------------------------------------|---------------|---------|
| Input [bar]                                  |                                                      |        |                |                                                                                                   |               |         |
| 6                                            | 6 0 0 1                                              |        |                |                                                                                                   |               |         |
| 10                                           | $\begin{array}{cccccccccccccccccccccccccccccccccccc$ |        |                |                                                                                                   |               |         |
| 16                                           | 1 6 0 2<br>2 5 0 2<br>4 0 0 2                        |        |                |                                                                                                   |               |         |
| 25                                           | 2 5 0 2                                              |        |                |                                                                                                   |               |         |
| 40                                           | 4 0 0 2                                              |        |                |                                                                                                   |               |         |
| 60                                           | 6 0 0 2                                              |        |                |                                                                                                   |               |         |
| 100                                          | 1003                                                 |        |                |                                                                                                   |               |         |
| 160                                          | 1 6 0 3                                              |        |                |                                                                                                   |               |         |
| 250                                          | 2 5 0 3                                              |        |                |                                                                                                   |               |         |
| 400                                          | 4 0 0 3<br>6 0 0 3                                   |        |                |                                                                                                   |               |         |
| 600                                          | 6 0 0 3<br>9 9 9 9 9                                 |        |                |                                                                                                   |               |         |
| customer                                     | 9999                                                 |        |                |                                                                                                   |               | consult |
| Pressure                                     |                                                      |        |                |                                                                                                   |               |         |
| gauge                                        |                                                      | R      |                |                                                                                                   |               |         |
| 4 20 mA / 2-wire                             |                                                      | 1      |                |                                                                                                   |               |         |
| 0 10 V / 3-wire                              |                                                      | 1      |                |                                                                                                   |               |         |
| 0.5 4.5 V / 3-wire ratiometric               |                                                      | 3<br>R |                |                                                                                                   |               |         |
| Accuracy                                     |                                                      | K      |                |                                                                                                   |               |         |
| 0.5 % FSO                                    |                                                      | 5      |                |                                                                                                   |               |         |
| customer                                     |                                                      | 9      |                |                                                                                                   |               | consult |
| Electrical connection                        |                                                      | 0      |                |                                                                                                   |               | conour  |
| Male and female plug ISO 4400                |                                                      |        | 1 0 0          |                                                                                                   |               |         |
| Male and female plug Micro                   |                                                      |        | C 1 0          |                                                                                                   |               |         |
| Male plug M12x1 (4-pin), plastic             |                                                      |        | M 0 0          |                                                                                                   |               |         |
| Cable outlet with PVC-cable 1                |                                                      |        | T A O          |                                                                                                   |               |         |
| customer                                     |                                                      |        | T A 0<br>9 9 9 |                                                                                                   |               | consult |
| Mechanical connection / Seal                 |                                                      |        |                |                                                                                                   |               |         |
| G1/4" DIN 3852 /                             |                                                      |        |                | 300 P                                                                                             |               |         |
| on pressure port: FKM                        |                                                      |        |                |                                                                                                   |               |         |
| G1/4" EN 837 / without                       |                                                      |        |                | 4 0 0 2                                                                                           |               |         |
| 1/4" NPT / without<br>G1/2" EN 837 / without |                                                      |        |                | N 4 0 2                                                                                           |               |         |
|                                              |                                                      |        |                | 4     0     0     2       N     4     0     2       2     0     0     2       9     9     9     9 |               |         |
| customer                                     |                                                      | _      | _              | 99999                                                                                             |               | consult |
| Special version<br>standard                  |                                                      |        |                |                                                                                                   | 0 0 0         |         |
| oxygen application <sup>2</sup>              |                                                      |        |                |                                                                                                   | 0 0 0 0 0 0 0 |         |
| oil and grease free                          |                                                      |        |                |                                                                                                   | 0 0 8         |         |
| customer                                     |                                                      |        |                |                                                                                                   | 9 9 9         | consult |
| customer                                     |                                                      |        |                |                                                                                                   | 3 3 3 3       | consult |

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

<sup>2</sup> not possible with G1/4" DIN 3852

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

# SPECIAL VERSIONS



# **DMK 456**

## Pressure Transmitter with Stainless Steel Field Housing

Special application: Marine and Offshore

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**

- GL-certificate (Germanischer Lloyd)
- DVN-certificate (Det Norske Veritas)
- CCS-certificate (China Classification Society)
- stainless steel field housing
- IS-version (temperature class T6)
   Ex ia = intrinsically safe for gases and dusts
- high overpressure resistance

#### **Optional versions**

- diaphragm Al<sub>2</sub>O<sub>3</sub> 99.9 %
- different inch threads and flush versions

The pressure transmitter DMK 456 has been developed for measuring the pressure in systems and the level in tanks. It has been certified by Germanischer Lloyd (GL) and is therefore predestined for shipbuilding and offshore applications.

Due robust stainless steel field housing and the possibility to use the device in intrinsic safe areas (temperature class T6) enable to measure the pressure of aggressive gases and fluids under extreme operating conditions. The basis for the DMK 456 is a capacitive ceramic sensor element designed by BD|SENSORS, which offers a high overload resistance and medium compatibility.

#### Preferred areas of use are



Monitoring of the pressure during loading and unloading processes Monitoring of a ship's position and draught



Use in anti-heeling systems Level measurement in ballast and storage tanks

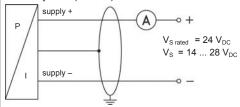


Monitoring of the internal pressure in liquid gas cargo tanks

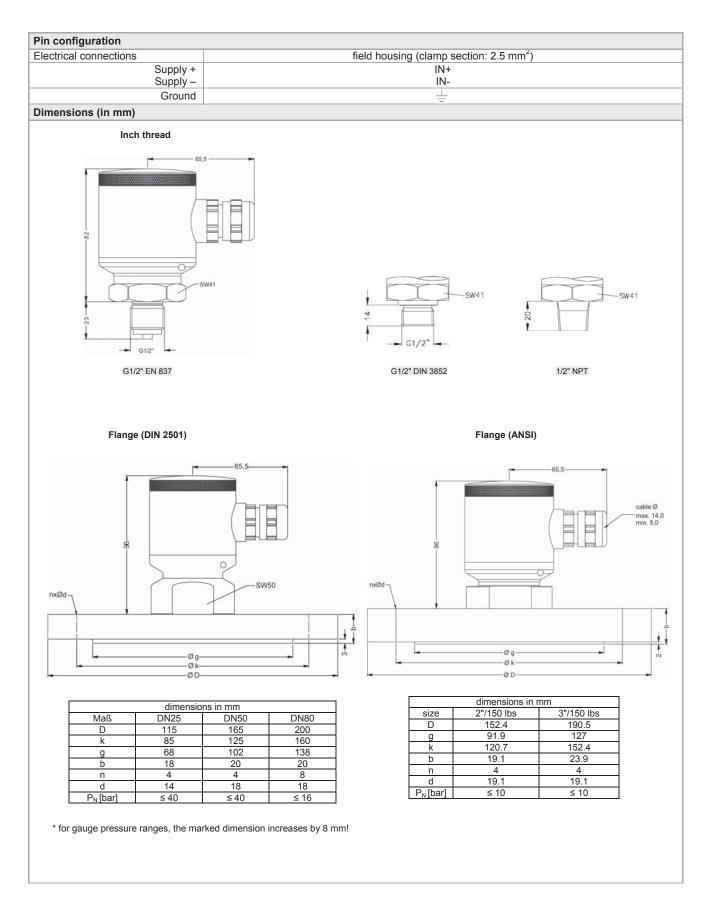




| Pressure ranges                                                                                                                                                                                                  |             |                                                                                                      |                                                                                                              |                          |                                              |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|--------------------------|----------------------------------------------|-----------------------------|-------------------------------|-------------------------------------------|-------------------------------|---------------------|----------|----------|---------|---------------------|----------|----------|
| 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                                                                                                                                                                                                            | [mH₂O]      | 0.4                                                                                                  | 0.6                                                                                                          | 1                        | 1.6                                          | 2.5                         | 4                             | 6                                         | 10                            | 16                  | 25       | 40       | 60      | 100                 | 160      | 20       |
| Permissible overpressure                                                                                                                                                                                         | [bar]       | 2                                                                                                    | 2                                                                                                            | 4                        | 4                                            | 6                           | 6                             | 8                                         | 8                             | 15                  | 25       | 25       | 35      | 35                  | 45       | 45       |
| Permissible vacuum                                                                                                                                                                                               | [bar]       | -0                                                                                                   | .2                                                                                                           | -0                       | ).3                                          |                             | -C                            | .5                                        |                               |                     |          |          | -1      |                     |          |          |
| <sup>1</sup> available in gauge, sealed g                                                                                                                                                                        | auge and a  | bsolute;                                                                                             | nomina                                                                                                       | l pressi                 | ure rang                                     | es seale                    | ed gaug                       | e and a                                   | bsolute                       | from 1 k            | bar      |          |         |                     |          |          |
| Output signal / Supply                                                                                                                                                                                           |             |                                                                                                      |                                                                                                              |                          |                                              |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Standard                                                                                                                                                                                                         |             | 2-wire                                                                                               | · 4                                                                                                          | 20 m/                    | A IS-vei                                     | sion / \                    | $V_{c} = 14$                  | 28                                        | Vpc                           |                     |          |          |         | V <sub>C</sub> ante | d = 24 ∖ | /        |
| Performance                                                                                                                                                                                                      |             | 2 1110                                                                                               |                                                                                                              | 20111                    |                                              |                             | •5 1                          |                                           | • DC                          |                     |          |          |         | * S rate            |          | DC       |
| Accuracy <sup>2</sup>                                                                                                                                                                                            |             | standa                                                                                               | ard: <                                                                                                       | + 0.2                    | 5 % FS                                       | 0                           |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Accuracy                                                                                                                                                                                                         |             | option                                                                                               |                                                                                                              |                          | 6 bar <sup>3</sup> :                         |                             | l % FS                        | 0                                         |                               |                     |          |          |         |                     |          |          |
| Permissible load                                                                                                                                                                                                 |             |                                                                                                      |                                                                                                              |                          | / 0.02                                       |                             |                               | -                                         |                               |                     |          |          |         |                     |          |          |
| Long term stability                                                                                                                                                                                              |             | $\leq \pm 0.7$                                                                                       |                                                                                                              |                          |                                              | , .] = =                    |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Influence effects                                                                                                                                                                                                |             | supply                                                                                               |                                                                                                              |                          | FSO /                                        | 10 V                        |                               |                                           |                               |                     |          |          |         |                     |          |          |
|                                                                                                                                                                                                                  |             | load:                                                                                                |                                                                                                              |                          | FSO/                                         |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Turn-on time                                                                                                                                                                                                     |             | 700 m                                                                                                |                                                                                                              |                          |                                              |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Mean response time                                                                                                                                                                                               |             | < 200                                                                                                |                                                                                                              |                          |                                              |                             |                               |                                           | m                             | ean me              | easurin  | a rate ( | 5/sec   |                     |          |          |
| Max. response time                                                                                                                                                                                               |             | 380 m                                                                                                |                                                                                                              |                          |                                              |                             |                               |                                           |                               |                     |          | 5        |         |                     |          |          |
| <sup>2</sup> accuracy according to IEC 6                                                                                                                                                                         | 0770 – limi | t point a                                                                                            | diustme                                                                                                      | nt (non                  | -linearity                                   | . hvster                    | esis. re                      | peatabil                                  | itv)                          |                     |          |          |         |                     |          |          |
| <sup>3</sup> Under the influence of disturb                                                                                                                                                                      | oance burst | t accordi                                                                                            | ng to El                                                                                                     | V 6100                   | )-4-4 (20                                    | 004) +2                     | kV acci                       | iracy de                                  | creased                       | $to \le \pm 0$      | 0.25 % I | FSO.     |         |                     |          |          |
| Thermal effects / Permis                                                                                                                                                                                         |             |                                                                                                      |                                                                                                              |                          |                                              |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Thermal error                                                                                                                                                                                                    |             | ≤±0.1                                                                                                |                                                                                                              | O / 10                   | К                                            | in cor                      | npensa                        | ated rai                                  | nae -2(                       | ) 80                | °C       |          |         |                     |          |          |
| Permissible temperatures                                                                                                                                                                                         |             | mediu                                                                                                |                                                                                                              |                          |                                              |                             |                               | enviro                                    | <u> </u>                      |                     |          |          | storage | a40                 | 100 °    | С        |
| Electrical protection                                                                                                                                                                                            |             | modia                                                                                                |                                                                                                              |                          |                                              | 01000                       | 0111007                       | onviro                                    | innont.                       | 20                  | 00 0     |          | otorag  | 0. 10 .             | 100      | <u> </u> |
| Short-circuit protection                                                                                                                                                                                         |             | norma                                                                                                | nont                                                                                                         |                          |                                              |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
|                                                                                                                                                                                                                  | <u> </u>    | perma                                                                                                |                                                                                                              | but old                  | so no fu                                     | notion                      |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Reverse polarity protection<br>Electromagnetic compatib                                                                                                                                                          |             |                                                                                                      |                                                                                                              |                          | inity ac                                     |                             |                               | 61226                                     | and C                         | ormon               | iachar   | Lloyd (  |         |                     |          |          |
|                                                                                                                                                                                                                  | inty        | 611155                                                                                               | ion and                                                                                                      |                          | anity ac                                     | coruni                      |                               | 101520                                    | anu e                         | erman               | ISCHEI   | Lioyu (  | GL)     |                     |          |          |
| Mechanical stability                                                                                                                                                                                             |             | 4                                                                                                    |                                                                                                              |                          |                                              | - 0 / 1-                    |                               |                                           | 20000                         | 0.0                 |          |          |         |                     |          |          |
| Vibration                                                                                                                                                                                                        |             | 4 g (a                                                                                               | ccorair                                                                                                      | ig to G                  | L: curv                                      | e z / ba                    | asis: D                       |                                           | 50068-                        | 2-6)                |          |          |         |                     |          |          |
| Materials                                                                                                                                                                                                        |             | r                                                                                                    |                                                                                                              |                          |                                              |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Pressure port                                                                                                                                                                                                    |             |                                                                                                      |                                                                                                              |                          | 04 (31                                       |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Housing                                                                                                                                                                                                          |             |                                                                                                      |                                                                                                              |                          | 04 (31                                       | 6 L)                        |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Cable gland                                                                                                                                                                                                      |             | brass,                                                                                               |                                                                                                              | •                        | 1                                            |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
|                                                                                                                                                                                                                  |             |                                                                                                      | on red                                                                                                       |                          |                                              |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Seals                                                                                                                                                                                                            |             | FKM;                                                                                                 | a se al s                                                                                                    |                          | s on rec                                     |                             | 1                             |                                           |                               |                     |          |          |         |                     |          |          |
| Diaphragm                                                                                                                                                                                                        |             | standa<br>option                                                                                     |                                                                                                              |                          | nics Al <sub>2</sub><br>nics Al <sub>2</sub> |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Media wetted parts                                                                                                                                                                                               |             | pressi                                                                                               | ure por                                                                                                      | t, seal                  | s, diapł                                     | nragm                       |                               |                                           |                               |                     |          |          |         |                     |          |          |
| IS protection                                                                                                                                                                                                    |             | -                                                                                                    |                                                                                                              |                          |                                              |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
| •                                                                                                                                                                                                                |             |                                                                                                      |                                                                                                              |                          |                                              |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Approval DX14A-DMK 456                                                                                                                                                                                           | 3           |                                                                                                      |                                                                                                              |                          |                                              |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
|                                                                                                                                                                                                                  |             | zone (                                                                                               | ): II 1G                                                                                                     | Ex ia                    | IIC T6                                       | 660 m\                      | N.C.=                         | 52 3 n                                    | F I.=                         | 5.04                |          |          |         |                     |          |          |
| Approval DX14A-DMK 456<br>Safety techn. maximum va                                                                                                                                                               |             | zone (<br>U <sub>i</sub> = 2                                                                         | ): II 1G<br>8 V, I <sub>i</sub> =                                                                            | Ex ia<br>93 m            |                                              | 660 m\<br>ive an i          | N, C <sub>i</sub> =<br>nner c | 52.3 n<br>apacity                         | F, L <sub>i</sub> =<br>of ma: | 5 μH,<br>x. 90,2    | nF opp   | posite t | he enc  | losure              |          |          |
| Safety techn. maximum va<br>Permissible temperatures                                                                                                                                                             | alues       | zone (<br>U <sub>i</sub> = 2                                                                         | ): II 1G<br>8 V, I <sub>i</sub> =<br>pply co                                                                 | Ex ia<br>93 m            | IIC T6<br>A, P <sub>i</sub> =                | ive an i                    | nner c                        | 52.3 n<br>apacity<br>with p <sub>at</sub> | of ma                         | x. 90,2             |          | oosite t | he enc  | losure              |          |          |
| Safety techn. maximum va<br>Permissible temperatures<br>environment                                                                                                                                              | alues       | zone (<br>U <sub>i</sub> = 2<br>the su                                                               | ): II 1G<br>8 V, I <sub>i</sub> =<br>pply co                                                                 | Ex ia<br>93 m            | IIC T6<br>A, P <sub>i</sub> =                | ive an i                    | nner c                        | apacity                                   | of ma                         | x. 90,2             |          | posite t | he enc  | losure              |          |          |
| Safety techn. maximum va<br>Permissible temperatures<br>environment<br>Miscellaneous                                                                                                                             | alues       | zone (<br>U <sub>i</sub> = 2<br>the su<br>-20                                                        | ): II 1G<br>8 V, I <sub>i</sub> =<br>pply co                                                                 | Ex ia<br>93 m            | IIC T6<br>A, P <sub>i</sub> =                | ive an i                    | nner c                        | apacity                                   | of ma                         | x. 90,2             |          | posite t | he enc  | losure              |          |          |
| Safety techn. maximum va<br>Permissible temperatures<br>environment<br><b>Miscellaneous</b><br>Ingress protection                                                                                                | alues       | zone (<br>U <sub>i</sub> = 2<br>the su<br>-20                                                        | ): II 1G<br>8 V, I <sub>i</sub> =<br>pply co                                                                 | Ex ia<br>93 m            | IIC T6<br>A, P <sub>i</sub> =                | ive an i                    | nner c                        | apacity                                   | of ma                         | x. 90,2             |          | posite t | he enc  | losure              |          |          |
| Safety techn. maximum va<br>Permissible temperatures<br>environment<br><b>Miscellaneous</b><br>Ingress protection<br>Installation position                                                                       | alues       | zone (<br>U <sub>i</sub> = 2<br>the su<br>-20<br>IP 67<br>any                                        | 0: II 1G<br>8 V, I <sub>i</sub> =<br>pply co<br>60 °C                                                        | Ex ia<br>93 m            | IIC T6<br>A, P <sub>i</sub> =                | ive an i                    | nner c                        | apacity                                   | of ma                         | x. 90,2             |          | posite t | he enc  | losure              |          |          |
| Safety techn. maximum va<br>Permissible temperatures<br>environment<br><b>Miscellaneous</b><br>Ingress protection<br>Installation position<br>Current consumption                                                | alues       | zone (<br>U <sub>i</sub> = 2<br>the su<br>-20<br>IP 67<br>any<br>max. 2                              | 2: II 1G<br>8 V, I <sub>i</sub> =<br>pply co<br>60 °C<br>21 mA                                               | Ex ia<br>93 m.<br>onnect | IIC T6<br>A, P <sub>i</sub> =<br>ions ha     | ive an i<br>in zo           | nner c                        | apacity<br>with p <sub>at</sub>           | of ma:<br><sub>m</sub> 0.8 ι  | x. 90,2<br>ip to 1. | 1 bar    | posite t | he enc  | losure              |          |          |
| Safety techn. maximum va<br>Permissible temperatures<br>environment<br><b>Miscellaneous</b><br>Ingress protection<br>Installation position<br>Current consumption<br>Weight                                      | alues       | zone (<br>U <sub>i</sub> = 2<br>the su<br>-20<br>IP 67<br>any<br>max. 2<br>min. 4                    | 2: II 1G<br>8 V, I <sub>i</sub> =<br>pply cc<br>60 °C<br>21 mA<br>00 g (c                                    | Ex ia<br>93 m.<br>onnect | IIC T6<br>A, P <sub>i</sub> =                | ive an i<br>in zo           | nner c                        | apacity<br>with p <sub>at</sub>           | of ma:<br><sub>m</sub> 0.8 ι  | x. 90,2<br>ip to 1. | 1 bar    | posite t | he enc  | losure              |          |          |
| Safety techn. maximum va<br>Permissible temperatures<br>environment<br><b>Miscellaneous</b><br>Ingress protection<br>Installation position<br>Current consumption<br>Weight<br>Operational life                  | alues       | zone (<br>U <sub>i</sub> = 2<br>the su<br>-20<br>IP 67<br>any<br>max. 2<br>min. 4<br>> 100           | 2: II 1G<br>8 V, I <sub>i</sub> =<br>pply co<br>60 °C<br>21 mA<br>00 g (c<br>x 10 <sup>6</sup> c             | Ex ia<br>93 m.<br>onnect | IIC T6<br>A, P <sub>i</sub> =<br>ions ha     | ive an i<br>in zo<br>housin | nner c                        | apacity<br>with p <sub>at</sub>           | of ma:<br><sub>m</sub> 0.8 ι  | x. 90,2<br>ip to 1. | 1 bar    | posite t | he enc  | losure              |          |          |
| Safety techn. maximum va<br>Permissible temperatures<br>environment<br><b>Miscellaneous</b><br>Ingress protection<br>Installation position<br>Current consumption<br>Weight<br>Operational life<br>CE conformity | alues       | zone (<br>U <sub>i</sub> = 2:<br>the su<br>-20<br>IP 67<br>any<br>max. 2<br>min. 4<br>> 100<br>EMC I | 2: II 1G<br>8 V, I <sub>i</sub> =<br>pply cc<br>60 °C<br>21 mA<br>00 g (c<br>x 10 <sup>6</sup> c<br>Directiv | Ex ia<br>93 m.<br>onnect | IIC T6<br>A, P <sub>i</sub> =<br>ions ha     | ive an i<br>in zo<br>housin | nner c                        | apacity<br>with p <sub>at</sub>           | of ma:<br><sub>m</sub> 0.8 ι  | x. 90,2<br>ip to 1. | 1 bar    | posite t | he enc  | losure              |          |          |
| Safety techn. maximum va<br>Permissible temperatures<br>environment<br><b>Miscellaneous</b><br>Ingress protection<br>Installation position<br>Current consumption<br>Weight<br>Operational life                  | alues       | zone (<br>U <sub>i</sub> = 2<br>the su<br>-20<br>IP 67<br>any<br>max. 2<br>min. 4<br>> 100           | 2: II 1G<br>8 V, I <sub>i</sub> =<br>pply cc<br>60 °C<br>21 mA<br>00 g (c<br>x 10 <sup>6</sup> c<br>Directiv | Ex ia<br>93 m.<br>onnect | IIC T6<br>A, P <sub>i</sub> =<br>ions ha     | ive an i<br>in zo<br>housin | nner c                        | apacity<br>with p <sub>at</sub>           | of ma:<br><sub>m</sub> 0.8 ι  | x. 90,2<br>ip to 1. | 1 bar    | posite t | he enc  | losure              |          |          |



## DMK 456 Technical Data



| Pressure         In bar, gauge         5         9         6         In bar, absolute         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1 <th1< th="">         1<th>DMK 456</th><th></th><th></th></th1<>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | DMK 456                                           |             |         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|-------------|---------|
| $ \begin{array}{c c c c c c c c c c c c c c c c c c c $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                   | 505         |         |
| in mH_0, absolute <sup>1</sup> 5 [9]8]       in mH_0, absolute <sup>1</sup> 5 [9]8] |                                                   | 5 9 6       | consult |
| Input         (mH, 0)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                   |             | oopoult |
| 0.40 0.04 0.04 0.04 0.0 0 0 0 0 0 0 0 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                   |             | consult |
| 1.0       0.10       1       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       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       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       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       0       0       0       0       0       0       0       0 <td>0.40 0.04</td> <td></td> <td></td>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.40 0.04                                         |             |         |
| 1.6       0.16       1       6       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       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       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       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       0       0       0       0       0       0       0 <td></td> <td></td> <td></td>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                   |             |         |
| 2.5     0.25     2.5     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     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     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     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     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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                   |             |         |
| $ \begin{array}{c c c c c c c c c c c c c c c c c c c $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2.5 0.25                                          | 2 5 0 0     |         |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                   |             |         |
| 16       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                   |             |         |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 16 1.6                                            | 1 6 0 1     |         |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                   |             |         |
| 100     10     10     2     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     <                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                   |             |         |
| 200       20       200       00       20       00       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       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       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       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       0       0       0       0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   | 1 0 0 2     |         |
| customer         9         9         9         9         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         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         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         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                   |             |         |
| Output         Intrinsic safety 4 20 mA / 2-wire<br>customer         E<br>customer         B<br>g         C         C         C         C         C         Consult           Accuracy         Consult         Consult         Consult         Consult         Consult         Consult           Standard         0.25 %         2         C         C         C         C         C         C         Consult           Standard         0.25 %         2         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                   |             | consult |
| Accuracy         Standard         0.25 %         2         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         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         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         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                   |             | consult |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | customer                                          |             | consult |
| option for PN ≥ 0,6 bar:       0.1 %       1       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       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       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       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       0       0       0       0       0       0 <td< td=""><td></td><td></td><td></td></td<>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                   |             |         |
| customer         9         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a<                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                   |             |         |
| Field housing customer       8       8       0       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1 <th1< th=""> <th1< th="">       1       <th1< th=""></th1<></th1<></th1<>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                   |             | consult |
| customer       9       9       9       9       9       9       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       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       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       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       0       0       0       0<                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                   |             |         |
| Mechanical connection       G1/2" DIN 3852       1       0       0       4       4       6         G1/2" EN 837       2       0       0       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       <                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                   |             | consult |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                   |             | consult |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                   |             |         |
| Flange DN 25 / PN 40 (DIN 2501)       F       2       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       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       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       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       0       0       0       0       0       0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                   |             |         |
| Flange DN 80 / PN 16 (DIN 2501) 2       F       1       6       6         Flansch DN 2" / 150 lbs (ANSI B16.5) 2       F       3       2       6       6         Flansch DN 3" / 150 lbs (ANSI B16.5) 2       F       3       3       6       6         Flansch DN 3" / 150 lbs (ANSI B16.5) 2       F       3       3       6       6         Seals       7       1       6       6       6         Seals       1       6       6       6         Pressure port       9       9       6       6         Stainless steel 1.4404 (316L)       1       6       6         Ceramics Al <sub>2</sub> O <sub>3</sub> 96%       2       6       6         Ceramics Al <sub>2</sub> O <sub>3</sub> 99,9%       7       7       6         Customer       9       9       6       6         Special version       9       6       6       6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   | F 2 0       |         |
| Flansch DN 2" / 150 lbs (ANSI B16.5) 2       F       3       2       6       6       6         Flansch DN 3" / 150 lbs (ANSI B16.5) 2       F       3       3       6       6       6         Seals       1       6       6       6       6       6       6         Seals       9       9       9       9       6       6       6         Pressure port       9       9       6       6       6       6         Stainless steel 1.4404 (316L)       1       6       6       6       6         Customer       9       6       6       6       6       6         Diaphragm       1       6       6       6       6       6       6         Ceramics Al <sub>2</sub> O <sub>3</sub> 96%       2       6       6       6       6       6       6         Special version       9       0       0       0       0       0       0       0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Flange DN 50 / PN 40 (DIN 2501)                   | F 2 3       |         |
| Flansch DN 3" / 150 lbs (ANSI B16.5) *       F 3 3 3       G       G       G       G       Consult         Seals       FKM       1       G       G       G       G       G       G         FKM       1       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G <td< td=""><td>Flange DN 80 / PN 16 (DIN 2501)<sup>2</sup></td><td>F 1 4 F 3 2</td><td></td></td<>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Flange DN 80 / PN 16 (DIN 2501) <sup>2</sup>      | F 1 4 F 3 2 |         |
| Customer         9         9         9         9         9         0         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1<                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Flansch DN 3" / 150 lbs (ANSI B16.5) <sup>2</sup> | F 3 3       |         |
| FKM       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | customer                                          | 9 9 9       | consult |
| customer         9         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I<                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                   | 1           |         |
| Pressure port         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         <                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |             | consult |
| customer         9         I         consult           Diaphragm         I         I         I           Ceramics Al <sub>2</sub> O <sub>3</sub> 96%         2         I         I           Ceramics Al <sub>2</sub> O <sub>3</sub> 99,9%         C         I         I           customer         9         I         I           Special version         I         I         I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |             |         |
| Diaphragm         2         2           Ceramics Al <sub>2</sub> O <sub>3</sub> 96%         2         2           Ceramics Al <sub>2</sub> O <sub>3</sub> 99,9%         C         2           customer         9         consult                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                   |             | conquit |
| Ceramics Al <sub>2</sub> O <sub>3</sub> 96%         2         2         2           Ceramics Al <sub>2</sub> O <sub>3</sub> 99,9%         C         C         2           customer         9         consult           Special version         0         0         0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                   | 9           | consult |
| customer     9     consult       Special version     0     0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Ceramics Al <sub>2</sub> O <sub>3</sub> 96%       |             |         |
| Special version 0 0 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                   |             | U       |
| standard 0 0 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                   | 9           | consult |
| customer 9 9 9 consult                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                   | 0 0 0       |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | customer                                          | 9 9 9       | consult |

 $^1$  nominal pressure ranges absolute from 1 bar; sealed gauge on request  $^2$  2"/150 lbs and 3"/150 lbs possible for nominal pressure ranges  $P_N$  ≤ 10 bar

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

# SPECIAL VERSIONS



# HU 300

## Hammer Union Pressure Transmitter

special application petrochemical industry / offshore

accuracy according to IEC 60770: 0.5 % FSO

#### **Nominal pressure**

from 0 ... 5 000 psi up to 0 ... 15 000 psi

#### **Output signals**

2-wire: 4 ... 20 mA 3-wire: 0 ... 5 V 4-wire: 3 mV/V others on request

#### **Product characteristics**

- extreme robust and stable
- vibration / shock

#### **Optional versions**

- IS-version zone 0 / 1 (only for 4 ... 20 mA / 2-wire)
- different output signals

#### Versions on request

- ▶ pressure port in Inconel<sup>®</sup>
- electrical connection Glenair (4-pin)
- mechanical connection WECO<sup>®</sup>2" (2002/2202)

The pressure transmitter HU 300 has been especially developed for extreme operating conditions in the petrochemical industry (on- and offshore sites). A high degree of reliability and accuracy is the precondition for a perfect function during cementing and tightening processes (annulus) on wellbores.

A one-piece pressure port, a high-quality pressure sensor and precise machining and assembly techniques ensure a small drifting and a high long-term stability. A very high resistance against vibration, shock and pressure peaks without any influence on the measurement characteristics is guaranteed. Due to the extreme environmental conditions on-site, it is important to offer solutions to different requirements, as f. ex. an intrinsic-safe version (zone 0), an electrical connection with IP 68 or special steel materials.

#### Preferred areas of use are



cementing wellbores hydraulic fracturing intensifying wellbores



-

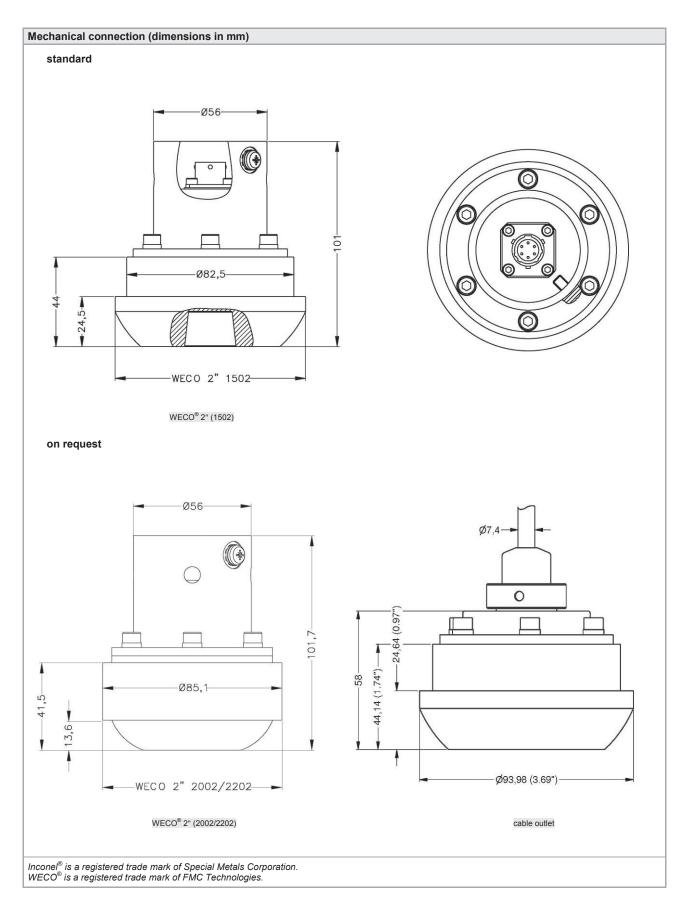
| Pressure ranges                                   |                                                               |                                        |                             |          |
|---------------------------------------------------|---------------------------------------------------------------|----------------------------------------|-----------------------------|----------|
| Nominal pressure [psi]                            | 5 000                                                         | 6 000                                  | 10 000                      | 15 000   |
| Permissible overpressure [psi]                    | 7 500                                                         | 9 000                                  | 15 000                      | 22 500   |
| Burst pressure ≥ [psi]                            | 10 000                                                        | 12 000                                 | 20 000                      | 30 000   |
|                                                   |                                                               |                                        |                             |          |
| Supply                                            |                                                               |                                        |                             |          |
| Standard                                          | 2-wire: 4 20 mA / Vs                                          |                                        |                             |          |
| Ex-protection                                     | 2-wire: 4 20 mA / $V_S$                                       | ; = 14 28 V <sub>DC</sub> <sup>1</sup> |                             |          |
| In preparation                                    |                                                               | / <sub>S</sub> = 14 30 V <sub>DC</sub> |                             |          |
| (only possible with MIL- / Ben-<br>dix-connector) | 4-wire: 3 mV/V / V                                            | / <sub>s</sub> = 6 10 V <sub>DC</sub>  |                             |          |
| <sup>1</sup> valid for temperature from -40 85 °C | : for higher temperatures the                                 | supply has to be limited               |                             |          |
| Performance                                       | , for higher temperatures the                                 | cappiy had to be minted                |                             |          |
| Accuracy                                          | IEC 60770: ≤ ± 0.5 % FS                                       | 80                                     |                             |          |
| Permissible load                                  |                                                               | $m_{max} = [(V_S - V_{S min}) / 0.02]$ | A10                         |          |
|                                                   |                                                               | $\max_{\min} \ge 10 \ \text{k}\Omega$  | nj 52                       |          |
|                                                   | 0                                                             | $mn \ge 100 \text{ k}\Omega$           |                             |          |
| Influence effects                                 | supply: 0.05 % FSO /                                          |                                        |                             |          |
|                                                   | load: 0.05 % FSO /                                            |                                        |                             |          |
| Long term stability                               | ≤ ± 0.5 % FSO per 6 mo                                        | nths                                   |                             |          |
| Response time                                     | ≤ ± 1.5 msec                                                  |                                        |                             |          |
| Thermal effects (Offset and Spa                   | n)                                                            |                                        |                             |          |
| Thermal errors                                    | ≤ ± 2 % FSO / 100 K                                           | in co                                  | mpensated range -5 60       | °C       |
| Permissible temperatures                          |                                                               |                                        |                             |          |
| Permissible temperatures                          | medium / environment:<br>storage:                             | -40 125 °C<br>-55 125 °C               |                             |          |
| Calibration                                       | otologol                                                      |                                        |                             |          |
| Calibration signal accuracy                       | ≤±0.2 % FSO                                                   |                                        |                             |          |
| Calibration signal                                | 80 % FSO (16.8 mA)                                            |                                        |                             |          |
| Electrical protection                             |                                                               |                                        |                             |          |
| Short-circuit protection                          | permanent                                                     |                                        |                             |          |
| Reverse polarity protection                       | no damage, but also no t                                      | function                               |                             |          |
| Electromagnetic compatibility                     | emission and immunity a                                       |                                        |                             |          |
| Mechanical stability                              |                                                               | <u> </u>                               |                             |          |
| Vibration                                         | 20g, 25 Hz 2 kHz                                              | according                              | to DIN EN 60068-2-6         |          |
| () Siddoff                                        | $7.5 g_{RMS}$ , 5 Hz – 1 kHz                                  |                                        | to DIN EN 60068-2-64        |          |
| Shock                                             | 500 g / 1 msec                                                |                                        | to DIN EN 60068-2-27        |          |
| Free Fall                                         | 1 m (free fall base: steel)                                   |                                        | to DIN EN 60068-2-32        |          |
| Materials                                         |                                                               |                                        |                             |          |
| Pressure port / diaphragm                         | standard: stainless s<br>on request: Inconel X7<br>Inconel X7 |                                        |                             |          |
| Housing                                           | stainless steel 1.4404 (3                                     | 16L)                                   |                             |          |
| Media wetted parts                                | pressure port                                                 |                                        |                             |          |
| Explosion protection (only for 4                  | 20 mA / 2-wire)                                               |                                        |                             |          |
| Approval<br>DX 18-HU 300                          | IBExU08ATEX1127 X<br>zone 0/1: II 1/2 G Ex ia                 | a IIC T4                               |                             |          |
| Safety technical maximum val-                     | U <sub>i</sub> = 28 V, I <sub>i</sub> = 100 mA, P             |                                        | = 5 µH,                     |          |
| ues                                               |                                                               |                                        | f max. 27 nF opposite the I | nousing. |
| Permissible temperatures for medium               | -40 70 °C                                                     |                                        |                             |          |
| Permissible temperatures for environment          | in zone 0: -20 60 °C<br>in zone 1: -25 70 °C                  | with p <sub>atm</sub> 0.8 bar up to 1. | 1 bar                       |          |

# HU 300 Technical Data

| Miscellaneous                                                                  |                                                                |                                                     |                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connecting cables                                                              | cable capacitance: signal lin                                  | ne/shield also signal line/signal lir               | ne: 150 pF/m                                                                                                                                                                                                                                                                                                 |
| (by factory)<br>Current consumption                                            | cable inductance: signal lin<br>2-wire signal output current:  | ne/shield also signal line/signal lir<br>max. 50 mA | ne: 1 μH/m                                                                                                                                                                                                                                                                                                   |
|                                                                                | 3-wire signal output voltage:<br>4-wire signal output voltage: | approx. 15 mA<br>29 mA @ 10 V                       |                                                                                                                                                                                                                                                                                                              |
| Installation position                                                          | any                                                            |                                                     |                                                                                                                                                                                                                                                                                                              |
| Weight<br>Wiring diagrams                                                      | 2.1 kg                                                         |                                                     |                                                                                                                                                                                                                                                                                                              |
|                                                                                |                                                                |                                                     |                                                                                                                                                                                                                                                                                                              |
| 2-wire                                                                         | 3-wire                                                         | 4-wire                                              | $ \begin{array}{c cccc}  & & & & & & & & & \\ \hline V_{S}^{+} & & & & & & & \\ \hline V_{S}^{-} & & & & & & \\ \hline V_{S}^{-} & & & & & & \\ \hline C_{S+} & & & & & & \\ \hline D_{S-} & & & & & \\ \hline C_{AL+} & & & & & \\ \hline F & CAL- & & & & \\ \hline CAL- & & & & & \\ \hline \end{array} $ |
| Pin configuration                                                              |                                                                |                                                     |                                                                                                                                                                                                                                                                                                              |
| Electrical connection                                                          | MIL-/ Bendix (6-pin)                                           | Glenair (4-pin)                                     | cable colours<br>(DIN 47100)                                                                                                                                                                                                                                                                                 |
| Supply +<br>Supply –<br>Calibration +<br>Calibration –<br>for 3-wire / 4-wire: | pin A<br>pin B<br>pin E<br>pin F                               | pin C<br>pin B<br>pin D<br>pin A                    | wh (white)<br>bn (brown)<br>pk (pink)<br>gy (grey)                                                                                                                                                                                                                                                           |
| Signal +<br>Signal –                                                           | pin C<br>pin D<br>cable shield /                               |                                                     | :                                                                                                                                                                                                                                                                                                            |
| Shield                                                                         | for 2-wire: pin D                                              | plug housing                                        | ye/gn (yellow / green)                                                                                                                                                                                                                                                                                       |
| Electrical connections (dimensio                                               | ons in mm)                                                     |                                                     |                                                                                                                                                                                                                                                                                                              |
| standard                                                                       | on ree                                                         | quest                                               |                                                                                                                                                                                                                                                                                                              |
|                                                                                |                                                                |                                                     |                                                                                                                                                                                                                                                                                                              |
|                                                                                |                                                                |                                                     | Ø35-                                                                                                                                                                                                                                                                                                         |
| MIL-/ Bendix (6-pin)<br>PT02_E10-6P-023<br>(IP 67)                             | Glenair<br>GC379-2<br>(IP                                      | 2-14S-2P                                            | cable outlet<br>(IP 68)                                                                                                                                                                                                                                                                                      |

HU 300 Technical Data

130



# HU 300 Ordering Code

| HU 300                                       |       | -       | -  | - 🗌 | -   |     | - 🗌 |     | ]-[ |   | - 🗌    |   | - |   |   |                |
|----------------------------------------------|-------|---------|----|-----|-----|-----|-----|-----|-----|---|--------|---|---|---|---|----------------|
| Standard version                             |       |         |    |     |     |     |     |     |     |   |        |   |   |   |   |                |
|                                              | H U 0 |         |    |     |     |     |     |     |     |   |        |   |   |   |   |                |
| Input [psi]                                  |       |         |    |     |     |     |     |     |     |   |        |   |   |   |   |                |
| 5 000                                        | P     |         |    |     |     |     |     |     |     |   |        |   |   |   |   |                |
| 6 000<br>10 000                              | P     | 6 K 0   |    |     |     |     |     |     |     |   |        |   |   |   |   |                |
| 15 000                                       | P     |         |    |     |     |     |     |     |     |   |        |   |   |   |   |                |
| customer                                     | G G   | 9999    |    |     |     |     |     |     |     |   |        |   |   |   |   | consult        |
| Output                                       | 5     | 1919191 |    |     |     |     |     |     |     |   |        |   |   |   |   | Consult        |
| 4 20 mA / 2-wire                             |       |         | 1  |     |     |     |     |     |     |   | _      |   | _ |   |   |                |
| Intrinsic safety 4 20 mA / 2-wire            |       |         | E  |     |     |     |     |     |     |   |        |   |   |   |   |                |
| 0 5 V / 3-wire                               |       |         | 4  |     |     |     |     |     |     |   |        |   |   |   |   | in preparation |
| 3 mV/V / 4-wire                              |       |         | V3 |     |     |     |     |     |     |   |        |   |   |   |   | in preparation |
| customer                                     |       |         | 9  |     |     |     |     |     |     |   |        |   |   |   |   | consult        |
| Accuracy                                     |       |         |    |     |     |     |     |     |     |   |        |   |   |   |   |                |
| 0.5 %                                        |       |         |    | 5   |     |     |     |     |     |   |        |   |   |   |   |                |
| customer                                     |       |         |    | 9   |     | _   |     |     |     |   |        |   |   |   |   | consult        |
| Electrical connection <sup>1</sup>           |       |         |    |     |     |     |     |     |     |   |        |   |   |   |   |                |
| MIL-/ Bendix (6-pin)<br>type PT02_E10-6P-023 |       |         |    |     | В 2 | 2 0 |     |     |     |   |        |   |   |   |   |                |
| Glenair (4-pin)                              |       |         |    |     | в   | z o |     |     |     |   |        |   |   |   |   |                |
| GC379-2-14S-2P                               |       |         |    |     |     |     |     |     |     |   |        |   |   |   |   |                |
| Cable outlet IP 68<br>with FEP cable         |       |         |    |     | TI  | R 2 |     |     |     |   |        |   |   |   |   |                |
| customer                                     |       |         |    |     | 0   | 9 9 |     |     |     |   |        |   |   |   |   | consult        |
| Mechanical connection                        |       |         |    |     | 9   | 9 9 |     |     |     |   |        |   |   |   |   | Consult        |
| WECO 2" 1502                                 |       |         | _  | _   | _   | _   | н   | U 0 |     |   | _      |   | _ |   |   |                |
| WECO 2" 2002/2202                            |       |         |    |     |     |     | H   | U 1 |     |   |        |   |   |   |   | consult        |
| customer                                     |       |         |    |     |     |     | 9   | 9 9 |     |   |        |   |   |   |   | consult        |
| Material pressure port                       |       |         |    |     |     |     |     |     |     |   |        |   |   |   |   |                |
| Stainless steel 1.4548 (17-4PH)              |       |         |    |     |     |     |     |     | 7   | 8 |        |   |   |   |   |                |
| customer                                     |       |         |    |     |     |     |     |     | 9   | 9 |        |   |   |   |   | consult        |
| Material diaphragm                           |       |         |    |     |     |     |     |     |     |   |        |   |   |   |   |                |
| Stainless steel 1.4548 (17-4PH)              |       |         |    |     |     |     |     |     |     |   | Z<br>9 | 8 |   |   |   |                |
| customer                                     |       |         |    |     |     |     |     | _   |     | _ | 9      | 9 |   |   |   | consult        |
| Special version                              |       |         |    |     |     |     |     |     |     |   |        |   | - | - | - |                |
| standard                                     |       |         |    |     |     |     |     |     |     |   |        |   | 0 | 0 | 0 |                |
| customer                                     |       |         |    |     |     |     |     |     |     |   |        |   | 9 | 9 | 9 | consult        |

<sup>1</sup> only male plugs

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| 132 | NOTES |
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|           | food and beverage                                |
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| 8         | pharmaceutical industry                          |
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MEDIA



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