BD|SENSORS
pressure measurement

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 Al_2O_3 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
- Chemical and Petrochemical Industry
- Laboratory Techniques

Preferred using in

- Viscous and pasty media

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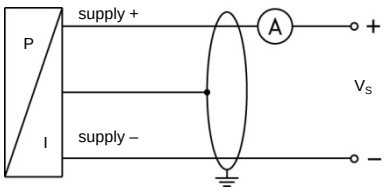
Pressure ranges [1]									
Nominal pressure gauge	[bar]	0.06	0.16	0.4	1	2	5	10	20
Overpressure	[bar]	2	4	6	8	15	25	35	45
Permissible vacuum	[bar]	-0.2	-0.3	-0.5		-1			
[1] On customer request we adjust the devices by software on the required pressure ranges (within the turn-down-possibility; starting at 0.02 bar).									
Output signal / Supply									
Standard		2-wire: 4 ... 20 mA / V_S = 12 … 30 V_{DC}							
Option IS-protection IS-protection/ HART®		 2-wire: 4 ... 20 mA / V_S = 12 … 28 V_{DC} 2-wire: 4 ... 20 mA with HART® communication / V_S = 12 … 28 V_{DC}							
Current consumption		max. 25 mA							
Performance									
Accuracy [2]		nominal pressure < 1 bar: ≤ ± 0,2 % FSO nominal pressure ≥ 1 bar: ≤ ± 0,1 % FSO							
		for nominal pressure ranges: from 0.06 bar up to 0.4 bar	≤ ± (0.2 + (TD-1) x 0.02) % FSO						
		for nominal pressure ranges: from 1 bar up to 20 bar	≤ ± (0.1 + (TD-1) x 0.01) % FSO						
		with turn-down = nominal pressure range / adjusted range							
Permissible load		R_{max} ≤ [(V_S – $V_{S\,min}$) / 0.02 A] Ω			load during HART® communication: R_{min} = 250 Ω				
Influence effects		supply: 0.05 % FSO / 10 V			permissible load: 0.05 % FSO / kΩ				
Long term stability		≤ ± 0.1 % FSO / year							
Response time		200 msec – without consideration of electronic damping					measuring rate 5/sec		
Adjustability		electronic damping: 0 … 100 sec offset: 0 ... 80 % FSO turn-down of span: max. 1:5 (span min. 0.02 bar)							
[2] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)									
Thermal errors / Permissible temperatures									
Thermal error		≤ ± (0.02 x turn-down) % FSO / 10 K in compensated range -20 … 80 °C							
Permissible temperatures		medium: -25 ... 125 °C		environment: -20 ... 70 °C			storage: -30 ... 80 °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		5 g RMS (20 ... 2000 Hz)							
Shock		100 g / 11 msec							
Materials									
Pressure port		inch thread, DRD and flange version, Varivent®, dairy pipe and clamp: stainless steel 1.4404 (316L) optionally for G1 1/2" flush (DIN 3852): PVDF							
Housing		stainless steel 1.4301 (304)							
Viewing glass		laminated safety glass							
Seals		FKM (permissible temperature: -25 ... 125 °C) EPDM others on request							
Diaphragm		ceramics Al_2O_3 99.9 %							
Media wetted parts		pressure port, seals, diaphragm							
Explosion protection									
Approval AX12-x|act ci		IBExU05ATEX1106 X zone 0/1 [3]: II 1/2G Ex ia IIC T4 Ga/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, 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 ab 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							
[3] The designation depends on the nominal pressure range. Nominal pressure ranges ≤ 60 mbar are marked with „2G". For nominal pressure ranges > 60 mbar and < 10 bar see note under item 17 in the EC type-examination certificate!									

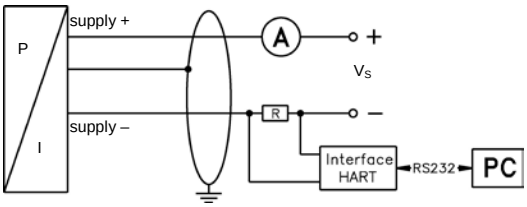
Miscellaneous	
Display	LC-display, visible range 32.5 x 22.5 mm; 5-digit 7-segment main display, digit height 8 mm, range of indication ±9999; 8-digit 14-segment additional display, digit height 5 mm; 52-segement bargraph; accuracy 0.1% ± 1 digit
Ingress protection	IP 67
Installation position	any
Weight	min. 400 g (depending on mechanical connection)
Operational life	> 100 x 10^6 pressure cycles
CE-conformity	EMC Directive: 2004/108/EC

Wiring diagram

2-wire-system (current)



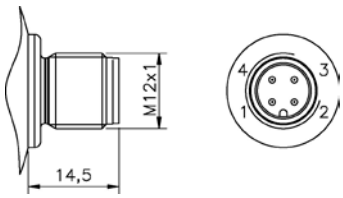
2-wire-system (current) HART®



Pin configuration

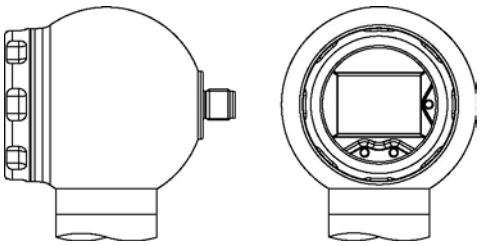
Electrical connections	M12x1 (4-pin)	cable colours (DIN 47100)
Supply + Supply –	1 3	wh (white) bn (brown)
Shield	plug housing	ye/gn (yellow / green)

Electrical connections (in mm)

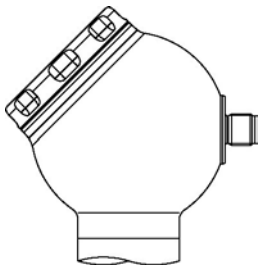


M12x1 (4-pin)

Designs [4]



side display

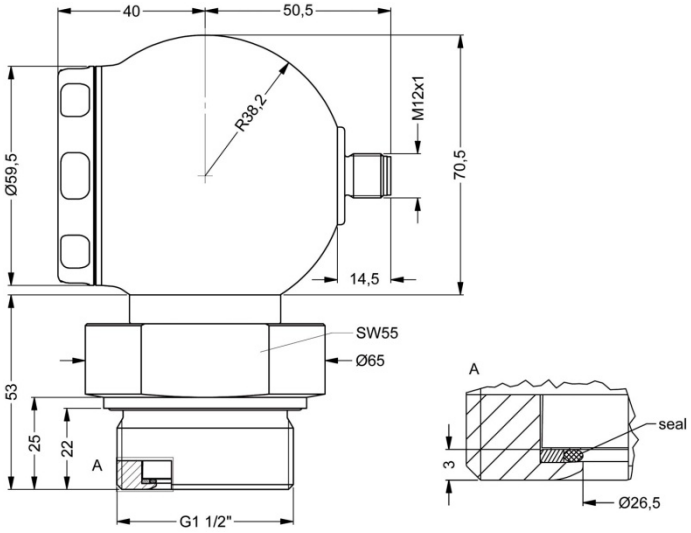


45° display

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

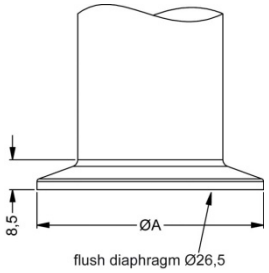
Dimensions (in mm)

Inch thread



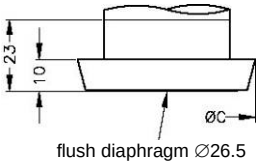
G1 1/2" flush DIN 3852

Clamp (DIN 32676)



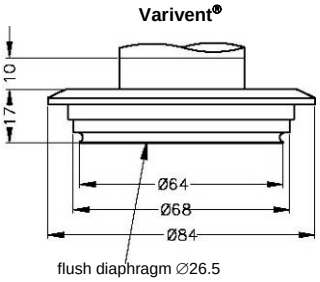
dimensions in mm		
size	DN32	DN50
A	50.5	64
P_N [bar]	≤ 16	≤ 16

Dairy pipe [6] (DIN 11851)



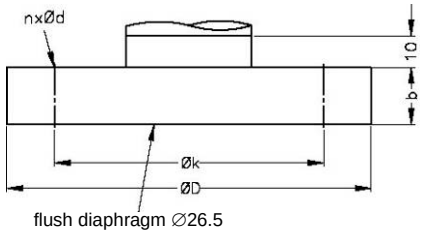
dimensions in mm		
size	DN 40	DN 50
C	56	68.5

Varivent®



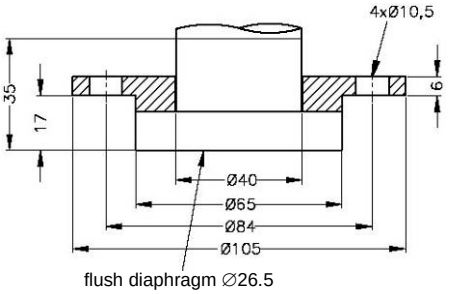
DN 40/50

Flange (DIN 2501)



dimensions in mm			
size	DN25	DN50/PN40	DN80
D	115	165	200
k	85	125	160
b	18	20	20
n	4	4	8
d	14	18	18
P_N	≤ 40 bar	≤ 40 bar	≤ 16 bar

DRD [5]



[5] cup nut for dairy pipe or mounting flang for DRD is included in the delivery (already pre-assembled)
HART® is a registered trade mark of HART Communication Foundation;
Varivent® is a trademark of GEA Tuchenhagen GmbH; Windows® is a registered trade mark of Microsoft Corporation

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Ordering code x|act ci

x|act ci [ ][ ][ ] - [ ][ ][ ][ ] - [ ][ ] - [ ] - [ ] - [ ][ ][ ] - [ ][ ][ ] - [ ] - [ ] - [ ] - [ ] - [ ][ ][ ]

Pressure																									
	gauge	5	1	E																					
Input	[bar] ⚠																								
	0.06				0	6	0	0																	
	0.16				1	6	0	0																	
	0.4				4	0	0	0																	
	1				1	0	0	1																	
	2				2	0	0	1																	
	5				5	0	0	1																	
	10				1	0	0	2																	
	20				2	0	0	2																	
	customer				9	9	9	9																	consult
Design																									
	side display								K	H															
	45° display								K	4															
Output																									
	4 … 20 mA / 2-wire										1														
	Intrinsic safety 4 … 20 mA / 2-wire										E														
	Intrinsic safety 4 … 20 mA / 2-wire with HART®-communication										I														
	customer										9														consult
Accuracy																									
	0.1 %											1													
	customer											9													consult
Electrical connection																									
	Male plug M12x1 (4-pin)												M	1	0										
	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	3							
	Dairy pipe DN 40 (DIN 11851) [1]															M	7	5							
	Dairy pipe DN 50 (DIN 11851) [1]															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 [1]															D	R	D							
	customer															9	9	9							consult
Diaphragm																									
	Ceramics Al_2O_3 99,9%																		C						
	customer																		9						consult
Seals																									
	FKM																			1					
	EPDM																			3					
	customer																			9					consult
Pressure port																									
	standard: Stainless steel 1.4404 (316L)																				1				
	option for G 1 1/2" flush: PVDF																				B				
	customer																				9				consult
Special version																									
	standard																					0	0	0	
	customer																					9	9	9	consult

⚠ **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)

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