x|act ci

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

Ceramic Sensor

accuracy according to IEC 60770:
0.1 % FSO

Nominal pressure

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

Output signals

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

Special characteristics

- turn-down 1:5
- hygienic version
- flush mounted, capacitive ceramic sensor
- several process connections (inch thread, Clamp, etc.)
- with integrated display and operating module
- diaphragm Al_2O_3 99.9 %

Optional versions

- explosion protection intrinsic safety (ia)
- 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 and beverage
- Chemical and petrochemical industry
- Laboratory techniques

Preferred using in

- Viscous and pasty media

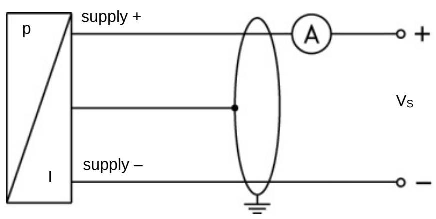
Pressure ranges [1]								
Nominal pressure gauge	[bar]	0.16	0.4	1	2	5	10	20
Overpressure	[bar]	4	6	8	15	25	35	45
Permissible vacuum	[bar]	-0.3	-0.5		-1			
[1] *On customer request we adjust the devices by software on the required pressure ranges (within the turn-down-possibility; starting at 0.02 bar).*								

Output signal / Supply	
2-wire: 4 ... 20 mA	standard: analogue signal $V_S = 12 \dots 30\ V_{DC}$ options: intrinsic safety (ia) $V_S = 12 \dots 28\ V_{DC}$ intrinsic safety (ia) with HART®-communication $V_S = 12 \dots 28\ V_{DC}$
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 0.16 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	$R_{max} \leq [(V_S - V_{S\,min}) / 0.02\ A]\ \Omega$ load during HART® communication: $R_{min} = 250\ \Omega$
Influence effects	supply: 0.05 % FSO / 10 V permissible load: 0.05 % FSO / kΩ
Long term stability	≤ ± 0.1 % FSO / year at reference conditions
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 effects (offset and span)	
Tolerance band	≤ ± 1 % FSO
in compensated range	-20 … 80 °C
Permissible temperatures	
Permissible temperatures [3]	medium: -25 ... 125 °C environment: -20 ... 70 °C storage: -30 ... 80 °C
[3] *for pressure port in PVDF the medium temperature is -25 … 60 °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 / 10 ... 2000 Hz according to DIN EN 60068-2-6
Shock	500 g / 1 msec half sine according to DIN EN 60068-2-27
Materials	
Pressure port	inch thread, DRD, flange, 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; 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 [4]: II 2G Ex ia IIC T4 Gb II 1/2G Ex ia IIC T4 Ga/Gb II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ia IIIC T85 °C Da
Safety technical maximum values	$U_i = 28$ V, $I_i = 98$ mA, $P_i = 680$ mW, $C_i = 0$ nF, $L_i = 0$ µH, the supply connections have an inner capacity of max. 27 nF to the housing
Permissible temperatures for environment	in zone 0: -20 ... 60 °C with p_{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -40 ... 70 °C
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1 µH/m
[4] *The designation depends on the nominal pressure range. Nominal pressure ranges ≤160 mbar are marked with „2G“. Nominal pressure ranges > 160 mbar and ≤10 bar are marked with „1/2G“. Nominal pressure ranges > 10 bar are marked with „1G“. The note under item 17 in the EC type-examination certificate must be observed!*	

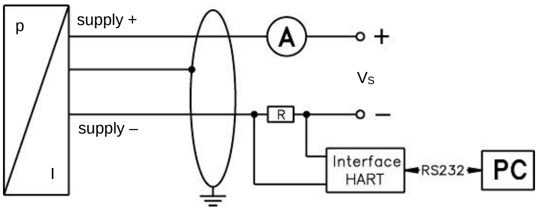
Miscellaneous	
Display	LC-display, visible range 32.5 x 22.5 mm; 5-digit 7-segment main display, digit height 8 mm, range of indication ±9999; 8-digit 14-segment additional display, digit height 5 mm; 52-segement bargraph; accuracy 0.1% ± 1 digit
Ingress protection	IP 67
Installation position	any
Weight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

Wiring diagram

2-wire-system (current)

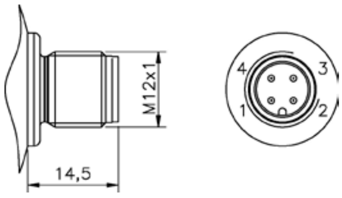


2-wire-system (current) HART®



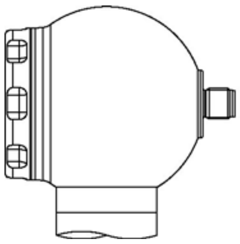
Pin configuration	
Electrical connections	M12x1 (4-pin), metal
Supply + Supply –	1 3
Shield	plug housing

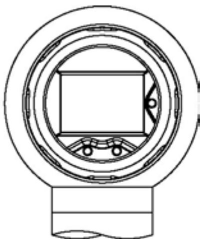
Electrical connections (in mm)



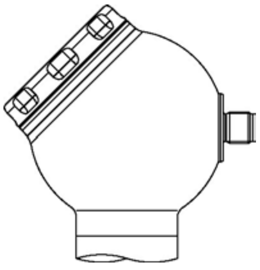
M12x1 (4-pin)

Designs [5]





side display



45° display

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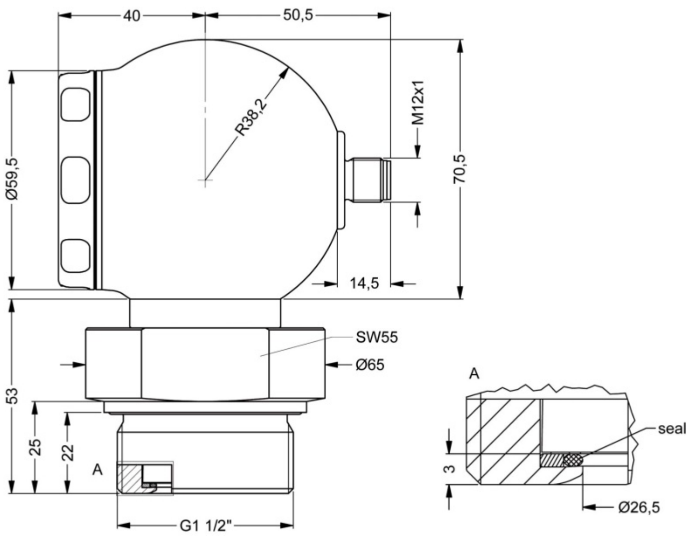
[5] *all designs in combination with G1 1/2" flush in horizontal rotatable housing as standard; other mech. connections in rotatable housing on request*

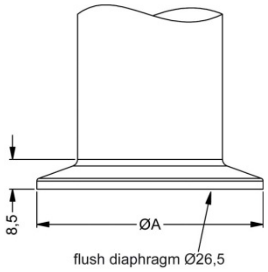
Dimensions (in mm)

Inch thread



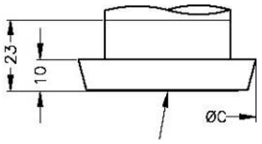
G1 1/2" flush DIN 3852

Clamp (DIN 32676)



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

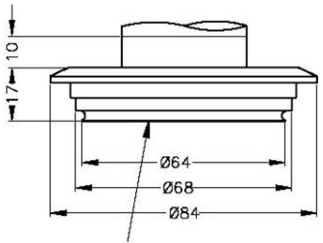
Dairy pipe [6] (DIN 11851)



flush diaphragm ∅26.5

dimensions in mm		
size	DN 40	DN 50
C	56	68.5

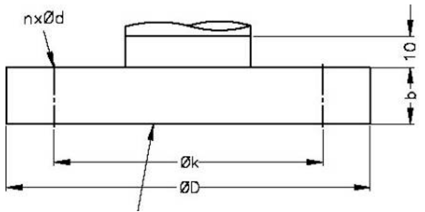
Varivent®



flush diaphragm ∅26.5

DN 40/50

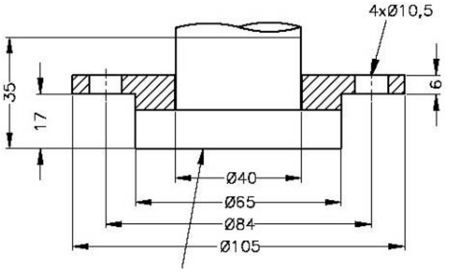
Flange (DIN 2501)



flush diaphragm ∅26.5

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 [bar]	≤ 40	≤ 40	≤ 16

DRD [6]



flush diaphragm ∅26.5

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

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

Ordering code x|act ci

x|act ci ☐☐☐-☐☐☐☐-☐☐-☐-☐-☐☐☐-☐☐☐-☐-☐-☐-☐☐☐

	Code	
Pressure		
gauge	5 1 E	
Input [bar] ⚠		
0.16	1 6 0 0	
0.40	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 (ia) 4 … 20 mA / 2-wire	E	
intrinsic safety (ia) 4 … 20 mA / 2-wire with HART®-communication	I	
customer	9	consult
Accuracy		
$p_N < 1$ bar 0.2 % FSO	B	
$p_N \geq 1$ bar 0.1 % FSO	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 [2]	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)

[2] for pressure port in PVDF the operation medium temperature is -25 … 60 °C

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

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