



x|act ci

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

Ceramic Sensor

accuracy according to IEC 61298-2:
0.1 % FSO

Nominal pressure

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

Output signals

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

Special characteristics

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

Optional versions

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

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	$V_S = 12 \dots 30 \text{ V}_{DC}$
	options:	intrinsic safety (ia)	$V_S = 12 \dots 28 \text{ V}_{DC}$
		intrinsic safety (ia) with HART®-communication	$V_S = 12 \dots 28 \text{ V}_{DC}$
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} ≤ [(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 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 61298-2 – limit point adjustment (non-linearity, hysteresis, repeatability)

Thermal effects (offset and span)	
Tolerance band	$\leq \pm 1 \% \text{ FSO}$
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: optionally for G1 1/2" flush (DIN 3852):	stainless steel 1.4404 (316L) PVDF
Housing	stainless steel 1.4301 (304)	
Viewing glass	laminated safety glass	
Seals	FKM; EPDM	
Diaphragm	ceramics Al ₂ O 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	$U_i = 28 \text{ V}$, $I_i = 98 \text{ mA}$, $P_i = 680 \text{ mW}$, $C_i = 0 \text{ nF}$, $L_i = 0 \mu\text{H}$, the supply connections have an inner capacity of max. 27 nF to the housing
Permissible temperatures for environment	in zone 0: -20 ... 60 °C with p_{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -40 ... 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 $\mu\text{H}/\text{m}$

⁴ The designation depends on the nominal pressure range. Nominal pressure ranges $\leq 160 \text{ mbar}$ are marked with „2G“.

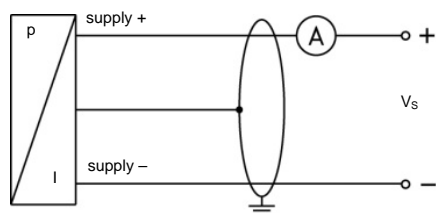
Nominal pressure ranges $> 160 \text{ mbar}$ and $\leq 10 \text{ bar}$ are marked with „1/2G“. Nominal pressure ranges $> 10 \text{ bar}$ are marked with „1G“.

The note under item 17 in the EC type-examination certificate must be observed!

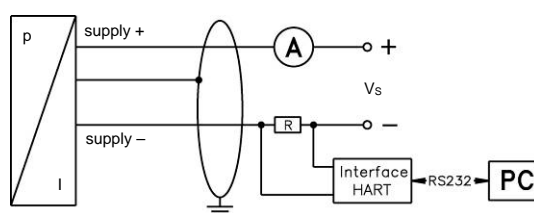
Miscellaneous	
Display	LC-display, visible range 32.5 x 22.5 mm; 5-digit 7-segment main display, digit height 8 mm, range of indication ± 9999 ; 8-digit 14-segment additional display, digit height 5 mm; 52-segment bargraph; accuracy 0.1% \pm 1 digit
Ingress protection	IP 67
Installation position	any
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)



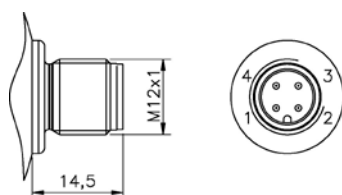
2-wire-system (current) HART®



Pin configuration

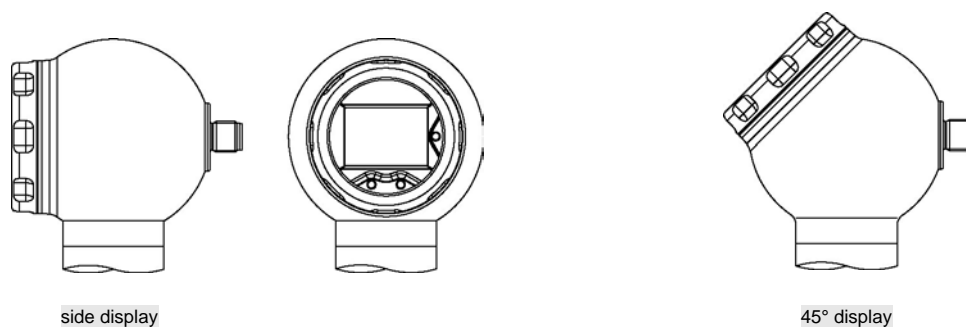
Electrical connections	M12x1 (4-pin), metal
Supply +	1
Supply -	3
Shield	plug housing

Electrical connections (in mm)



M12x1 (4-pin)

Designs ⁵



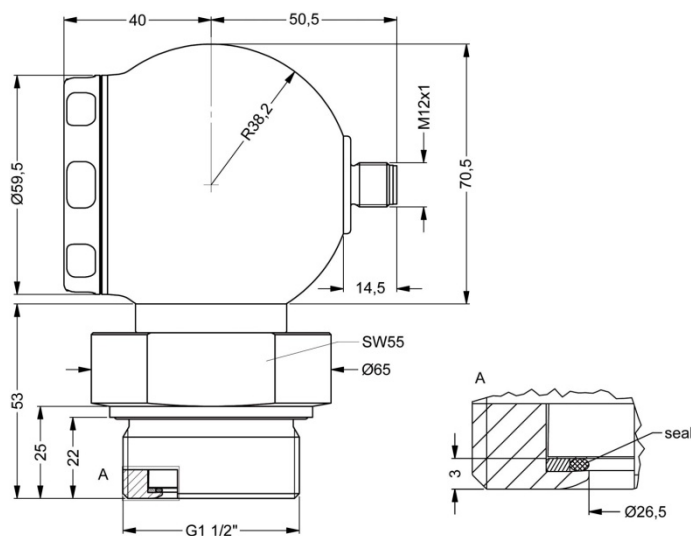
side display

45° display

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

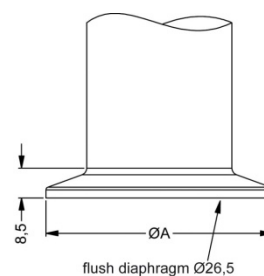
Dimensions (in mm)

Inch thread



G1 1/2" flush DIN 3852

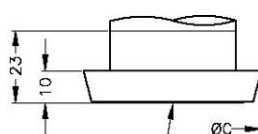
Clamp (DIN 32676)



flush diaphragm Ø26,5

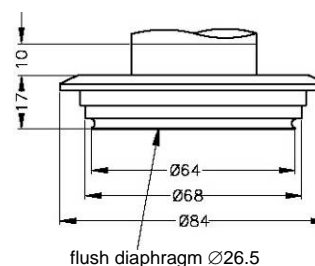
dimensions in mm		
size	DN32	DN50
A	50.5	64
p _N [bar]	≤ 16	≤ 16

Dairy pipe ⁶ (DIN 11851)



flush diaphragm Ø26.5

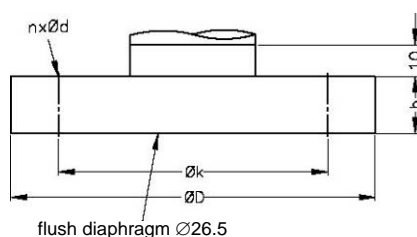
dimensions in mm		
size	DN 40	DN 50
C	56	68.5

Varivent®

flush diaphragm Ø26.5

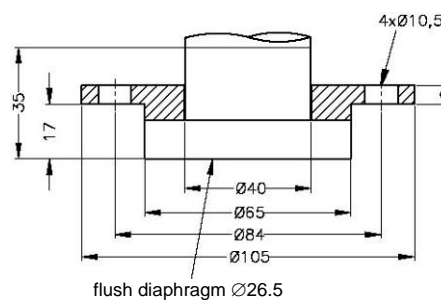
DN 40/50

Flange (DIN 2501)



flush diaphragm Ø26.5

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
DN [bar]	≤ 40	≤ 40	≤ 16

DRD ⁶

flush diaphragm Ø26.5

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 Tuchenhausen GmbH; Windows® is a registered trademark of Microsoft Corporation

Ordering code x|act ci

x|act ci

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[illegible]

 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 Tuchenhausen GmbH