



x|act ci

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

Ceramic Sensor

accuracy according to IEC 60770:
0.1 % FSO

Nominal pressure

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

Output signals

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

Special characteristics

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




Optional versions

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


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:	$\leq \pm 0.2 \% \text{ FSO}$
	nominal pressure ≥ 1 bar:	$\leq \pm 0.1 \% \text{ FSO}$
	for nominal pressure ranges: from 0.16 bar up to 0.4 bar	$\leq \pm (0.2 + (TD-1) \times 0.02) \% \text{ FSO}$
	for nominal pressure ranges: from 1 bar up to 20 bar	$\leq \pm (0.1 + (TD-1) \times 0.01) \% \text{ FSO}$
	with turn-down = nominal pressure range / adjusted range	
Permissible load	$R_{max} \leq [(V_S - V_{Smin}) / 0.02 A] \Omega$	load during HART® communication: $R_{min} = 250 \Omega$
Influence effects	supply: 0.05 % FSO / 10 V	permissible load: 0.05 % FSO / k Ω
Long term stability	$\leq \pm 0.1 \% \text{ FSO} / \text{year}$ 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	$\leq \pm 1 \% \text{ FSO}$
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

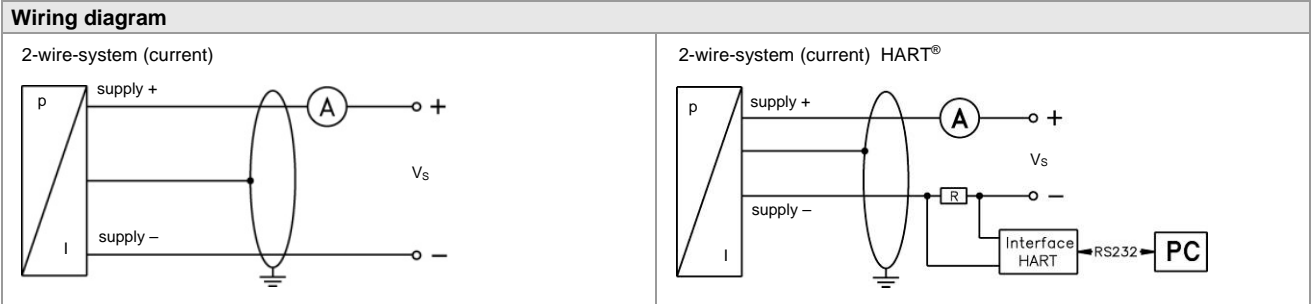
Mechanical stability	
Vibration	5 g RMS (20 ... 2000 Hz) according to DIN EN 60068-2-6
Shock	100 g / 11 msec according to DIN EN 60068-2-27

Materials	
Pressure port	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 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	$U_i = 28 V$, $I_i = 98 mA$, $P_i = 680 mW$, $C_i = 0 nF$, $L_i = 0 \mu H$, 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 $\mu H/m$

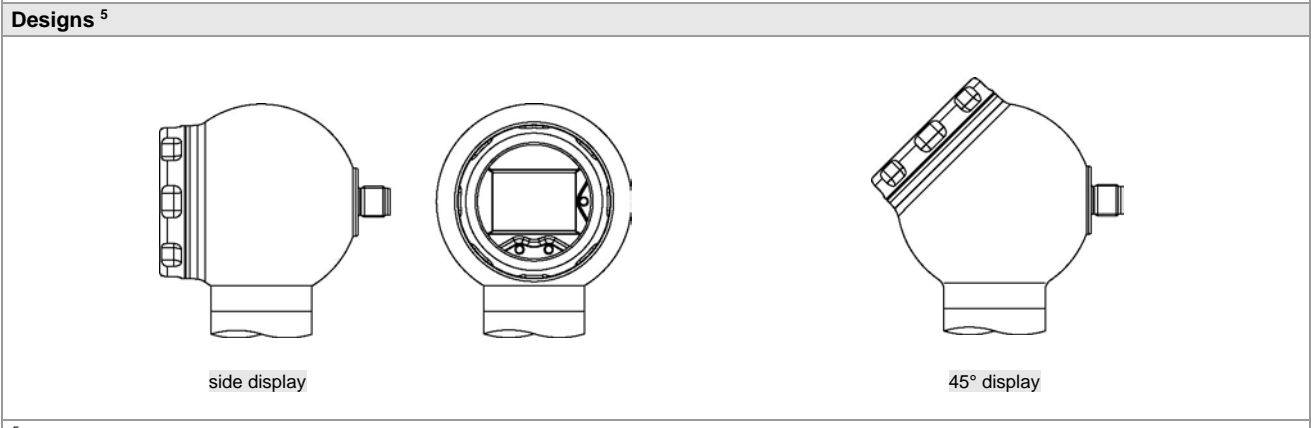
⁴ The designation depends on the nominal pressure range. Nominal pressure ranges ≤ 160 mbar are marked with „2G“. Nominal pressure ranges > 160 mbar and ≤ 10 bar are marked with „1/2G“. Nominal pressure ranges > 10 bar are marked with „1G“. The note under item 17 in the EC type-examination certificate 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-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



Pin configuration

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



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

SW55
Ø65
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 pipe⁶ (DIN 11851)

flush diaphragm Ø26.5

dimensions in mm		
size	DN 40	DN 50
C	56	68.5

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
p _N [bar]	≤ 40	≤ 40	≤ 16

Varivent®

flush diaphragm Ø26.5

DN 40/50

DRD⁶

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

© 2023 BD/SENSORS GmbH – The specifications given in this document represent the state of engineering at the time of publishing. We reserve the right to make modifications to the specifications and materials.

