



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 ... 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

- ▶ 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 over-pressure 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

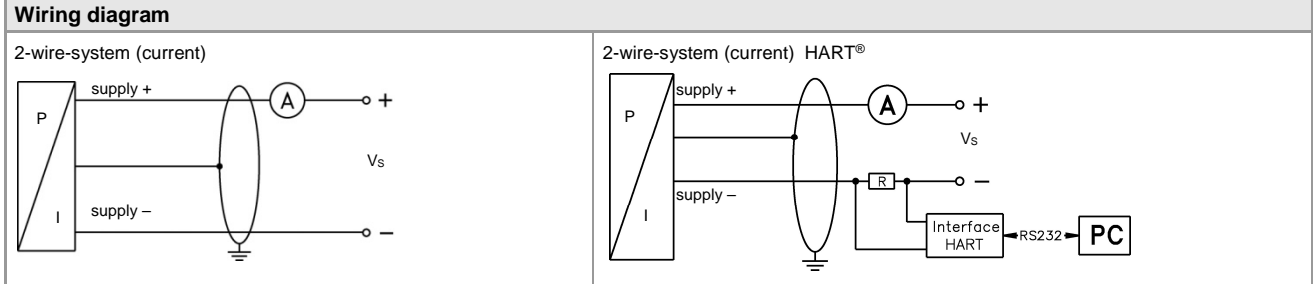
Preferred using in

-  Viscous and pasty media



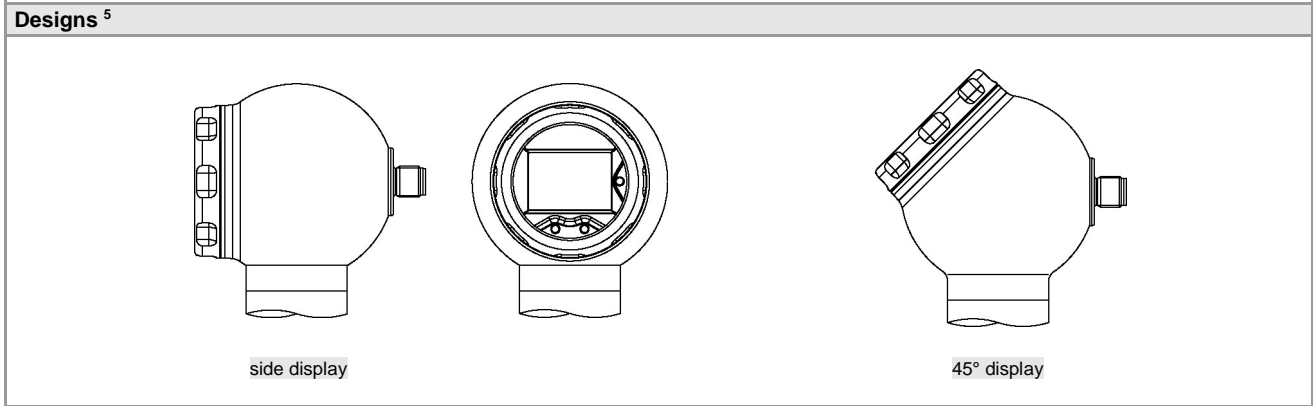
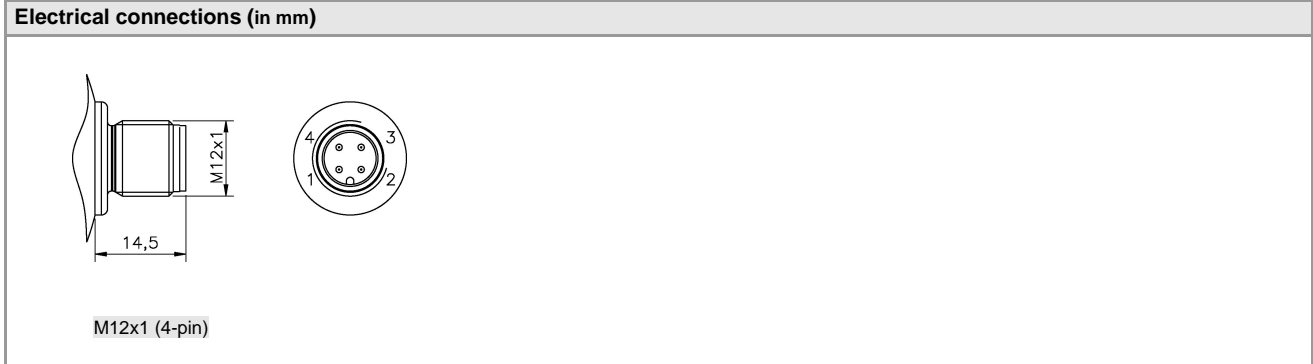
Pressure ranges ¹										
Nominal pressure gauge	[bar]	0.06	0.16	0.4	1	2	5	10	20	
Overpressure	[bar]	2	4	6	8	15	25	35	45	
Permissible vacuum	[bar]	-0.2	-0.3	-0.5			-1			
¹ On customer request we adjust the devices by software on the required pressure ranges (within the turn-down-possibility; starting at 0.02 bar).										
Output signal / Supply										
2-wire: 4 ... 20 mA		standard: analogue signal options: intrinsic safety (ia) intrinsic safety (ia) with HART®-communication					V _S = 12 ... 30 V _{DC} V _S = 12 ... 28 V _{DC} 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 0.16 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 _{Smin}) / 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		
³ Maximum permissible temperature with PVC pressure port is 50 °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 (permissible temperature: -40 ... 125 °C) others on request								
Diaphragm		ceramics Al ₂ O ₃ 99,9 %								
Media wetted parts		pressure port, seals, diaphragm								
Explosion protection										
Approval AX2-x act ci		IBExU05ATEX1105 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, C _{GND} = 27 nF 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)		capacitance: signal line/shield also signal line/signal line: 160 pF/m 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-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 x 10 ⁶ pressure cycles
CE-conformity	EMC Directive: 2014/30/EU
ATEX Directive	2014/34/EU



Pin configuration

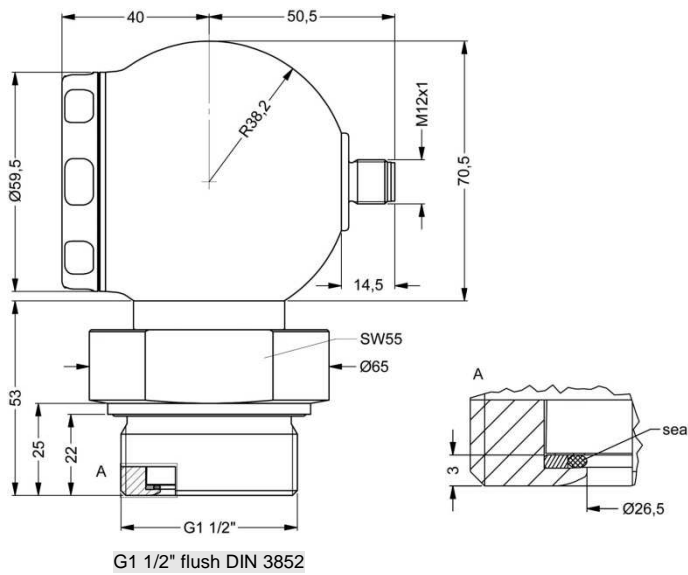
Electrical connections	M12x1 (4-pin)	cable colours (IEC 60757)
Supply +	1	wh (white)
Supply -	3	bn (brown)
Shield	plug housing	ye/gn (yellow / green)



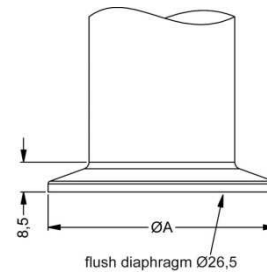
⁵ all designs in combination with G1 1/2" flush in horizontal rotatable housing as standard; other mech. connections in rotatable housing on request

Dimensions (in mm)

Inch thread

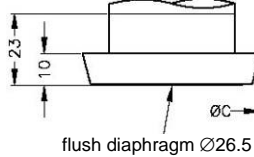


Clamp (DIN 32676)



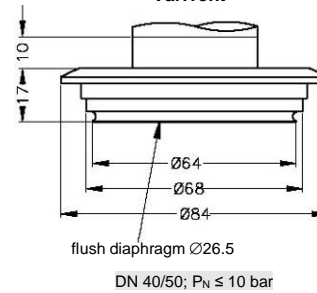
dimensions in mm		
size	DN32	DN50
A	50.5	64
P _N [bar]	≤ 16	≤ 16

Dairy pipe⁶ (DIN 11851)

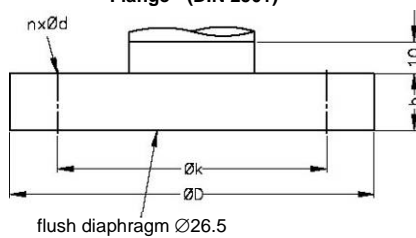


dimensions in mm		
size	DN 40	DN 50
C	56	68.5

Varivent[®]

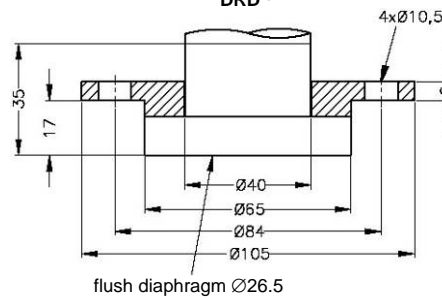


Flange⁷ (DIN 2501)



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

DRD⁶



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

⁷ DN80/PN16 possible with nominal pressure ranges P_N ≤ 7 bar

HART[®] is a registered trade mark of HART Communication Foundation;

Varivent[®] is a trademark of GEA Tuchenhausen GmbH; Windows[®] is a registered trade mark of Microsoft Corporation