



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

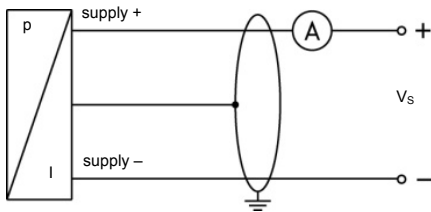


Pressure ranges ¹								
Nominal pressure gauge	[bar]	0.16	0.4	1	2	5	10	20
Overpressure	[bar]	4	6	8	15	25	35	45
Permissible vacuum	[bar]	-0.3	-0.5			-1		
¹ On customer request we adjust the devices by software on the required pressure ranges (within the turn-down-possibility; starting at 0.02 bar).								
Output signal / Supply								
2-wire: 4 ... 20 mA	standard:	analogue signal					V _S = 12 ... 30 V _{DC}	
	options:	intrinsic safety (ia)					V _S = 12 ... 28 V _{DC}	
		intrinsic safety (ia) 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 0.16 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 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)		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: 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 (permissible temperature: -25 ... 125 °C) 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 ³ : 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							
³ 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!								

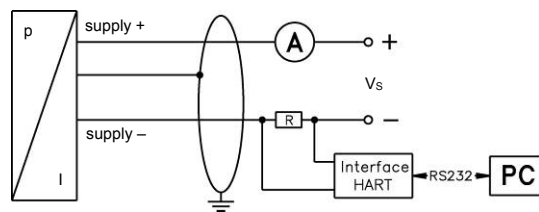
Miscellaneous	
Display	LC-display, visible range 32.5 x 22.5 mm; 5-digit 7-segment main display, digit height 8 mm, range of indication ± 9999 ; 8-digit 14-segment additional display, digit height 5 mm; 52-segment bargraph; accuracy $0.1\% \pm 1$ digit
Ingress protection	IP 67
Installation position	any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

Wiring diagram

2-wire-system (current)



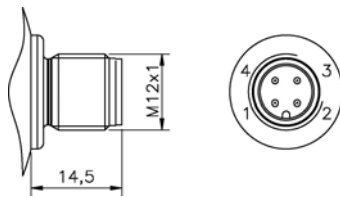
2-wire-system (current) HART®



Pin configuration

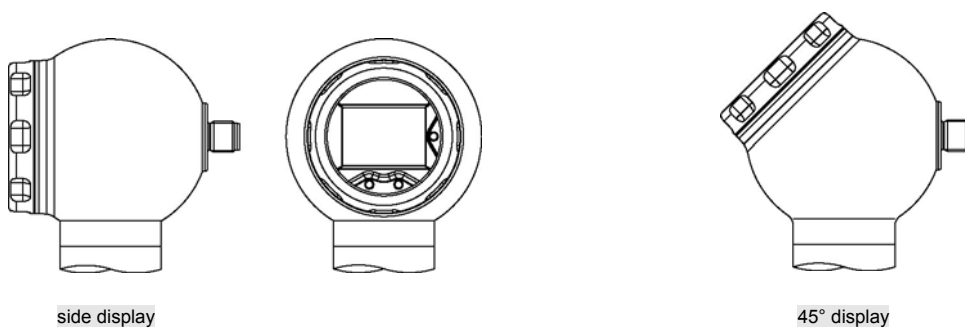
Electrical connections	M12x1 (4-pin), metal
Supply +	1
Supply -	3
Shield	plug housing

Electrical connections (in mm)



M12x1 (4-pin)

Designs ⁴

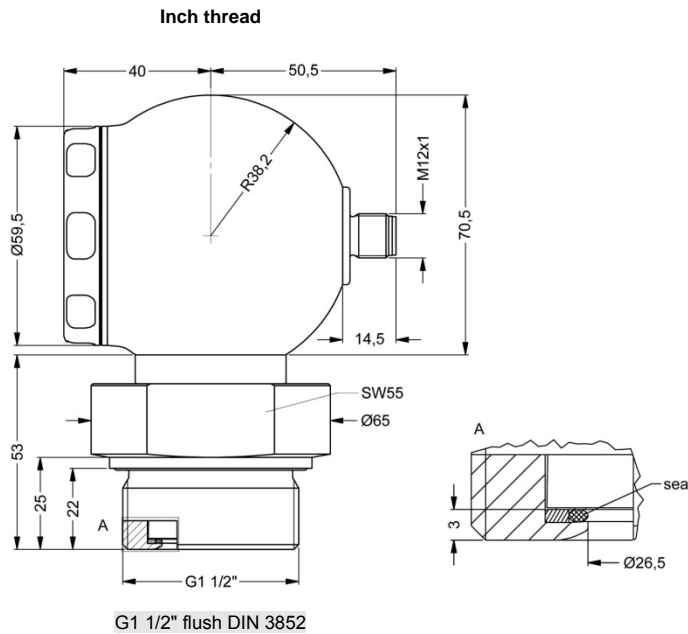


side display

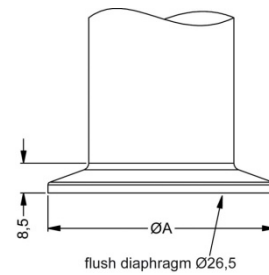
45° display

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)

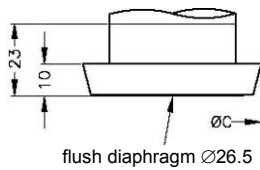


Clamp (DIN 32676)



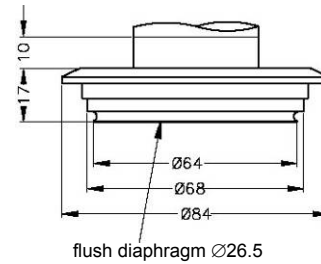
dimensions in mm		
size	DN32	DN50
A	50.5	64
P _N [bar]	≤ 16	≤ 16

Dairy pipe⁶ (DIN 11851)



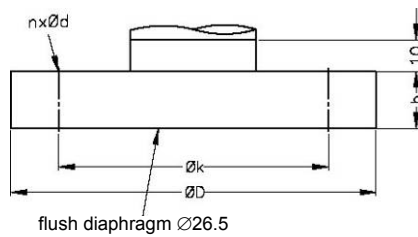
dimensions in mm		
size	DN 40	DN 50
C	56	68.5

Varivent[®]

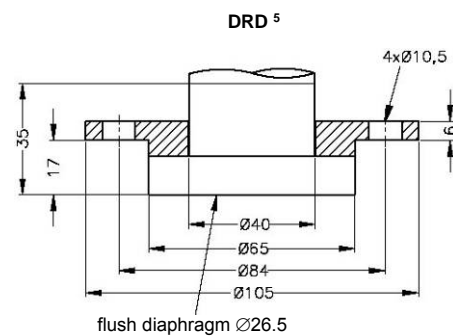


DN 40/50
P_N ≤ 10 bar

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 [bar]	≤ 40	≤ 40	≤ 16



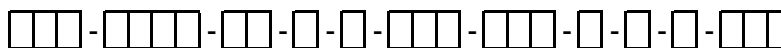
⁵ cup nut for dairy pipe or mounting flange for DRD is included in the delivery (already pre-assembled)

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



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)								E
	4 ... 20 mA / 2-wire								I
	intrinsic safety (ia)								I
	4 ... 20 mA / 2-wire								9
	with HART®-communication								9
	customer								consult
Accuracy									
	p _N < 1 bar	0.2 % FSO							B
	p _N ≥ 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 _N ≤ 10 bar)						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 ₂ O ₃ 99,9 %								C
	customer								9
									consult
Seals									
	FKM								1
	EPDM								3
	customer								9
									consult
Pressure port									
<i>standard:</i>									
	stainless steel 1.4404 (316L)								1
<i>option for G 1 1/2" flush:</i>									
	PVDF								B
	customer								9
									consult
Special version									
	standard								0
	customer								9
									0
									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)

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