

x | act ci



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

Ceramic Sensor

accuracy according to EN IEC 62828-2:
0.1 % span

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 5:1
- ▶ hygienic version
- ▶ flush mounted capacitive ceramic sensor
- ▶ several process connection (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.

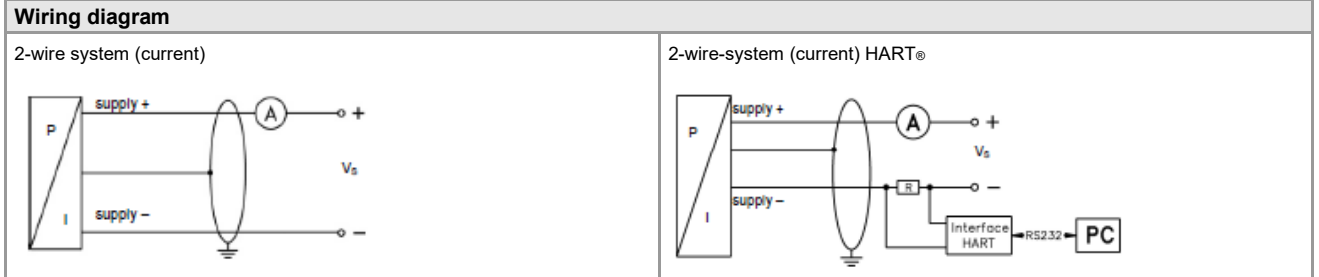
Preferred areas of use are

-  Laboratory Techniques
-  Chemical and petrochemical industry
-  Food and beverage
-  Viscous and pasty media



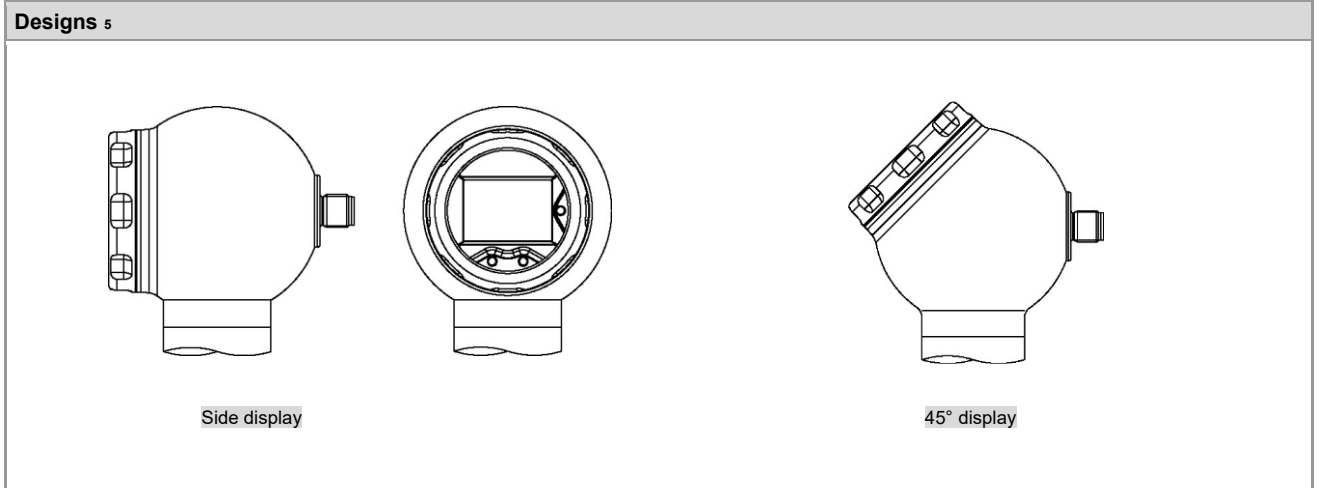
Pressure ranges ¹									
Nominal pressure gauge	[bar]	0.06	0.16	0.4	1	2	5	10	20
Overpressure	[bar]	2	4	6	8	15	25	35	45
Permissible vacuum	[bar]	-0.2	-0.3	-0.5			-1		
¹ On customer request we adjust the devices by software on the required pressure ranges (within the turn-down-possibility; starting at 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 % span nominal pressure ≥ 1 bar: ≤ ± 0.1 % span for nominal pressure ranges: from 0.16 bar up to 0.4 bar: ≤ ± (0.2 + (TD-1) x 0.02) % span for nominal pressure ranges: from 1 bar up to 20 bar: ≤ ± (0.1 + (TD-1) x 0.01) % span 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 % span / 10 V permissible load: 0.05 % span / kΩ								
Long term stability	≤ ± 0.1 % span / year								
Response time	200 msec – without consideration of electronic damping measuring rate 5/sec								
Adjustability	electronic damping: 0 ... 100 sec offset: 0 ... 80 % span turn-down of span: max. 5:1 (span min. 0.02 bar)								
² accuracy according to EN IEC 62828-2– limit point adjustment (non-linearity, hysteresis, repeatability)									
Permissible temperatures									
Thermal error	≤ ± (0.02 x turn-down) % span / 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 -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 (25 ... 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 EPDM 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 for intrinsically safe version	U _i = 28 V, I _i = 98 mA, P _i = 680 mW, C _i = 0 nF, L _i = 0 µH, C _{GND} = 33 nF the supply connections have an inner capacity of max. 33 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	$> 100 \times 10^6$ cycles
CE-conformity	EMC Directive: 2014/30/EU
ATEX Directive	2014/34/EU



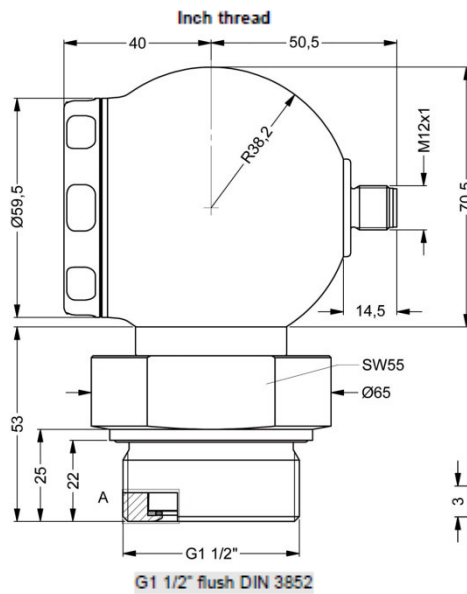
Pin configuration

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

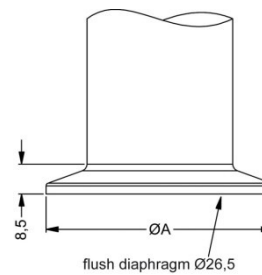


^s all designs in combination with G1 1/2" flush in horizontal rotatable housing as standard; other mech. connections in rotatable housing on request

Dimensions (in mm)

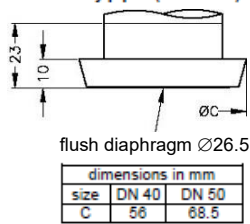


Clamp (DIN 32676)



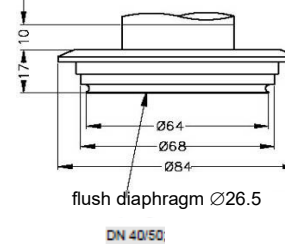
dimensions in mm		
size	DN32	DN50
A	50.5	64
P_N [bar]	≤ 16	≤ 16

Dairy pipe⁶ (DIN 11851)



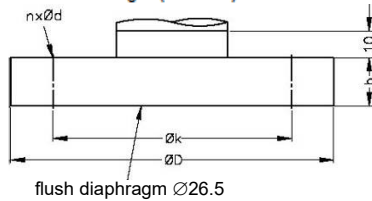
dimensions in mm		
size	DN 40	DN 50
C	56	68.5

Varivent[®]



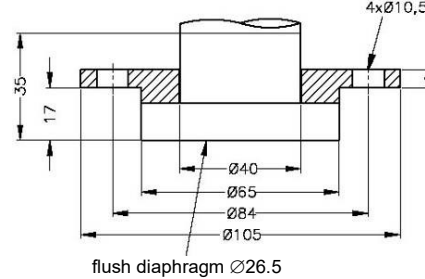
DN 40/50

Flange⁷ (DIN 2501)



dimensions in mm			
size	DN25	DN50/PN40	DN80
D	115	185	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

DRD⁸



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 $P_N \leq 7$ bar

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

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

Programming kits for HART®-devices: CIS 150-RS232 and CIS 150-USB

CIS 150-RS232



CIS 150-USB



Package contents

Programming software "Config 3.0" on CD
operating manual

CIS 150-RS232:

HART® modem (MH-02 Manufacturer: JSP NOVÁ PAKA)
connecting cable BNC-Testtip (for measuring device)
9-pin connecting cable RS232 (for PC)

CIS 150-USB:

Adapt 5
connecting cable BNC-Testtip (for measuring device)
USB connecting cable – Type A to Type B – (for PC)

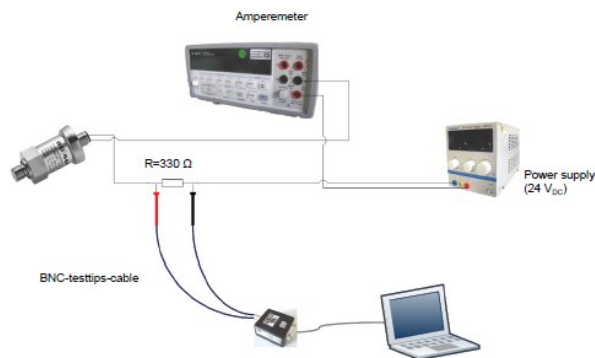
System requirement

For the installation of the software, a Windows® PC (95, 98, ME, 2000, NT, XP) with serial interface (RS 232) or USB-interface is required

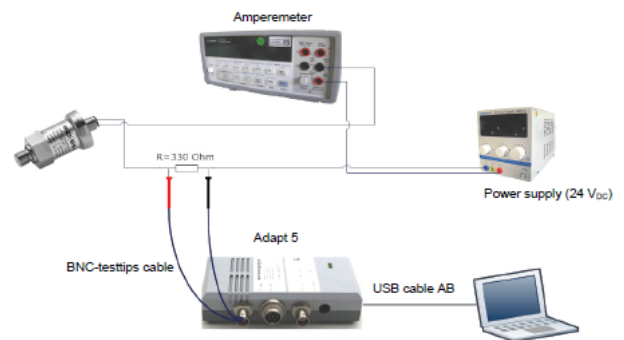
Please read the operating manual carefully before installing and starting up the programming kit.

Wiring diagrams

CIS 150-RS232:



CIS 150-USB interface:



Ordering codes

Version:

HART(R) modem with RS232 connection cable for PC

Adapt 5 with USB connection cable for PC

Ordering code:

CIS 150-RS232

CIS 150-USB

Windows® is a registered trade mark of Microsoft Corporation

Ordering code x|act ci

23.08.2024

x|act ci

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Pressure																				
Gauge	5	1	E																	
Input [bar]																				
0 ... 0,06				0	6	0	0													
0 ... 0,16				1	6	0	0													
0 ... 0,4				4	0	0	0													
0 ... 1				1	0	0	1													
0 ... 2				2	0	0	1													
0 ... 5				5	0	0	1													
0 ... 10				1	0	0	2													
0 ... 20				2	0	0	2													
Customer				9	9	9														
Design																				
Stainless steel ball housing - side display (IP 67)								K	H											
Stainless steel ball housing - 45° display (IP 67)								K	4											
Output																				
4 ... 20 mA / 2-wire																				1
Intrinsic safety Ex ia 4 ... 20 mA / 2 wire																				E
HART® - Intrinsic safety Ex ia 4 ... 20 mA / 2-wire																				I
Customer																				9
Accuracy																				
0,1 % (P _N ≥ 1 bar)																				1
0,1 % including Calibration Certificate (P _N ≥ 1 bar)																				P
0,2 % (P _N < 1 bar)																				B
0,2 % including Calibration Certificate (P _N < 1 bar)																				Q
Customer																				9
Electrical connection																				
Connector M12 x 1, 4-pin (IP 67) - metal												M	1	0						
Customer												9	9	9						
Mechanical connection																				
G 1 1/2" DIN 3852															M	0	0			
Clamp DN 1 1/2" (DN 32)															C	6	2			
Clamp DN 2" (DN 50)															C	6	3			
Dairy pipe DIN 11851 DN 40 ¹															M	7	5			
Dairy pipe DIN 11851 DN 50 ¹															M	7	6			
Flange DN 80/PN 16 DIN 2501															F	1	4			
Flange DN 25/PN 40 DIN 2501															F	2	0			
Flange DN 40/PN 40 DIN 2501															F	2	2			
Flange DN 50/PN 40 DIN 2501															F	2	3			
DRD Ø 65 mm (cup nut and mounting flange included) ¹															D	R	D			
Customer															9	9	9			
Diaphragm																				
Ceramic Al ₂ O ₃ 96 %																				2
Ceramic Al ₂ O ₃ 99,9 %																				C
Customer																				9
Seals																				
Viton (FKM)																				1
EPDM																				3
Customer																				9
Pressure port																				
Stainless steel 1.4404 (316 L)																				1
PVDF (only for mech.connection M00) ²																				B
Customer																				9
Special version																				
Standard																				0 0 0
Customer																				9 9 9
Accessories																				
HART® modem HM02 + USB including SW CONFIG																				5031837

0,-...without additional charge
On request...in accordance with the producer



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The company BD SENSORS s.r.o. is certified by Bureau Veritas Czech according to the standard ISO 9001.

!!! When you make an order it is necessary to fill the questionnaire for transmitters with separators!!!

Surcharges for calibration are not subject to any discounts. Subject to change.

This document contains the specification for ordering the product;
detailed technical parameters of the product and its possible variants are given in the data sheet.

BD SENSORS reserves the right to change sensor specifications without further notice.

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

