



XMP ci

Precision Pressure Transmitter for Process, Chemical and Petrochemical Industry

- ▶ Ex-intrinsically safe version with HART®-communication
- ▶ internal or flush mounted capacitive ceramic sensor
- ▶ rugged aluminium die cast case or stainless steel field housing
- ▶ nominal pressure ranges from 0 ... 60 mbar up to 0 ... 20 bar

DESIGN

Our capacitive ceramic sensor DSK 701 I is the basis of XMP ci, which is especially characterized by its high overpressure capability, its very good long-term stability, and its mechanical and chemical resistance.

For highly aggressive media, a diaphragm in high-purity ceramics Al_2O_3 99.9 % can be optionally offered.

The sensor is - together with digital compensation electronics - directly mounted into the pressure port. It is connected to the configurable HART® module via a I²C interface.

OPERATING

The device is as a standard equipped with HART® communication. It is thus possible to set and transfer a variety of parameters via PC, HART® communicator, etc.

An intelligent display and operating module is optionally available. Thus, the current pressure can be displayed and the transmitter can be easily configured on-site via three buttons.

- ▶ accuracy:
0.1 % FSO BFSL
(0.2 FSO IEC 60770)
- ▶ turn-down 1:5
- ▶ several process connections:
 - thread (inch, NPT)
 - flange (DIN 2501, ANSI)
 - DRD
- ▶ high ingress protection IP 67
- ▶ optionally:
 - **with integrated display and operating module**
 - **diaphragm Al_2O_3 99.9 %**
 - flameproof enclosure (in preparation)
 - PROFIBUS PA (in preparation)

Characteristics



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Pressure ranges¹								
Nominal pressure gauge [bar]	0.06	0.16	0.4	1	2	5	10	20
Permissible overpressure [bar]	2	4	6	8	15	25	35	60
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								
Standard	2-wire: 4 ... 20 mA Ex-intrinsically safe version with HART [®] -communication / V _s = 10 ... 28 V _{DC}							
Option PROFIBUS PA	digital output signal (according to IEC 61158) / V _s = 10 ... 30 V _{DC} (in preparation)							
Current consumption	max. 25 mA							
Performance								
Accuracy ^{2,3}	turn-down ≤ 1:3 ≤ ± 0.2 % FSO turn-down > 1:3 ≤ ± [0.2 + 0.015 x turn-down] % FSO with turn-down = nominal pressure range / adjusted range							
Permissible load	R _{max} = [(V _s - V _{smin}) / 0.02] 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 x turn-down) % FSO / year							
Response time	200 ms – 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)								
³ for nominal pressure ranges ≤ 0.4 bar the accuracy is calculated as follows: ≤ ± [0.2 + 0.02 x turn-down] % FSO								
Thermal errors / Permissible temperatures								
Thermal error	≤ ± (0.1 x turn-down) % FSO / 10 K in compensated range 0 ... 80 °C							
Permissible temperatures ⁴	without display: medium: -25 ... 125 °C		environment: -40 ... 80 °C		storage: -40 ... 80 °C			
	with display: medium: -25 ... 125 °C		environment: -20 ... 70 °C		storage: -30 ... 80 °C			
⁴ for pressure port of PVC the maximum permissible temperature 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 ms							
Materials								
Pressure port	standard: stainless steel 1.4571 (316Ti) optionally for G1 1/2" flush (DIN 3852): PVC / PVDF							
Housing	aluminium die cast, powder-coated or stainless steel 1.4301 (304)							
Cable gland	brass, nickel plated							
Viewing glass	laminated safety glass							
Seals (media wetted)	FKM / EPDM / others on request							
Diaphragm	standard: ceramics Al ₂ O ₃ 96 % option for pressure ranges 0.16 bar, 0.4 bar and 1 bar: ceramics Al ₂ O ₃ 99.9 %							
Media wetted parts	pressure port, seals, diaphragm							
Explosion protection (approval AX12-XMP ci)								
Standard: intrinsically safe version	aluminium die cast case: with stainless steel pressure port: zone 0: II 1 G EEx ia IIB T4 with PVC/PVDF pressure port: zone 0/1 ⁵ : II 1/2 G EEx ia IIB T4 stainless steel field housing: with stainless steel pressure port: zone 0: II 1 G EEx ia IIC T4 with PVC/PVDF pressure port: zone 0/1 ⁵ : II 1/2 G EEx ia IIC T4							
Option: explosion proof housing	in preparation							
Safety techn. maximum values	U _i = 28 V, I _i = 93 mA, P _i = 660 mW							
Permissible temperatures for environment	in zone 0: -20 ... 60 °C with p _{atm} 0.8 bar up to 1.1 bar in zone 1: -20 ... 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							
⁵ The designation depends on the nominal pressure range. Nominal pressure ranges ≤ 60 mbar are marked with „2G“. For nominal pressure ranges > 60 mbar and < 10 bar see note under item 17 in the EC type-examination certificate!								

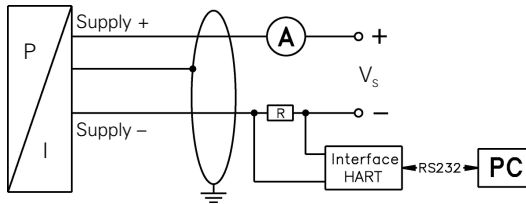
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Technical Data

Miscellaneous	
Display (optionally)	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-segement bargraph; accuracy $0.1\% \pm 1$ digit
Ingress protection	IP 67
Installation position	any
Weight	min. 400 g (depending on housing and mechanical connection)
Operational life	$> 100 \times 10^6$ pressure cycles

Wiring diagram

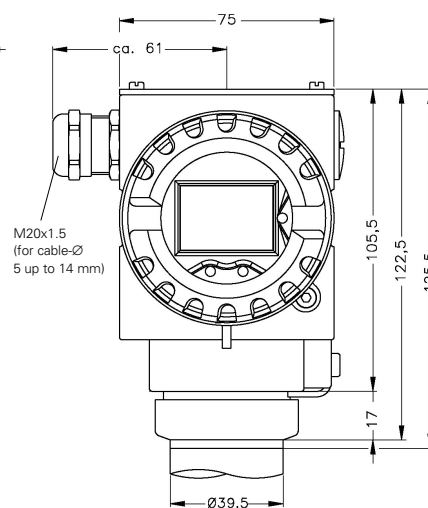
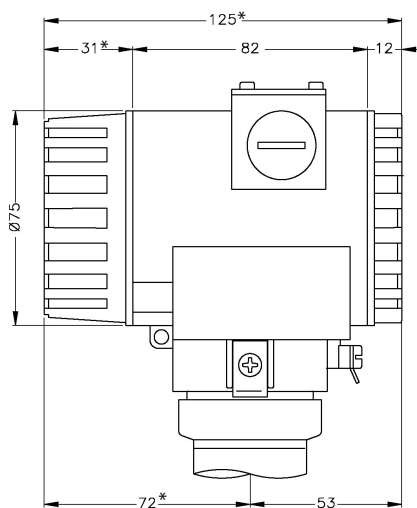


Pin configuration

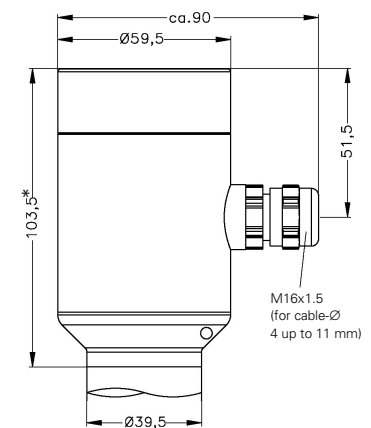
Electrical connections	aluminium die cast case: terminal clamps (clamp section: 2.5 mm ²)	stainless steel field housing: terminal clamps (clamp section: 1.5 mm ²)
Supply +	IN+	IN+
Supply -	IN-	IN-
Test	Test	-
Ground	⊥	⊥

Housing designs ⁶ (dimensions in mm)

aluminium die cast case



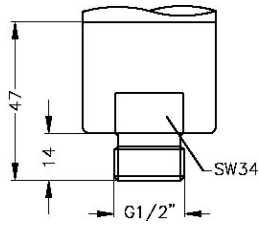
stainless steel field housing



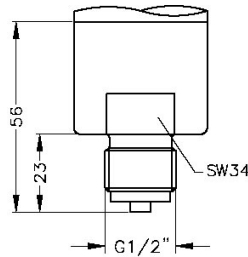
* without display and operating module marked dimensions decrease by 19 mm (with aluminium die cast case) or by 23.5 (with stainless steel field housing)

⁶ aluminium die cast case is horizontally rotatable as standard

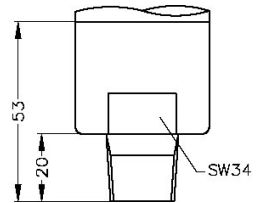
Standard pressure ports (dimensions in mm)



G1/2" DIN 3852

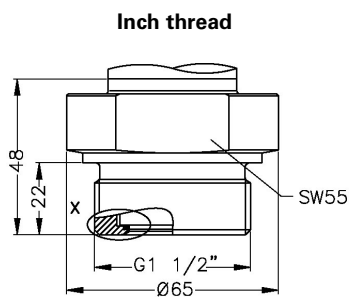


G1/2" EN 837
M20x1.5

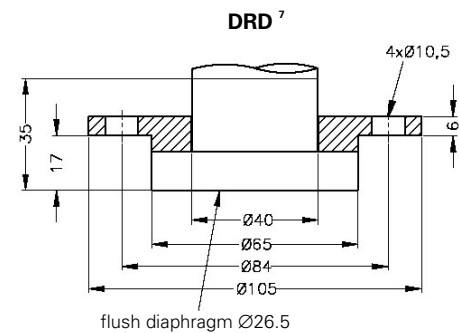
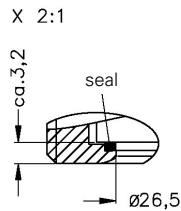


1/2" NPT

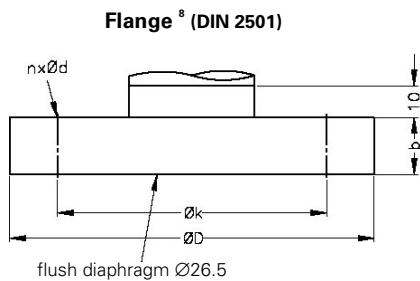
Process connections (dimensions in mm)



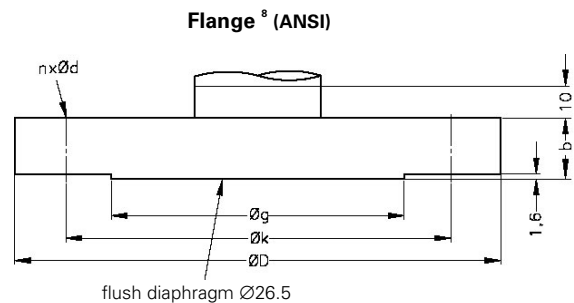
G1 1/2" flush DIN 3852



flush diaphragm $\varnothing 26.5$



dimensions in mm			
size	DN25/PN40	DN50/PN40	DN80/PN16
D	115	165	200
k	85	125	160
b	18	20	20
n	4	4	8
d	14	18	18



dimensions in mm		
size	2"/150 lbs	3"/150 lbs
D	152.4	190.5
g	91.9	127
k	120.7	152.4
b	19.1	23.9
n	4	4
d	19.1	19.1

⁷ mounting flange is included in the delivery (already pre-assembled)

⁸ DN80/PN16, 2"/150 lbs and 3"/150 lbs only possible for nominal pressure ranges $P_N \leq 7$ bar

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