BD|SENSORS
pressure measurement

XMP ci

Process Pressure Transmitter with HART®-communication

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
- two chamber aluminium die cast case or stainless field housing
- internal or flush mounted capacitive ceramic sensor
- HART®-communication
- IS-version:
  Ex ia = intrinsically safe version
- diaphragm Al_2O_3 99.9 %

Optional versions

- IS-version: Ex d = flameproof enclosure
- with integrated display and operating module
- several process connections (thread, flange, DRD etc.)

The process pressure transmitter XMP ci measures the pressure of gases, steam and fluids. The special-developed capacitive ceramic sensor for this transmitter has a high overpressure capability and excellent media stability.

Several process connections e.g. thread or flange are available. The transmitter is as a standard equipped with HART®-communication, the customer can choose between a two chamber aluminum die cast case or a stainless field housing.

Preferred areas of use are

- Oil and gas industry
- Chemical and petrochemical industry

Preferred using in

- Fuel and Oil
- aggressive Media

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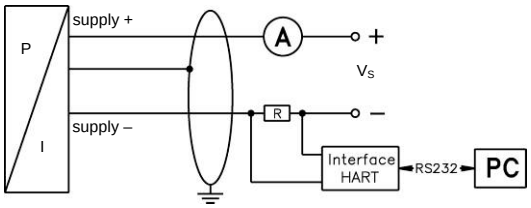
Pressure ranges [1]									
Nominal pressure gauge	[bar]	0.06	0.16	0.4	1	2	5	10	20
Overpressure	[bar]	2	4	6	8	15	25	35	45
Permissible vacuum	[bar]	-0.2	-0.3	-0.5		-1			
[1] On customer request we adjust the devices by software to the required pressure ranges. Within the turn-down-possibility (starting at 0.02 bar).									
Output signal / Supply									
Standard Option		2-wire: 4 ... 20 mA intrinsically safe version with HART®-communication / V_S = 12 ... 28 V_{DC} IS version flameproof enclosure / VS = 13 … 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 0.06 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							
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 [3]		without display: medium: -25 ... 125 °C environment: -40 ... 70 °C storage: -40 ... 80° C with display: medium: -25 ... 125 °C environment: -20 ... 70 °C storage: -30 ... 80° C							
[3] for pressure port of PVDF the minimum permissible temperature is -30°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 Standard Optionally for G1 1/2" flush		 stainless steel 1.4404 (316L) PVDF							
Housing		aluminium die cast, powder-coated or stainless steel 1.4404 (316L)							
Cable gland		brass, nickel plated							
Viewing glass		laminated safety glass							
Seals (media wetted)		FKM (permissible temperature: -25 ... 125 °C) EPDM (permissible temperature: -40 ... 125 °C) others on request							
Diaphragm		ceramics Al_2O_3 99.9 %							
Media wetted parts		pressure port, seal, diaphragm							
Explosion protection									
Approval AX12-XMP ci (intrinsically safe version)		IBExU 05 ATEX 1106 X stainless steel field housing: zone 0/1 [4]: II 1/2G Ex ia IIC T4 Ga/Gb / II 1D Ex ia IIIC T85 °C Da aluminium die cast case: zone 1: II 2G Ex ia IIB T4 Gb / II 1D Ex ia IIIC T85 °C Da							
Safety techn. maximum values		U_i = 28 V, I_i = 93 mA, P_i = 660 mW, C_i = 0 nF, L_i = 0 µH, C_{GND} = 27 nF							
Approval AX17-XMP ci (flameproof enclosure)		IBExU 12 ATEX 1045 X aluminium die cast case: zone 1: II 2G Ex d IIC T5 Gb							
Permissible temperatures for environment		in zone 0: -20 ... 60 °C with p_{atm} 0.8 bar up to 1.1 bar in zone 1: -25 ... 70° C (intrinsically safe version); -20 ... 70 °C (flameproof enclosure)							
[4] 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!									

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% ± 1 digit
Ingress protection	IP 67
Installation position	any
Weight	min. 400 g (depending on housing and mechanical connection)
Operational life	> 100 x 10^6 pressure cycles
CE-conformity	EMC Directive: 2004/108/EC

Wiring diagram

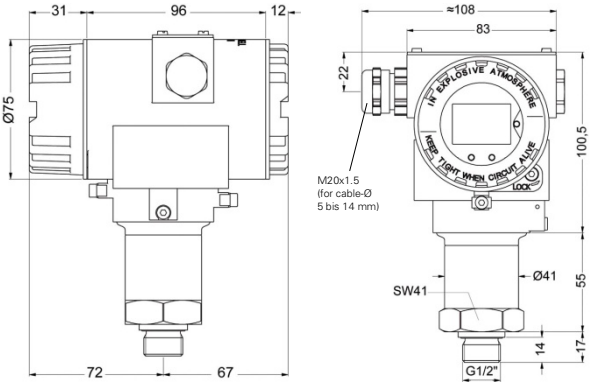


Pin configuration

Electrical connections	**aluminium die cast case:** terminal clamps (clamp section: 2.5 mm²)	**stainless steel field housing:** terminal clamps (clamp section: 1.5 mm²)
Supply +	IN+	IN+
Supply –	IN-	IN-
Test	Test	-
Shield	⏚	⏚

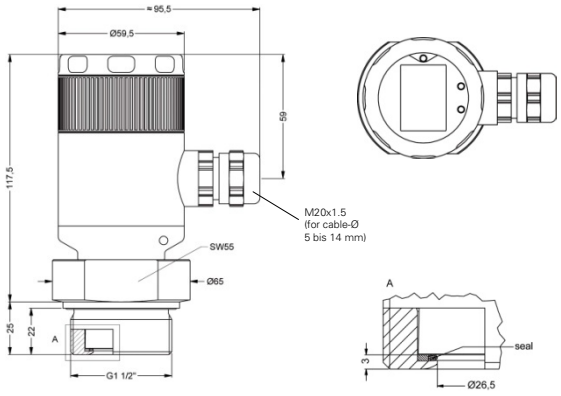
Housing designs [5] (dimensions in mm)

aluminium die cast case with display



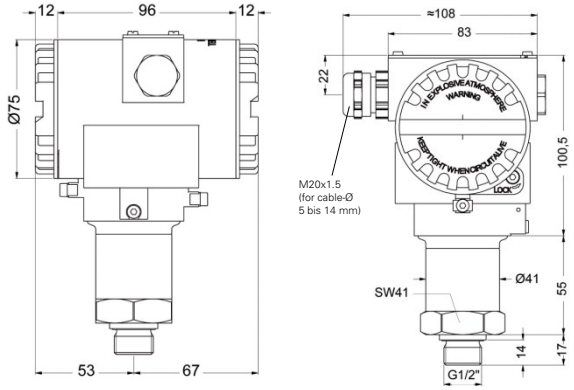
G1/2" DIN 3852

stainless steel field housing with display



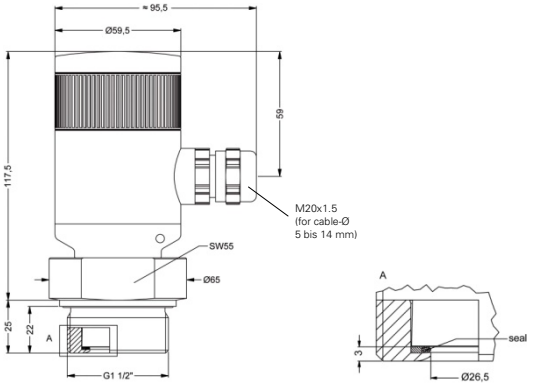
G1 1/2" flush DIN 3852

aluminium die cast case without display



G1/2" DIN 3852

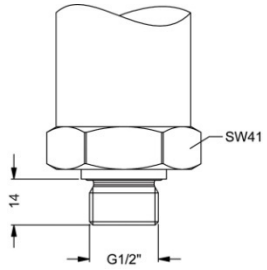
stainless steel field housing without display



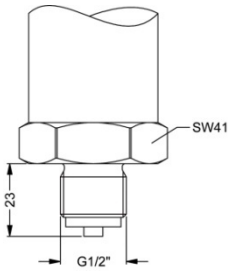
G1 1/2" flush DIN 3852

[5] *aluminium die cast case is horizontally rotatable as standard*

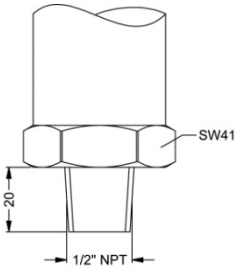
Standard pressure ports (dimensions in mm)



G1/2" DIN 3852



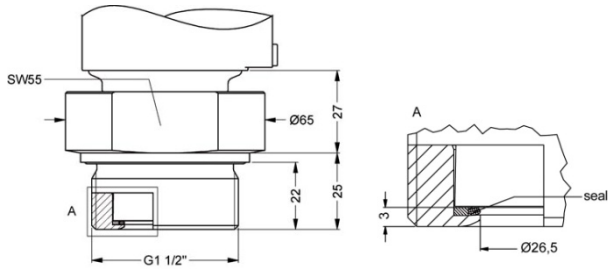
G1/2" EN 837



1/2" NPT

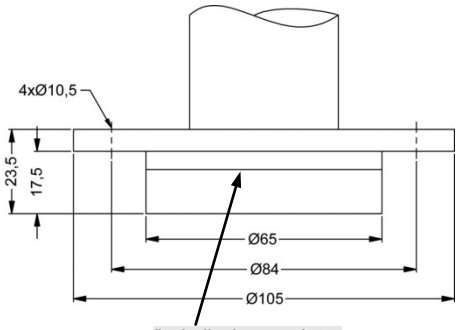
Process connections (dimensions in mm)

Inch thread



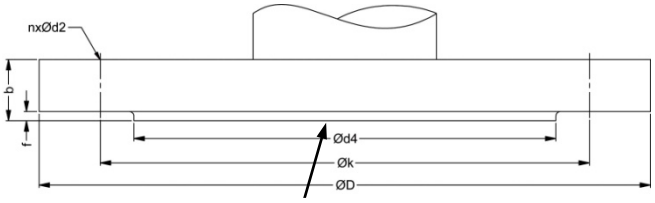
G1 1/2" flush DIN 3852

DRD [6]



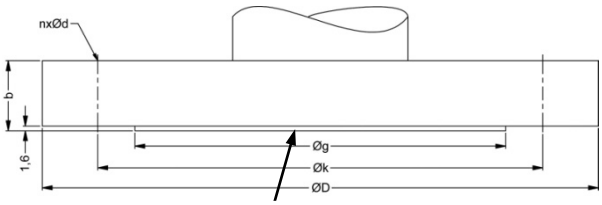
flush diaphragm Ø26,5

Flange (DIN 2501)



flush diaphragm Ø26,5

Flange (ANSI)



flush diaphragm Ø26,5

dimensions in mm			
size	DN25	DN50	DN80
D	115	165	200
k	85	125	160
d4	68	102	138
b	18	20	20
f	2	3	3
n	4	4	8
d2	14	18	18
P_N	≤ 40 bar	≤ 40 bar	≤ 16 bar

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
P_N	≤ 10 bar	≤ 10 bar

[6] mounting flange is included in the delivery (already pre-assembled)
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Windows® is a registered trade mark of Microsoft Corporation

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Ordering code XMP ci

XMP ci □□□-□□□□-□□-□-□-□□□-□□□-□-□-□-□□□

Pressure																									
gauge	5	1	E																						
Input	**[bar]** ⚠																								
0.06				0	6	0	0																		
0.16				1	6	0	0																		
0.4				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																									
Aluminium die cast case																									
with display								A	0																
without display								A	N																
Stainless steel field housing																									
with display								F	V																
without display								F	N																
customer								9	9																consult
Output																									
Intrinsic safety 4 … 20 mA / 2-wire with HART®-communication										I															
Intrinsic safety d 4 … 20 mA / 2-wire (flameproof enclosure) with HART®-communication [1]										G															
customer										9															consult
Accuracy																									
0.1 %											1														
customer											9														consult
Electrical connection																									
terminal clamp alu housing												A	K	0											
terminal clamp field housing												8	8	0											
customer												9	9	9											consult
Mechanical connection																									
standard pressure connections:																									
G1/2" DIN 3852															1	0	0								
G1/2" EN 837															2	0	0								
1/2" NPT															N	0	0								
process connections:																									
G 1 1/2" DIN flush (DIN 3852)															M	0	0								
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								
Flansch DN 2" / 150 lbs (ANSI B16.5) [2]															F	3	2								
Flansch DN 3" / 150 lbs (ANSI B16.5) [2]															F	3	3								
DRD Ø 65 mm [3]															D	R	D								
customer															9	9	9								consult
Diaphragm																									
Ceramics Al_2O_3 99,9%																		C							
customer																		9							consult
Seals																									
FKM [4]																			1						
EPDM [4]																			3						
customer																			9						consult
Pressure port																									
standard:																									
Stainless steel 1.4404 (316L)																				1					
option for G 1 1/2" flush:																									
PVDF [4]																				B					
customer																				9					consult
Special version																									
standard																					0	0	0		
customer																					9	9	9		consult

⚠ **if setting range shall be different from nominal range please specify in your order**

[1] only possible in combination with aluminium die cast case

[2] 2"/150 lbs and 3"/150 lbs only possible for nominal pressure ranges PN ≤ 10 bar

[3] mounting flange is included in the delivery (already pre-assembled)

[4] permissible temperature FKM -25 … 125 °C, EPDM -40 … 125 °C, PVDF -30 … 125 °C

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