BD|SENSORS
pressure measurement

XMP ci

Process Pressure Transmitter with HART®-communication

Ceramic Sensor

accuracy according to IEC 61298-2:
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
- two chamber aluminium die cast case or stainless field housing
- internal or flush mounted capacitive ceramic sensor
- HART®-communication
- explosion protection intrinsic safety (ia)
- diaphragm Al_2O_3 99.9 %

Optional versions

- explosion protection flameproof equipment (d)
- 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 aluminium 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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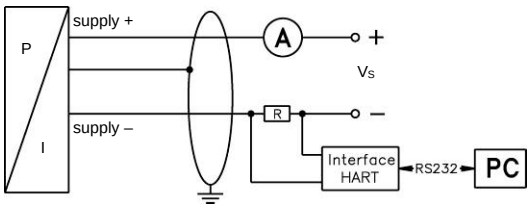
Pressure ranges [1]								
Nominal pressure gauge	[bar]	0.16	0.4	1	2	5	10	20
Overpressure	[bar]	4	6	8	15	25	35	45
Permissible vacuum	[bar]	-0.3	-0.5		-1			
[1] On customer request we adjust the devices by software to the required pressure ranges. Within the turn-down-possibility (starting at 0.02 bar).								
Output signal / Supply								
2-wire: 4 ... 20 mA with explosion protection		standard: intrinsic safety (ia) with HART®-communication V_S = 12 ... 28 V_{DC} option: flameproof equipment (d) with HART®-communication V_S = 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 0.16 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		$R_{max} \leq [(V_S - V_{S\,min}) / 0.02\ A]\ \Omega$ 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 61298-2 – limit point adjustment (non-linearity, hysteresis, repeatability)								
Thermal effects (offset and span)								
Tolerance band		≤ ± 1 % FSO						
in compensated range		-20 … 80 °C						
Permissible temperatures								
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 in PVDF the medium temperature 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 / 10 ... 2000 Hz according to DIN EN 60068-2-6						
Shock		500 g / 1 msec half sine according to DIN EN 60068-2-27						
Materials								
Pressure port		standard: stainless steel 1.4404 (316L) optionally for G1 1/2" flush: 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; EPDM others on request						
Diaphragm		ceramics Al_2O_3 99.9 %						
Media wetted parts		pressure port, seal, diaphragm						
Explosion protection								
Approval AX12-XMP ci		**intrinsic safety** IBExU 05 ATEX 1106 X						
		stainless steel field housing: zone 0/1 [4]: II 1G Ex ia IIC T4 Ga II 1/2G Ex ia IIC T4 Ga/Gb II 2G Ex ia IIC T4 Gb zone 20: II 1D Ex ia IIIC T85 °C Da safety techn. 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			aluminium die cast case: zone 0/1 [5]: II 1/2G Ex ia IIB T4 Ga/Gb II 2G Ex ia IIB T4 Gb zone 20: II 1D Ex ia IIIC T85 °C Da safety techn. maximum values: U_i = 28 V, I_i = 98 mA, P_i = 680 mW, C_i = 0 nF, L_i = 0 µH, C_{GND} = 33 nF			
Approval AX17-XMP ci		**flameproof enclosure** with aluminium die cast case IBExU 12 ATEX 1045 X zone 1: II 2G Ex db 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 or higher: intrinsic safety: -40 ... 70° C flameproof enclosure: -20 ... 70 °C						

[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“.
[5] The designation depends on the nominal pressure range. Nominal pressure ranges < 160 mbar are marked with „2G“. Nominal pressure ranges ≥ 160 mbar are marked with „1/2G“.

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 million load cycles
CE-conformity	EMC Directive: 2014/30/EU
ATEX Directive	2014/34/EU

Wiring diagram

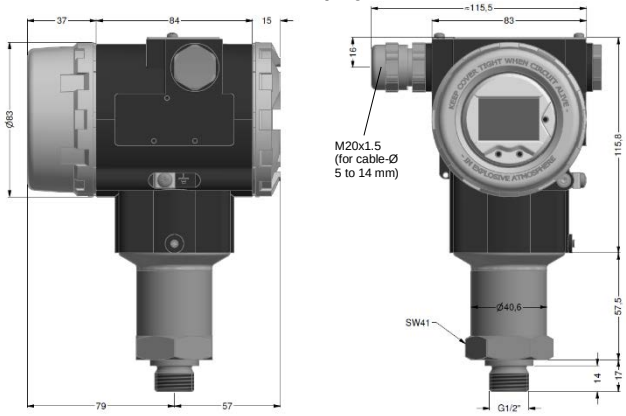


Pin configuration

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 + Supply – Test	IN+ IN- Test	IN+ IN- -
Shield	⏚	⏚

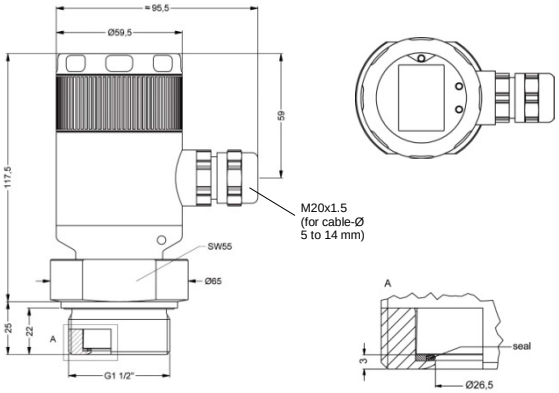
Housing designs [6] (dimensions in mm)

aluminium die cast case with display



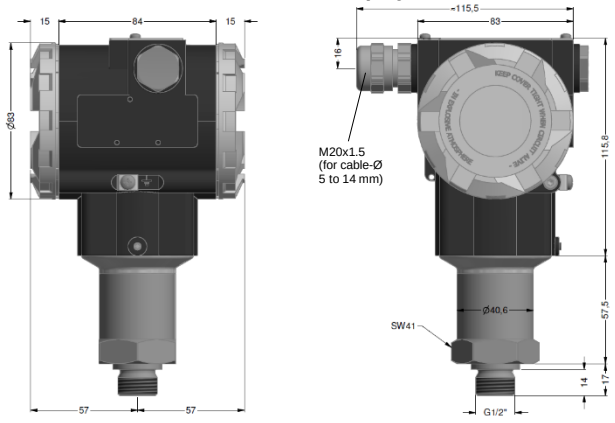
G1/2" DIN 3852

stainless steel field housing with display



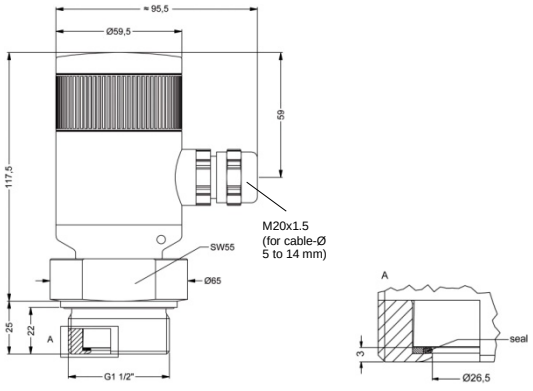
G1 1/2" flush DIN 3852

aluminium die cast case without display



G1/2" DIN 3852

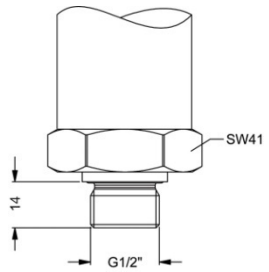
stainless steel field housing without display



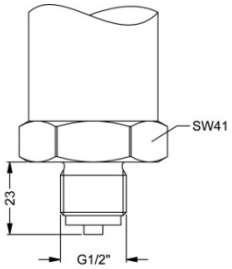
G1 1/2" flush DIN 3852

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

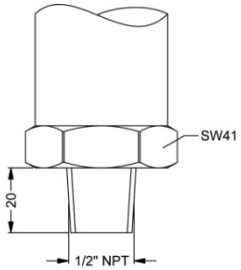
Standard pressure ports (dimensions in mm)



G1/2" DIN 3852



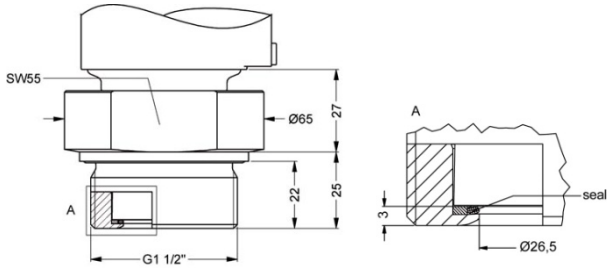
G1/2" EN 837



1/2" NPT

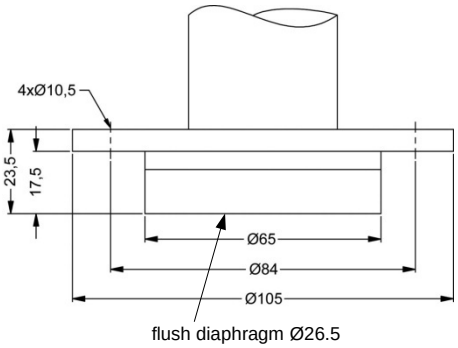
Process connections (dimensions in mm)

Inch thread

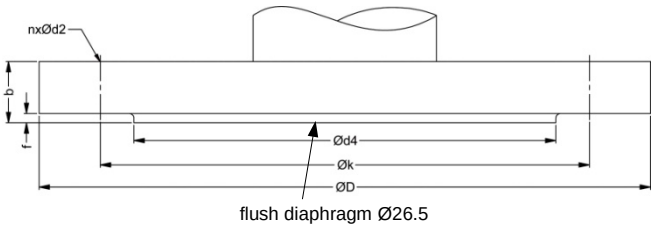


G1 1/2" flush DIN 3852

DRD [7]

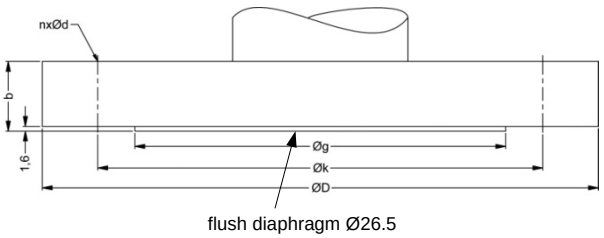


Flange (DIN 2501)



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

Flange (ANSI)



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

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

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Ordering code XMP ci

XMP ci ☐☐☐ - ☐☐☐☐ - ☐☐ - ☐ - ☐ - ☐☐☐ - ☐☐☐ - ☐ - ☐ - ☐ - ☐☐☐

Option		Code	
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			
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 (ia) 4 … 20 mA / 2-wire with HART®-communication	I	
	flameproof equipment (d) 4 … 20 mA / 2-wire with HART®-communication [1]	G	
	customer	9	consult
Accuracy			
p_N < 1 bar:	0.2 % FSO	B	
p_N ≥ 1 bar:	0.1 % FSO	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	
	flange DN 2" / 150 lbs (ANSI B16.5) [2]	F 3 2	
	flange 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
Seal			
	FKM	1	
	EPDM	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 p_N ≤ 10 bar
[3] mounting flange is included in the delivery (already pre-assembled)
[4] for pressure port in PVDF the operation medium temperature is -25 … 60 °C

HART® is a registered trade mark of HART Communication Foundation

01.04.2022

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