



# XMP ci

## Process Pressure Transmitter with HART®-communication

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
- ▶ 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<sub>2</sub>O<sub>3</sub> 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

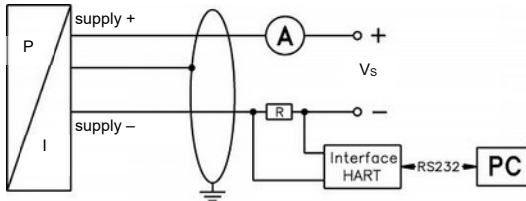
-  Fuel and oil
-  Aggressive media



Pressure ranges <sup>1</sup>								
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			
<sup>1</sup> 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 <sub>S</sub> = 12 ... 28 V <sub>DC</sub>		
		option: flameproof equipment (d) with HART®-communication				V <sub>S</sub> = 13 ... 28 V <sub>DC</sub>		
Current consumption		max. 25 mA						
Performance								
Accuracy <sup>2</sup>		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 <sub>max</sub> ≤ [(V <sub>S</sub> - V <sub>S min</sub> ) / 0.02 A] Ω		load during HART®-communication: R <sub>min</sub> = 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)						
<sup>2</sup> 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 <sup>3</sup>		without display: medium: -25 ... 125 °C	environment: -40 ... 70 °C	storage: -40 ... 80 °C		storage: -40 ... 80 °C		
		with display: medium: -25 ... 125 °C	environment: -20 ... 70 °C	storage: -30 ... 80 °C		storage: -30 ... 80 °C		
<sup>3</sup> 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)		according to DIN EN 60068-2-6				
Shock		100 g / 11 msec		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 (permissible temperature: -25 ... 125 °C) EPDM (permissible temperature: -40 ... 125 °C)				others on request		
Diaphragm		ceramics Al <sub>2</sub> O <sub>3</sub> 99.9 %						
Media wetted parts		pressure port, seal, diaphragm						
Explosion protection								
Approval AX12-XMP ci		<b>intrinsic safety</b> IBExU 05 ATEX 1106 X						
		stainless steel field housing:		aluminium die cast case:				
		zone 0/1 <sup>4</sup> : II 1G Ex ia IIC T4 Ga II 1/2G Ex ia IIC T4 Ga/Gb II 2G Ex ia IIC T4 Gb		zone 0/1 <sup>5</sup> : 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		zone 20: II 1D Ex ia IIIC T85 °C Da				
		safety techn. maximum values: U <sub>i</sub> = 28 V, I <sub>i</sub> = 98 mA, P <sub>i</sub> = 680 mW, C <sub>i</sub> = 0 nF, L <sub>i</sub> = 0 μH, C <sub>GND</sub> = 27 nF						
Approval AX17-XMP ci		<b>flameproof enclosure</b> with aluminium die cast case IBExU 12 ATEX 1045 X						
		zone 1: II 2G Ex d IIC T5 Gb						
Permissible temperatures for environment		in zone 0: -20 ... 60 °C with p <sub>atm</sub> 0.8 bar up to 1.1 bar in zone 1 or higher: intrinsic safety: -40 ... 70 °C flameproof enclosure: -20 ... 70 °C						
<sup>4</sup> 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“.								
<sup>5</sup> 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 $\pm 9999$ ; 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 million load cycles
CE-conformity	EMC Directive: 2014/30/EU
ATEX Directive	2014/34/EU

**Wiring diagram**

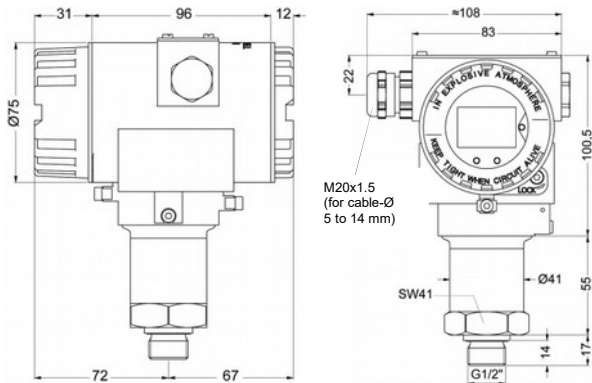


**Pin configuration**

Electrical connections	aluminium die cast case: terminal clamps (clamp section: 2.5 mm <sup>2</sup> )	stainless steel field housing: terminal clamps (clamp section: 1.5 mm <sup>2</sup> )
Supply +	IN+	IN+
Supply -	IN-	IN-
Test	Test	-
Shield	⏏	⏏

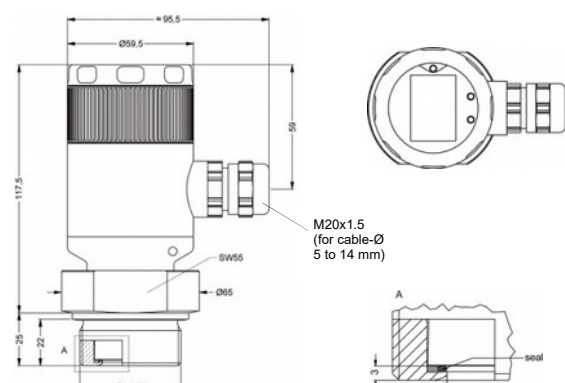
**Housing designs <sup>6</sup> (dimensions in mm)**

**aluminium die cast case with display**



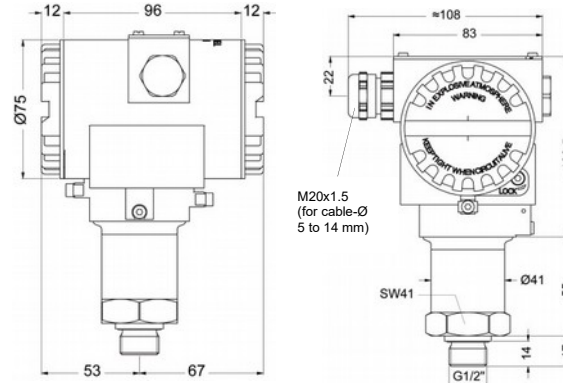
G1/2" DIN 3852

**stainless steel field housing with display**



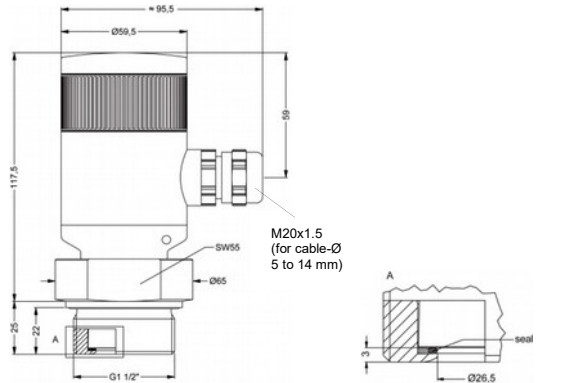
G1 1/2" flush DIN 3852

**aluminium die cast case without display**



G1/2" DIN 3852

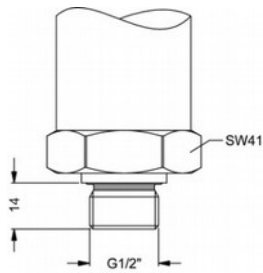
**stainless steel field housing without display**



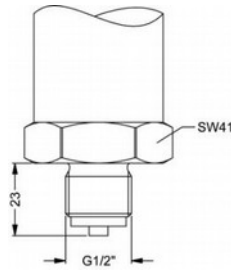
G1 1/2" flush DIN 3852

<sup>6</sup> aluminium die cast case is horizontally rotatable as standard

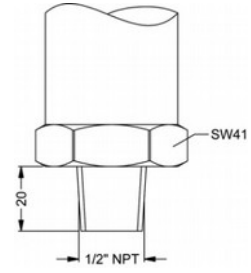
**Standard pressure ports (dimensions in mm)**



G1/2" DIN 3852



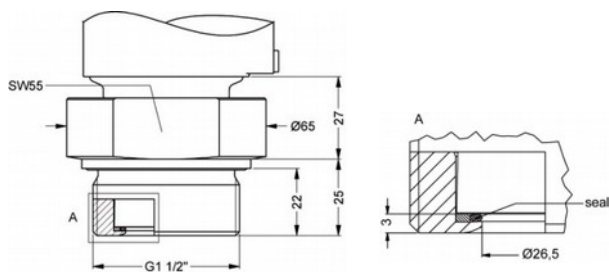
G1/2" EN 837



1/2" NPT

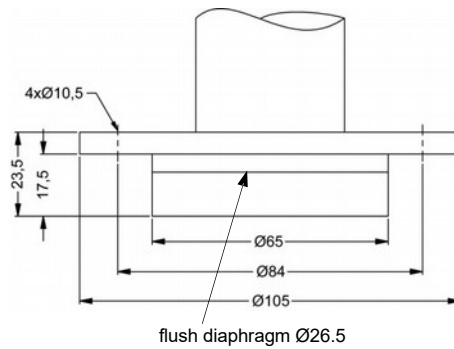
**Process connections (dimensions in mm)**

**Inch thread**



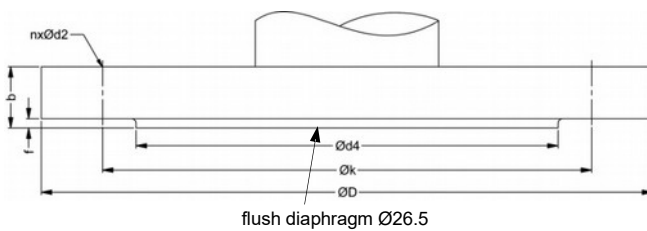
G1 1/2" flush DIN 3852

**DRD<sup>7</sup>**



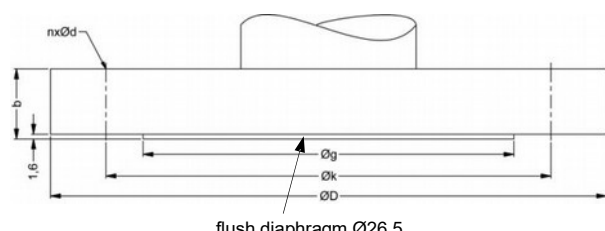
flush diaphragm Ø26.5

**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 <sub>N</sub>	≤ 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 <sub>N</sub>	≤ 10 bar	≤ 10 bar

<sup>7</sup> mounting flange is included in the delivery (already pre-assembled)  
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 Windows® is a registered trademark of Microsoft Corporation

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## Ordering code XMP ci

XMP ci

<b>Pressure</b>														
	gauge	5 1 E												
<b>Input</b>	[bar]													
	0.16		1	6	0	0								
	0.40		4	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									consult
<b>Design</b>														
<b>Aluminium die cast case</b>														
	with display					A	0							
	without display					A	N							
<b>Stainless steel field housing</b>														
	with display					F	V							
	without display					F	N							
	customer					9	9							consult
<b>Output</b>														
	intrinsic safety (ia)													
	4 ... 20 mA / 2-wire						I							
	with HART®-communication													
	flameproof equipment (d)													
	4 ... 20 mA / 2-wire						G							
	with HART®-communication <sup>1</sup>													
	customer						9							consult
<b>Accuracy</b>														
P <sub>N</sub> < 1 bar:	0.2 % FSO						B							
P <sub>N</sub> ≥ 1 bar:	0.1 % FSO						1							
	customer						9							consult
<b>Electrical connection</b>														
	terminal clamp alu housing						A	K	0					
	terminal clamp field housing						8	8	0					
	customer						9	9	9					consult
<b>Mechanical connection</b>														
<i>standard pressure connections:</i>														
	G1/2" DIN 3852								1	0				
	G1/2" EN 837								2	0				
	1/2" NPT								N	0				
<i>process connections:</i>														
	G 1 1/2" DIN flush (DIN 3852)								M	0				
	flange DN 25 / PN 40 (DIN 2501)								F	2				
	flange DN 50 / PN 40 (DIN 2501)								F	2				
	flange DN 80 / PN 16 (DIN 2501)								F	1				
	flange DN 2" / 150 lbs (ANSI B16.5) <sup>2</sup>								F	3				
	flange DN 3" / 150 lbs (ANSI B16.5) <sup>2</sup>								F	3				
	DRD Ø 65 mm <sup>3</sup>								D	R	D			
	customer								9	9	9			consult
<b>Diaphragm</b>														
	ceramics Al <sub>2</sub> O <sub>3</sub> 99,9%									C				
	customer									9				consult
<b>Seals</b>														
	FKM <sup>4</sup>										1			
	EPDM <sup>4</sup>										3			
	customer										9			consult
<b>Pressure port</b>														
<i>standard:</i>														
	stainless steel 1.4404 (316L)											1		
<i>option for G 1 1/2" flush:</i>														
	PVDF <sup>4</sup>											B		
	customer											9		consult
<b>Special version</b>														
	standard												0	0
	customer												9	9
														consult

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

<sup>1</sup> only possible in combination with aluminium die cast case

<sup>2</sup> 2"/150 lbs and 3"/150 lbs only possible for nominal pressure ranges PN ≤ 10 bar

<sup>3</sup> mounting flange is included in the delivery (already pre-assembled)

<sup>4</sup> permissible temperature FKM -25 ... 125 °C, EPDM -40 ... 125 °C, PVDF -30 ... 125 °C

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