



DPT 200

Differential Pressure Transmitter for Process Industry with HART®-Communication

accuracy according to IEC 60770:
0.075 % FSO

Differential pressure

from 1 mbar up to 20 bar

static pressure

max. 400 bar

Output signal

2-wire: 4 ... 20 mA

Special characteristics

- ▶ static over pressure 400 bar
- ▶ rangeability max. 100:1
- ▶ aluminium die cast case
- ▶ HART®-communication
- ▶ output signal: linear or square root extraction






Optional versions

- ▶ ATEX-version
Ex ia = intrinsically safe version
Ex d = flameproof enclosure
- ▶ LCD

The differential pressure transmitter DPT 200 has been especially designed for the process industry and can be used for level measurement of closed, pressurized tanks, pump or filter controlling, etc.

The possibility passes different pressure seals at the DPT 200 adding with different membrane materials to reach an optimal adaptation to the application.

Preferred areas of use are

-  Oil and gas industry
-  Chemical and petrochemical industry
-  Energy Industry
-  Food and beverage
-  Paper Industry



DPT 200

Differential Pressure Transmitter

Technical Data

Differential pressure ranges						
sensor	Type	A	B	C	D	E
Differential pressure range dp [bar]		10 mbar	60 mbar	400 mbar	2.5 bar	20 bar
Setting limits (offset and span in this range freely adjustable)		-10 ... 10 mbar	-60 ... 60 mbar	-400...400 mbar	-2.5 ... 2.5 bar	-20 ... 20 bar
Lowest permissible span		1 mbar	2 mbar	4 mbar	25 mbar	200 mbar
Permissible static pressure	optional	70 bar	160 bar	160 bar 400 bar	160 bar 400 bar	160 bar 400 bar
rangeability TD (with respect to the differential pressure range dp)		10:1	30:1	100:1	100:1	100:1

Output signal / Supply	
Standard	2 wire: 4 ... 20 mA / $V_S = 12 \dots 42 V_{DC}$ (with LC-Display / $V_S = 15 \dots 42 V_{DC}$) ATEX-version: / $V_S = 15 \dots 28 V_{DC}$
Error signal	Namur NE43 high / low (adjustable)
Performance	
Accuracy ¹	turn-down $\leq 10:1$: $\leq \pm 0.075\%$ FSO turn-down $> 10:1$: $\leq \pm [0.075 \times \text{turn-down}] \%$ FSO with turn-down = nominal pressure range / adjusted range (FSO = Full Scale Output)
Influence supply	$\leq 0.001\%$ FSO / 10 V
Influence static pressure	Type A: $\pm [0,015 \text{ mbar} + 0,1\% \text{ of the adjusted range}] / 40 \text{ bar}$ Type B: $\pm [0,06 \text{ mbar} + 0,075\% \text{ of the adjusted range}] / 160 \text{ bar}$ Type C: $\pm [0,2 \text{ mbar} + 0,05\% \text{ of the adjusted range}] / 160 \text{ bar}$ Type D: $\pm [1,25 \text{ mbar} + 0,05\% \text{ of the adjusted range}] / 160 \text{ bar}$ Type E: $\pm [10 \text{ mbar} + 0,05\% \text{ of the adjusted range}] / 160 \text{ bar}$
Influence installation position	max. 400 Pa (can be compensated about zero-point correction)
Long term stability	Type A: $\leq \pm (0.5\% \times \text{differential pressure range dp}) / \text{year}$ at reference conditions Type B: $\leq \pm (0.2\% \times \text{differential pressure range dp}) / \text{year}$ at reference conditions Type C - E: $\leq \pm (0.1\% \times \text{differential pressure range dp}) / \text{year}$ at reference conditions
Permissible load	without LC-display : $R_{max} = [(V_S - 12 \text{ V}) / 0.023 \text{ A}] \Omega$ with LC-display : $R_{max} = [(V_S - 15 \text{ V}) / 0.023 \text{ A}] \Omega$ HART [®] -communication: $R = 230 \Omega \dots 600 \Omega$
Response time T90	Type A: appr. 1.6 s Type B: appr. 0.4 s Type C: appr. 0.2 s Type D: appr. 0.2 s Type E: appr. 0.1 s
damping	electronic : 0.1 ... 60 s plus response time T90

Thermal effects (Offset and Span)	
Temperature range -20 ... +65°C	Type A: $\pm [0.45 \times \text{turn-down} + 0.25]\%$ of the adjusted range Type B: $\pm [0.30 \times \text{turn-down} + 0.20]\%$ of the adjusted range Type C - E: $\pm [0.20 \times \text{turn-down} + 0.10]\%$ of the adjusted range
Temperature range -40 ... -20°C or +65 ... +100°C	Type A: $\pm [0.45 \times \text{turn-down} + 0.25]\%$ of the adjusted range Type B: $\pm [0.30 \times \text{turn-down} + 0.20]\%$ of the adjusted range Type C - E: $\pm [0.20 \times \text{turn-down} + 0.10]\%$ of the adjusted range

Permissible temperatures	
Environment / storage	without display : -40 ... 85 °C
	with display : -20 ... 65 °C (85°C without function)
Media wetted parts	silicone oil : -40 ... 100 °C (information: +125°C short time, max. 30 min.)
	Fluorolube oil : -40 ... 100 °C (information: +125°C short time, max. 30 min.)

Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function

Mechanical stability	
One-sided overload	According to the maximum static pressure of differential pressure sensor
Vibration	5 g RMS (25 ... 2000 Hz) according to DIN EN 60068-2-6
Shock	100 g / 1 msec according to DIN EN 60068-2-27

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Materials		
Pressure port / flange	standard option	stainless steel 304 / 1.4301 stainless steel 316 / 1.4401 others: on request
Diaphragm	standard option	stainless steel 316L / 1.4404 Hastelloy® C-276 others: on request
Vent and dump valves Blanking plugs	standard option	stainless steel 304 / 1.4301 stainless steel 316 / 1.4401
Bolts and nuts	standard option	stainless steel 304 / 1.4301 stainless steel 316 / 1.4401 others: on request
Manufacturing label		stainless steel 316 / 1.4401
Housing	standard option	aluminum die cast with epoxy painting (blue) stainless steel 304 / 1.4301 others: on request
Seals (media wetted)	standard option	FKM (-30...250°C) NBR (-40...125°C), PTFE (-180...250°C) others: on request
Filling fluids	standard option	Silicone oil (-40...125°C) Fluorolube oil (-40...125°C) others: on request

Explosion protection		
Approvals AX18-DPT200	IBExU 14 ATEX 1273 X / IECEX IBE 16.0005X II 1/2G Ex ia IIC T4 Ga/Gb II 2D Ex ia IIIC T 85 °C Db	
Safety technical maximum values for intrinsically safe version	Pi = 660 mW, Ui = 28 V, Ii = 93 mA, Ci 29,7 nF, Li negligible	
Approval AX18B-DPT200	IBExU 15 ATEX 1110 X / IECEX IBE 16.0006X Zone 1: II 2G Ex db IIC T6 Gb	
Permissible temperatures for environment	Ex ia: -40 ... 60 °C	Ex d: -40 ... 65 °C

Miscellaneous		
Display (optionally)	Type : LCD Lines : 2 Digits : 8 Bargraph : 0...100% rotatability : yes, 90°-steps and / or by turn of the electronic case	
configuration	- offset / span local via 2 buttons - local configuration with an optional display - complete configuration via HART®	
Mounting bracket (optionally)	material CF8M or stainless steel 304 / 1.4401	weight 0,45 kg (inclusive bolts and nuts)
Ingress protection	IP 67	
Installation position	any	
Weight	Differential pressure transmitter: approx. 3 kg (depending on version)	
Current consumption	approx. 23 mA	
CE-conformity	EMC Directive: 2014/30/EU	
ATEX Directive	2014/34/EU	

Connections		
Electrical connection	terminal clamps in clamping chamber (for cable-Ø max.2.5 mm²)	
Process connections	Standard option	internal thread 1/4" - 18 NPT / fixing 7/16 UNF internal thread 1/4" - 18 NPT / fixing M10 oval flange 1/2" NPT internal thread adapter M20x1,5 others: on request



DPT 200

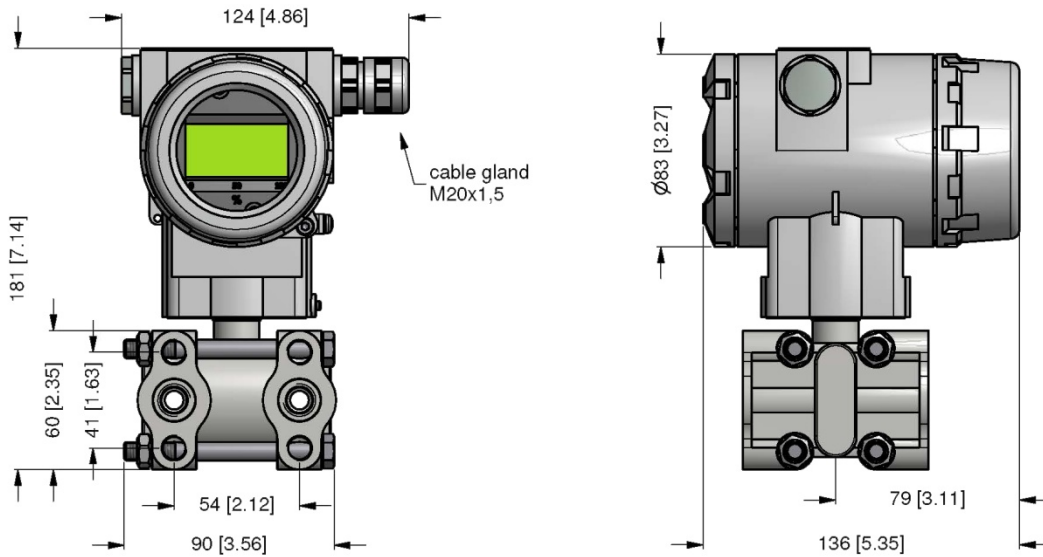
Differential Pressure Transmitter

Technical Data

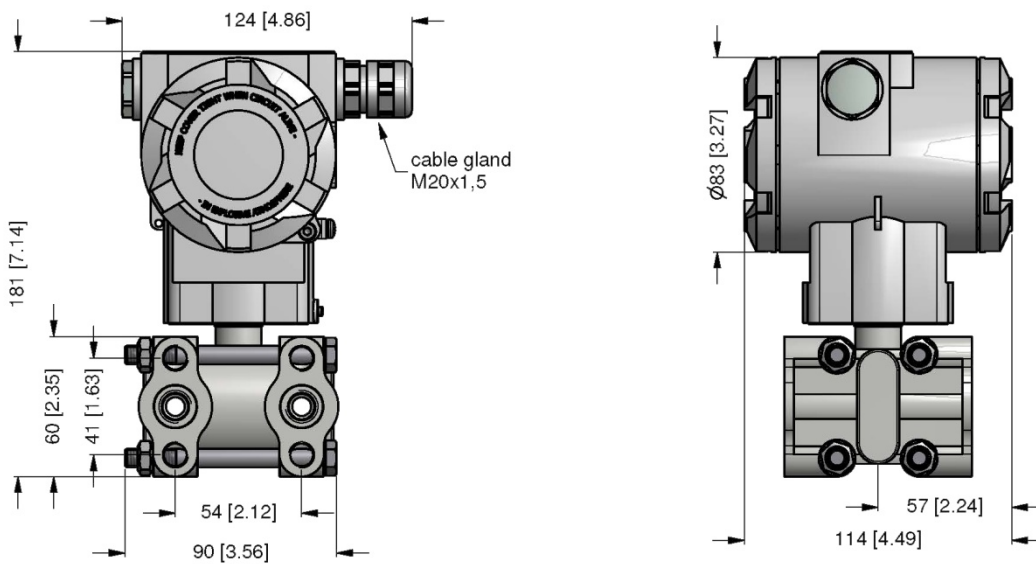
Pin configuration	
Electrical connection	terminal clamps
Supply + (Vs+)	+
Supply - (Vs-)	-
Test +	TEST+
Ground	⏏

Dimensions (in mm)

DPT 200 mit Display



DPT 200 ohne Display



HART® is a registered trade mark of HART Communication Foundation; Hastelloy® is a brand name of Haynes International Inc.
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BD|SENSORS
pressure measurement

Ordering code DPT 200

DPT 200



Pressure		3	4	3											
differential pressure															
Input [bar]															
Type A:	0 ... 1 mbar up to	0...10 mbar			A										
Type B:	0...2 mbar up to	0...60 mbar			B										
Type C:	0...20 mbar up to	0...400 mbar			C										
Type D:	0...25 mbar up to	0...2,500 mbar			D										
Type E:	0...0.2 bar up to	0...20 bar			E										
	customer	9				consult									
Maximum static pressure															
70 bar (only Type A)					7										
160 bar					1										
400 bar					4										
customer					9	consult									
Output															
4 ... 20 mA / 2-wire with HART®-communication ¹					H										
Intrinsic safety ia 4 ... 20 mA / 2-wire with HART®-communication ¹					I										
Intrinsic safety d 4 ... 20 mA / 2-wire with HART®-communication ¹					G										
customer					9	consult									
Accuracy															
0.075 %					1	7									
customer					9	9	consult								
Housing															
Aluminium					L										
Stainless steel 304					2	consult									
customer					9	consult									
Display															
without display					A	N									
with backlight display					A	L									
Electrical connection															
terminals / cable gland M20x1.5					A	K	0								
terminals / cable gland 1/2" NPT					A	K	5	consult							
customer					9	9	9	consult							
Process connection H-side															
1/4" - 18 NPT F / fixing 7/16 UNF					N	2	0								
1/4" - 18 NPT F / fixing M10					N	3	0								
1/4" - 18 NPT (F / vertical) / fixing 7/16 UNF					N	2	1								
1/4" - 18 NPT (F / vertical) / fixing M10					N	3	1								
1/2" NPT F with adapter					N	5	7								
M20x1,5 F with adapter					N	2	6								
with volume reduced flange					N	2	5	consult							
customer					9	9	9	consult							
Valve H-side															
without					0										
with vent					1										
with vent (top)					2										
with vent (bottom)					3										
Process connection L-side (identical with H side)															
1/4" - 18 NPT F / fixing 7/16 UNF					N	2	0								
1/4" - 18 NPT F / fixing M10					N	3	0								
1/4" - 18 NPT (F / vertical) / fixing 7/16 UNF					N	2	1								
1/4" - 18 NPT (F / vertical) / fixing M10					N	3	1								
1/2" NPT F with adapter					N	5	7								
M20x1,5 F with adapter					N	2	6								
with volume reduced flange					N	2	5	consult							
customer					9	9	9	consult							
Valve L-side (identical with H side)															
without					0										
with valve					1										
with valve (top)					2										
with valve (bottom)					3										
Material flange, valves, screws, ...															
stainless steel 1.4301 (304 SS)					0	2									
stainless steel 1.4401 (316 SS)					1	2									
customer					9	9	consult								
Diaphragm / filling fluid															
stainless steel 1.4435 (316L) / silicone oil					1	1									
Hastelloy® C-276 (2.4819) / silicone oil ²					H	1									
customer					9	9	consult								
Seals															
FKM					1										
EPDM					3										
NBR					5										
PTFE					4										
customer					9	consult									
Special version															
standard					0	0	0								
square root function (flow)					5	8	0								
customer					9	9	9	consult							

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