



DPT 100

Differential Pressure Transmitter for Process Industry

accuracy according to IEC 60770: 0.1 % FSO

Differential pressure

from 10 mbar up to 20 bar

Static pressure

max. 400 bar

Output signal

2-wire: 4 ... 20 mA

RS485 with Modbus RTU protocol

Special characteristics

- compact design
- fast response time
- aluminium die cast case
- zero adjustment via button

Optional versions

several process connections

The differential pressure transmitter DPT 100 has been especially designed for fast test processes in leakage and flow measurement, where a fast response time and high sampling rate are necessary.

The compact design of the DPT 100 facilitates the usage in standardised applications. For instance, the installation in 19" racks.

The DPT 100 with optionally RS485 interface uses the communication protocol Modbus RTU which has found the way in industrial communication as an open protocol. The Modbus protocol is based on a master Slave architecture with which up to 247 Slaves can be questioned by a master – the data will transfer in binary form.

Preferred areas of use are

Test engineering / leak testing



Machine and plant engineering



Environmental technology



Energy production







Modbus®

Differential Pressure Transmitter

Differential pressure ranges						
Pressure range P _N diff.	10 mbar	60 mbar	100 mbar	400 mbar	2.5 bar	20 bar
Pressure range P _N symmetric (diff.)	± 10 mbar	± 60 mbar	± 100 mbar	± 400 mbar	on request	on request
Permissible static pressure	70 bar	400 bar	400 bar	400 bar	400 bar	400 bar

Output signal / Supply					
Standard	2 wire: 4 20 mA / V _S = 12 32 V _{DC}				
Option	digital: RS 485 with Modbus RTU protocol / $V_S = 9 \dots 32 V_{DC}$ (delay time: 500 msec)				
Performance	alg. all the test manifestation in the test meanifest me				
Accuracy ¹	$P_N \ge 60 \text{ mbar:} \le \pm 0.1 \% \text{ FSO}$				
7.000.009	$P_N < 60 \text{ mbar}$: $\leq \pm 0.2 \% \text{ FSO}$				
Permissible load	$R_{\text{max}} = [(V_S - V_{S \text{ min}}) / 0.02 \text{ A}] \Omega$				
Influence supply	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ				
Influence static pressure P _N [Pa/100 bar]		2.5 bar 20 bar 250 2000			
Influence installation position	max. 400 Pa (can be compensated by zero-point correction)				
	for ranges < 60 mbar please state installation position on t	he order			
Long term stability	$P_N \ge 60$ mbar: $\le \pm 0.05$ %FSO/ year at reference conditions $P_N < 60$ mbar: $\le \pm 0.15$ %FSO/ year at reference conditions				
Sampling rate	250 Hz				
Turn-on time	approx. 260 msec				
Response time (10 90 %)	10 msec				
, ,	mit point adjustment (non-linearity, hysteresis, repeatability)				
Thermal effects (Offset and Spa	n)				
Thermal error (offset and span)	≤±0.1 % FSO / 10 K				
Compensated range	-20 80 °C				
Permissible temperatures	medium: -25 85°C electronics / environment: -25 8	5°C storage: -25 85°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					
One-sided overload	according to the maximum static pressure of differential pressu	ire 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				
Materials					
Pressure port / flange					
standard	stainless steel 304 / 1.4301	others: an result			
option Diaphragm	stainless steel 316 / 1.4401 stainless steel 316L / 1.4404	others: on request			
Vent and dump valves	Stailliess Steel 3 TOL / 1.4404	others: on request			
Blanking plugs standard	stainless steel 304 / 1.4301				
option	stainless steel 316 / 1.4401				
Bolts and nuts					
standard	stainless steel 304 / 1.4301				
option	stainless steel 316 / 1.4401	others: on request			
Housing	aluminium die cast with epoxy painting (grey) others: on requ				
Cable gland	polyamide				
Seals (media wetted) standard	FKM				
option	EPDM, NBR others: on rec				
Filling fluids	silicone oil others: on rec				
Media wetted parts	pressure port, seal of pressure port, diaphragm				

Miscellaneous			
Mounting bracket (optionally)	material C-steel or stainless steel 304 / 1.4401		
	weight 0.45 kg (incl. bolts and nuts)		
Ingress protection	IP 66 / IP 67		
Installation position	any ²		
Weight	approx. 1800 g		
Current consumption	approx. 23 mA		
Operational life	100 million load cycles		
CE-conformity	EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module A) ³		
² Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight			

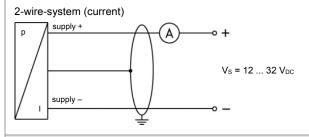
deviations in the zero point. Press the button for zero adjustment (see operating manual).

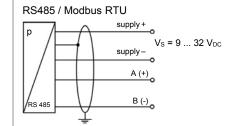
³ This directive is only valid for devices with maximum permissible overpressure > 200 bar.

Connections

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

Wiring diagram

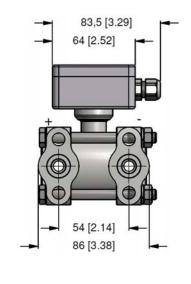


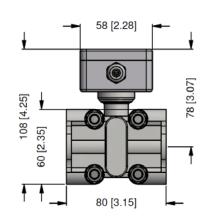


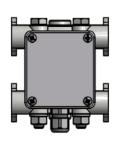
Pin configuration

, cog					
Electrical connection	terminal clamps	M12x1 / metal (4-pin)			
Supply Supply	+ + Ub	1			
Supply	- Ub	3			
for RS485 / Modbus RTU:					
Α (Α Α	2			
В (Э В	4			
Grour	±	plug housing			

Dimensions (mm / in)







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Ordering code DPT 100 **DPT 100** Pressure differential pressure 3 4 5 Input 10 mbar 0 1 0 0 60 mbar 0 6 0 0 100 mbar 1000 400 mbar 4000 2.5 bar 2 5 0 1 20 bar 2002 -10 ... 10 mbar S 0 1 0 S 0 6 0 -60 ... 60 mbar -100 ... 100 mbar S 1 0 0 -400 ... 400 mbar S 4 0 0 9999 consult customer Output 4 ... 20 mA / 2-wire RS485 Modbus RTU 15 customer 9 consult Accuracy P_N ≥ 60 mbar: 0.1 % FSO $P_N < 60 \text{ mbar}$: 0.2 % FSO B customer 9 consult Housing aluminium customer consult Electrical connection terminals / cable gland M12x1.5 male plug M12x1 (4-pin) / metal customer 9 9 9 consult Process connection N 2 0 N 2 1 N 3 0 N 3 1 9 9 9 1/4" - 18 NPT F / fixing 7/16 UNF 1/4" - 18 NPT (F / vertical) / fixing 7/16 UNF 1/4" - 18 NPT F / fixing M10 1/4" - 18 NPT (F / vertical) / fixing M10 customer consult Valve without 0 with vent with vent (top) 2 with vent (bottom) 3 Material flange, valves, screws, stainless steel 1.4301 (304 SS) 0 2 1 2 9 9 stainless steel 1.4401 (316 SS) customer consult Diaphragm / filling fluid stainless steel 1.4435 (316L) / silicone oil customer consult FKM **EPDM** NBR 5 PTFE customer consult Special version 000 customer 9 9 9 consult

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