

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 switch

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 use in standardised applications, e. g., and the installation in 19" Rack.

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



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Differential Pressure Transmitter

Technical Data

Differential pressure ranges						
sensor	Type	A	B	C	D	E
pressure range P_N diff.		10 mbar	60 mbar	400 mbar	2.5 bar	20 bar
pressure range P_N symmetric (diff.)		± 10 mbar	± 60 mbar	± 400 mbar		
Permissible static pressure		70 bar	400 bar	400 bar	400 bar	400 bar
Output signal / Supply						
Standard		2 wire : 4 ... 20 mA		/	$V_S = 12 \dots 32 V_{DC}$	
Option		Digital: RS 485 with Modbus RTU protocol		/	$V_S = 9 \dots 32 V_{DC}$	
Performance						
Accuracy ¹		$P_N \geq 60$ mbar: $\leq \pm 0.1\%$ FSO				
		$P_N < 60$ mbar: $\leq \pm 0.2\%$ FSO				
Permissible load		$R_{max} = [(U - U_{B \text{ min}}) / 0,02 \text{ A}] \Omega$				
Influence supply		supply: 0.05 % FSO / 10 V				
		load: 0.05 % FSO / k Ω				
Influence static pressure P_N [Pa/100 bar]		10 mbar 18	60 mbar 30	400 mbar 40	2,5 bar 250	20 bar 2000
Influence installation position		max. 400 Pa (can be compensated about zero-point correction)				
		If pressure is under 60 mbar the order has to be in mounted position.				
Long term stability		$P_N \geq 60$ mbar: $\leq \pm 0.05\%$ FSO/ year at reference conditions				
		$P_N < 60$ mbar: $\leq \pm 0.15\%$ FSO/ year at reference conditions				
Sampling rate		250 Hz				
Turn-on time		ca. 260 msec				
Response time (10 ... 90 %)		10 ms				
¹ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)						
Thermal effects (Offset and Span)						
Thermal error (offset and span)		$\leq \pm 0.1\%$ FSO / 10 K				
Compensated range		-20 ... 80 °C				
Permissible temperatures		medium: -25 ... 85°C	electronics / environment: -25 ... 85°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 pressure sensor				
Vibration		5 g RMS (25 ... 2000 Hz)		according to DIN EN 60068-2-6		
Shock		100 g / 1 ms		according to DIN EN 60068-2-27		
Materials						
Pressure port / flange	standard	stainless steel 304 / 1.4301				
	option	stainless steel 316 / 1.4401				others: on request
Diaphragm	standard	stainless steel 316L / 1.4404				others: on request
	option					
Vent and dump valves 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		aluminum die cast with epoxy painting (grey)				others: on request
Cable gland		polyamid				
Seals (media wetted)	standard	FKM				
	option	EPDM, NBR				others: on request
Filling fluids		Silicone oil				others: on request
Media wetted parts		pressure port, seal of pressure port, diaphragm				

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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			
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 switch 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 mm ²)			
Process connections	Standard option	internal thread 1/4" - 18 NPT / fixing 7/16 UNF internal thread 1/4" - 18 NPT / fixing M10		others: on request
Wiring diagram				
2-wire-system (current)		RS 485 / Modbus RTU		
Pin configuration				
2 wire system			RS 485 / Modbus RTU	
Electrical connection	Terminal clamps	M12x1/metal (4-pin)	Electrical connection	Terminal clamps
Supply + Supply -	+ Ub - Ub	1 3	Supply + Supply - A (+) B (-)	+ Ub - Ub A B
Ground	⊥	Plug housing	Ground	⊥
Dimensions (mm / in)				

The specifications given in this document represent the state of engineering at the time of publishing. We reserve the right to make modifications to the specifications and materials.

