BD|SENSORS
pressure measurement

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

BD SENSORS GmbH
BD-Sensors-Straße 1
D - 95199 Thierstein

Tel: +49 (0) 92 35 / 98 11- 0
Fax: +49 (0) 92 35 / 98 11- 11

www.bdsensors.com
info@bdsensors.de

Differencial 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 ... 32 V_{DC}				
Option	Digital: RS 485 with Modbus RTU protocol / V_S = 9 … 32 V_{DC}				
Performance					
Accuracy [1]	$P_N \geq 60$ mbar: ≤ ± 0.1 % FSO $P_N < 60$ mbar: ≤ ± 0.2 % FSO				
Permissible load	$R_{max} = [(U_B - U_{B\,min}) / 0{,}02\ A]\ \Omega$				
Influence supply	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ				
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	PN ≥ 60 mbar: ≤ ± 0.05 %FSO/ year at reference conditions PN < 60 mbar: ≤ ± 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)	≤ ± 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 option	 stainless steel 304 / 1.4301 stainless steel 316 / 1.4401 others: on request				
Diaphragm standard	 stainless steel 316L / 1.4404 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				
Housing	aluminum die cast with epoxy painting (grey) others: on request				
Cable gland	polyamid				
Seals (media wetted) standard option	 FKM EPDM, NBR others: on request				
Filling fluids	Silicone oil others: on request				
Media wetted parts	pressure port, seal of pressure port, diaphragm				

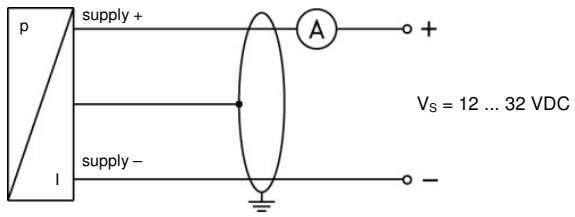
Miscellaneous	
Mounting bracket (optionally)	material C-steel or stainless steel 304 / 1.4401 weight 0,45 kg (incl. bolts and nuts)
Ingress protection	IP 66 / IP 67
Installation position	Any [2]
Weight	approx. 1800 g
Current consumption	approx. 23 mA
CE-conformity	EMC Directive: 2014/30/EU Pressure Equipment 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.

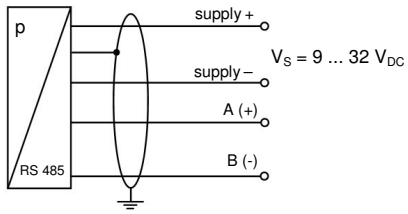
Connections	
Electrical connection	terminal clamps in clamping chamber (for cable-Ø max.2.5 mm²)
Process connections Standard option	 internal thread 1/4" - 18 NPT / fixing 7/16 UNF internal thread 1/4" - 18 NPT / fixing M10 others: on request

Wiring diagram

2-wire-system (current)



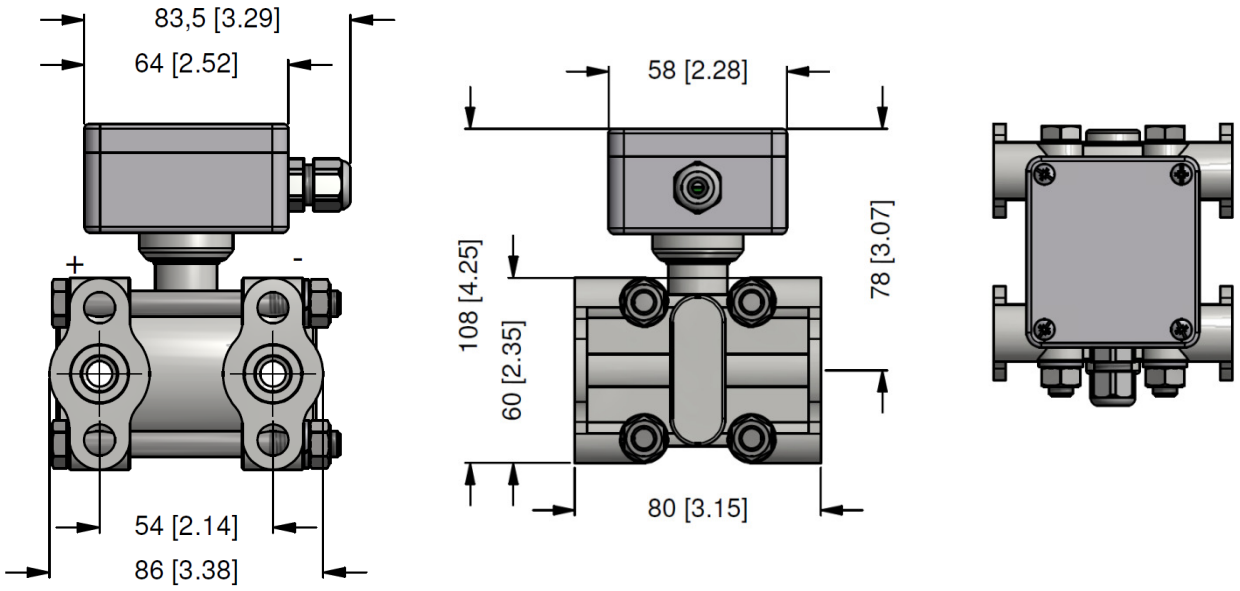
RS 485 / Modbus RTU



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)



Tel: +49 (0) 92 35 / 98 11- 0
Fax: +49 (0) 92 35 / 98 11- 11
www.bdsensors.com
info@bdsensors.de
BD|SENSORS pressure measurement

BD|SENSORS
pressure measurement

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	1 0 0 0	
400 mbar	4 0 0 0	
2.500 mbar	2 5 0 1	
20 bar	2 0 0 2	
customer	9 9 9 9	consult
Output		
4 … 20 mA / 2-wire	1	
Modbus RTU	L5	
customer	9	consult
Accuracy		
$P_N \geq$ 60 mbar: 0,1 % FSO	1	
$P_N <$ 60 mbar: 0,2 % FSO	B	
customer	9	consult
Housing		
Aluminium	L	
customer	9	consult
Electrical connection		
terminals / cable gland M12x1.5	A K 2	
Male plug M12x1 (4-pin) / metal	M 1 7	
customer	9 9 9	consult
Process connection		
1/4" - 18 NPT F / fixing 7/16 UNF	N 2 0	
1/4" - 18 NPT (F / vertical) / fixing 7/16 UNF	N 2 1	
1/4" - 18 NPT F / fixing M10	N 3 0	
1/4" - 18 NPT (F / vertical) / fixing M10	N 3 1	
customer	9 9 9	consult
Valve		
without	0	
with vent	1	
with vent (top)	2	
with vent (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	
customer	9 9	consult
Seals		
FKM	1	
EPDM	3	
NBR	5	
PTFE	4	
customer	9	consult
Special version		
standard	0 0 0	
customer	9 9 9	consult

19.04.2017