

SmartMeasurement's ALDPT series of pressure transmitters come in a variety of configurations such as differential, gauge, absolute and multivariable. It uses advanced capacitance sensor technology and piezo resistive type for absolute pressure. SmartMeasurement's ALDPT family of pressure transmitters feature self-diagnostics, field parameter adjustment, auto-zero and all industry standard capabilities in an economical package. Installation options include a wide variety of flanged and threaded connections. Outputs can be 4-20 mA with optional HART protocol. SmartMeasurement's ALDPT family of pressure transmitters can be used as a standalone or with a variety of flow elements such as V-cone, Orifice, Elbow, Venturi, and Wedge.

- High accuracy, very little temperature effect ( $\pm 0.15\%$  FS/ $10^{\circ}\text{C}$ )
- 100:1 turn-down
- Security lock- parameters
- Advanced diagnostics capabilities
- Large measuring range
- Software compensation
- Available in 316SS, Tantalum and other exotic materials
- Available in either Intrinsically Safe ExialICT4 or Explosion Proof ExdIICT6, ATEX approved
- Auto-zero adjustment
- Analog 4~20 mA<sub>DC</sub> two wire linear output
- HART Protocol available



### STANDARD SPECIFICATIONS

#### Wetted Materials

- Isolating Diaphragm Std:SS# 316L; Opt:Hastelloy C
- Process connection Std:SS# 304

### COMPONENT

- Fill fluid Std:Silicone oil; Opt:Fluorinated
- Enclosure: Aluminum with epoxy resin coating
- Housing Gasket: Perbunan (NBR)
- Tag: SS# 304

### PERFORMANCE SPECIFICATIONS

- Pressure Limits: Vacuum to maximum pressure rating
- Response Time :
  - Amplifier damping constant:0.1s
  - Sensor damping constant:0.1~1.6s, (depends on the range and range compression ratio).
  - Amplifier damping time constant: 0.1~60 s (adjustable)
- Ambient Temperature:-40~+85°C
  - 20~+65°C with LCD display or fluorine rubber seal
- Storage/ship Temperature:-50~+85°C
- with backlit LCD display:-40~+85°C

### INSTALLATION

#### Supply & Load Requirements

- Power supply: 24V<sub>DC</sub>,  $R \leq (U_s - 12V) / I_{max}$  k $\Omega$   
I<sub>max</sub> = 23 mA
- Maximum voltage: 42V<sub>DC</sub>
- Minimum voltage: 12V<sub>DC</sub>  
15V<sub>DC</sub> (with LCD display)
- Electrical Connection
  - M20x1.5 Via cable entry
  - Screw terminals are suitable for wire cross-sections of 0.5~2.5mm<sup>2</sup>
- Process Connections
  - Std: ½" NPT female thread
  - Opt: ½" NPT male, G½" or M20x1.5 male thread
  - KF16 vacuum interface
- Protection: IP67

### WEIGHT

- Pressure transmitter: 1.6kg
- Differential pressure transmitter: 3.3kg
- Note: mounting bracket, connection unit, remote sensor are not included

### PERFORMANCE SPECIFICATIONS

- Accuracy:  $\pm 0.075\%$  (includes linearity, hysteresis, and repeatability)
- Accuracy:  $\pm (0.0075 \times TD)\%$ , (TD = URL/SPAN) > 10
- Measuring Range: Pre-setting range can be via in SPAN
- Zero Adjustment: zero and span adjustable to any point in URL
- Mounting Position Effects: Rotation in diaphragm plane has no effect. Tilting up to 90 degrees will cause zero shift up to 0.25 kPa or 0.15Kpa which can be corrected by the zero adjustment
- Output: 2 wires, 4~20mA<sub>DC</sub>, HART
- Output range:  $I_{min} = 3.9mA$ ,  $I_{max} = 20.5mA$
- Failure Alarm  
Low Mode (min): 3.7 mA  
High Mode (max): 21 mA

### Differential Pressure Transmitter

Measuring Range	-40°C~+85°C temperature effects	Static Pressure Effects	Overload effects	Stability
0~0.1~1KPa	$\pm(0.45 \times TD + 0.25)\% \times \text{Span}$	$\pm(0.15\% \text{URL} + 0.10\% \text{Span}) / 4\text{MPa}$	$\pm 0.2\% \times \text{Span} / 4\text{MPa}$	$\pm 0.5\% \times \text{Span} / \text{year}$
0~0.2~6KPa	$\pm(0.30 \times TD + 0.20)\% \times \text{Span}$	$\pm(0.10\% \text{URL} + 0.075\% \text{Span}) / 16\text{MPa}$	$\pm 0.2\% \times \text{Span} / 16\text{MPa}$	$\pm 0.2\% \times \text{Span} / \text{year}$
Others	$\pm(0.20 \times TD + 0.10)\% \times \text{Span}$	$\pm(0.05\% \text{URL} + 0.05\% \text{Span}) / 16\text{MPa}$	$\pm 0.1\% \times \text{Span} / 16\text{MPa}$	$\pm 0.1\% \times \text{Span} / \text{year}$

### Pressure Transmitter

Measuring Range	-40°C~+85°C temperature effects	Stability	Note: TD = Max Range ÷ Calibrated Range URL = Calibrated Range Span = Max Range
GP 0~0.6~6KPa	$\pm (0.30 \times TD + 0.20)\% \times \text{Span}$	$\pm 0.2\% \times \text{Span} / \text{year}$	
AP 0~2~40KPa	$\pm (0.30 \times TD + 0.20)\% \times \text{Span}$	$\pm 0.2\% \times \text{Span} / \text{year}$	
Others	$\pm (0.20 \times TD + 0.10)\% \times \text{Span}$	$\pm 0.1\% \times \text{Span} / \text{year}$	

#### Max Overload:

Pressure transmitter – check selection guide

Differential Pressure Transmitter

- One direction overload: up to max static pressure
- Static pressure: 3.5kPa AP to static pressure, broken pressure > static pressure \*1.5, for both directions

#### Over Temperature effects:

$\pm 0.075\% \times \text{Span}$

#### Power supply effects:

$\pm 0.001\% / 10V (12 \sim 42V_{DC})$

#### EMC:

As shown below 《EMC Performance Table》

### EMC Performance Table

Item	Test Items	Basic standards	Test conditions	Performance Level
1	Radiated interference (Housing)	IEC55022 CISPR 22	30MHz~1000MHz	OK
2	Conducted interference	IEC55022 CISPR 22	0.15MHz~30MHz	OK
	(DC power port)			
3	Electrostatic Discharge (ESD) Immunity	IEC61000-4-2	4kV(line)	B
			8kV(Air)	
4	RF electromagnetic field immunity	IEC61000-4-3	10V/m (80MHz~1GHz)	A
5	Frequency magnetic field immunity	IEC61000-4-8	30A/m	A
6	Electrical Fast Transient Burst Immunity	IEC61000-4-4	2kV (5/50ns, 5kHz)	B
7	Surge Immunity	IEC61000-4-5	1kV (line to line)	B
			2kV (line to ground) (1.2us/50us)	
8	Conducted interference immunity induced by RF field	IEC61000-4-6	3V (150KHz~80MHz)	A

Note: (1) Performance level A description: The technical specifications within the limits of normal performance.

(2) Performance level B description: After temporary reduction or loss of functionality or performance, it will restore itself. The actual operating conditions, storage, and data will not be changed.



- ALDPT GP - Gauge Pressure Transmitter
- ALDPT AP - Absolute Pressure Transmitter

- Fluids: gas; steam, liquid
- Measuring Range: 0 -600pa~40Mpa
- Accuracy:  $\pm 0.075\%$ ,  $\pm 0.2\%$ ,  $\pm 0.5\%$
- Isolation Diaphragm: SS# 316L, Hastelloy C

### ■ ALDPT DP - Differential Pressure Transmitter

- Fluids; gas, steam, liquid
- Measuring Range: 0 -100pa~3Mpa
- Accuracy:  $\pm 0.075\%$ ,  $\pm 0.2\%$ ,  $\pm 0.5\%$
- Isolation Diaphragm: SS# 316L, Hastelloy C, Tan, gold plated, FEP coating



### ■ ALDPT MV - Multivariable DP/Flow Transmitter

- Fluids: gas, steam, liquid
- Measuring Range: 0 -200pa~3Mpa
- Accuracy:  $\pm 0.075\%$ ,  $\pm 0.1\%$
- Isolating Diaphragm: SS# 316L, Hastelloy C, Tan

Please provide the name of your fluid, including operating density and viscosity

Working temperature, pressure measuring range and connection

Output and communication

ALDPT GP/AP	**_	**_	**_	**_	**_	**_	**_	**_	**_	**_	**_	**_	
Pressure transmitter	GP											ALDPT	
Absolute pressure transmitter	AP												
	GP	AP											Measuring range
0~0.6~6KPa (0~6~60mbar)	3	-											
0~2~40KPa (0~20~400mbar)	4	4											
0~2.5~250KPa (0~25~2500mbar)	5	5											
0~30kPa~3MPa (0~0.3~30bar)	6	6											
0~0.1~10MPa (0~1~100bar)	7	-											
0~0.21~21MPa (0~2.1~210 bar)	8	-											
0~0.4~40MPa (0~4~400 bar)	9	-											
0~0.6~60MPa (0~6~600 bar)	0	-											
4~20mA <sub>DC</sub> with keystroke set up			S										Output signal
Intelligent 4~20mA <sub>DC</sub> with keystroke and HART			I										
Intelligent 4~20mA <sub>DC</sub> with keystroke and RS485			M										
No display			M1										Display
LCD Display w/backlighting			M4										
SS# 316 Isolation diaphragm, Silicon oil Fill fluid			22										Construction material
Hastelloy C Isolation diaphragm, Silicon oil Fill fluid			23										
Other material			**										
½" NPT female thread - standard			S										Connection
½" NPT male thread (¼" NPT to be selected)			N										
M20*1.5 male thread			M										
G ½" male thread			G										
Vacuum connection - DIN 28403 KF16 / ISO 2861			V										
Other Option			***										
Standard (without explosion proof)			S										Approval
NEPESI Isolated explosion Ex ia			I										
NEPESI Isolated explosion ExdIIBT5 or ExdIICT6			D										
ATEX isolated explosion Ex ia			AI										
ATEX Explosion Ex id			AD										
0.2%			2										Accuracy
0.5%			5										
0.075% (not for remote)			7										
None			N										Options
SS# 304 - bending bracket for pipe installation (2" pipe)			1										
Carbon steel galvanized - bending bracket for pipe installation (2" pipe)			2										
Scrub for oxygen service (only for fluorinated oil, viton gasket, <6Mpa, +60°C)			O										

Please provide the name of your fluid, including operating density and viscosity

Working temperature, pressure measure range and connection

Output and communication

ALDPT DP	**_	**_	**_	**_	**_	**	**_	**_	**_	**_	**_			
Δ pressure transmitter	DP													
0-100Pa~1kPa /(0-1~10mbar)	2											Measuring Range		
0-200Pa~6kPa /(0-2~60mbar)	3													
0-400Pa~40kPa /(0-20~400mbar)	4													
0-2.5kPa~250kPa /(0-25~2500mbar)	5													
0~30~3MPa/0-0.3~30bar	6													
Up to 16 MPa	2											Static pressure		
Up to 25 MPa	3													
Up to 40 MPa	4													
4~20mA <sub>DC</sub> with keystroke set up						S						Output Signal		
4~20mA <sub>DC</sub> with keystroke and RS485						I								
4~20mA <sub>DC</sub> output is $\sqrt{\Delta P}$ and HART						F								
No Display							M1					Display		
LCD Display w/backlighting							M4							
SS# 316 Isolation diaphragm, Silicon oil Fill fluid							22					Construction Material		
Hastelloy C Isolation diaphragm, Silicon oil Fill fluid							23							
Other Material							**							
7/16-20 UNF and 1/4-18 NPT female thread, no relief valve								S				Drain/Vent Valve		
7/16-20 UNF and 1/4-18 NPT female thread, Relief valves at end of flanges								B						
7/16-20 UNF and 1/4-18 NPT female thread, Relief valves at upper part of the flanges								T						
7/16-20 UNF and 1/4-18 NPT female thread, Relief valves at lower part of the flanges								U						
Perbunan (NBR)									N			Connector gasket (wetting part)		
Viton (FKM)									F					
Teflon (PTFE)									P					
Standard (without explosion proof)										S		Approvals		
NEPESI Isolated explosion Ex ia										I				
NEPESI Isolated explosion ExdIICT5 or ExdIICT6										D				
ATEX Isolated Explosion Ex ia										AI				
ATEX Explosion Ex id										AD				
0.2%											2	Accuracy		
0.5%											5			
0.075% (not for remote)											7			
None												N	Options	
SS #304 - bending bracket for pipe installation (2" pipe)														1
Carbon steel galvanized - bending bracket for pipe installation (2" pipe)														2
Connection adapter - SS# 304 oval-shaped flange with 1/2" NPT female thread														3
Connection adapter - SS# 304 D-shaped connector with M20x1.5 male thread														4
Scrub for oxygen service (only for fluorinated oil, viton gasket, <6Mpa, <60°C)														O
SS #304 2 way Valve Manifold - 1/2 NPT thread														2V
SS #304 3 way Valve Manifold - 1/2 NPT thread														3V
SS #304 5 way Valve Manifold - 1/2 NPT thread														5V
SS #316 2 way Valve Manifold - 1/2 NPT thread														2VA
SS #316 3 way Valve Manifold - 1/2 NPT thread														3VA
SS #316 5 way Valve Manifold - 1/2 NPT thread														5VA

Please provide the name of your fluid, including operating density and viscosity

Working temperature, pressure measure range and connection

Output and communication

ALDPT-MV-	**_	**_	**_	**_	**_	**	**_	**_	**_	**_	
0~0.2~6KPa	3										Measuring Range
0~0.4~40KPa	4										
0~2.5~250KPa	5										
0~20~2000KPa	6										
0.25 MPa	1										Static Pressure Sensor
2 MPa	2										
10 MPa	3										
40 MPa	4										
SS# 316L Isolation diaphragm, Silicon oil Fill fluid				22							Construction Material
Hastelloy C Isolation diaphragm, Silicon oil Fill fluid				23							
SS# 316L Isolation diaphragm, Fluorinated oil Fill fluid				32							
Hastelloy C Isolation diaphragm, Fluorinated oil Fill fluid				33							
4~20mA <sub>DC</sub> with keystroke set up					S						Output Signal
4~20mA <sub>DC</sub> with keystroke and RS485					I						
No Display						M1					Display
LCD Display w/backlighting						M4					
Perbunan (NBR)							N				Connector Gasket (wetting part)
Viton (FKM)							F				
Teflon (PTFE)							P				
¾-20 UNF and ¼-18 NPT female thread, no relief valve							S				Drain/Vent Valve
¾-20 UNF and ¼-18 NPT female thread, Relief valves at end of flanges							B				
¾-20 UNF and ¼-18 NPT female thread, Relief valves at upper part of the flanges							T				
¾-20 UNF and ¼-18 NPT female thread, Relief valves at lower part of the flanges							U				
Standard (without explosion proof)							S				Approvals
NEPESI Isolated explosion Ex ia							I				
NEPESI Isolated explosion ExdIIBT5 or ExdIICT6							D				
ATEX Isolated Explosion Ex ia							AI				
ATEX Explosion Ex id							AD				
0.2%									2		Accuracy
0.5%									5		
None										N	Options
SS #304 - bending bracket for pipe installation (2" pipe)										1	
Carbon steel galvanized - bending bracket for pipe installation (2" pipe)										2	
Connection adapter - SS# 304 oval-shaped flange with ½" NPT female thread										3	
Connection adapter - SS# 304 D-shaped connector with M20x1.5 male thread										4	
Scrub for oxygen service (only for fluorinated oil, viton gasket, <6Mpa, <60°C)										O	
SS #304 2 way Valve Manifold - ½ NPT thread										2V	
SS #304 3 way Valve Manifold - ½ NPT thread										3V	
SS #304 5 way Valve Manifold - ½ NPT thread										5V	
SS #316 2 way Valve Manifold - ½ NPT thread										2VA	
SS #316 3 way Valve Manifold - ½ NPT thread										3VA	
SS #316 5 way Valve Manifold - ½ NPT thread										5VA	