

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<br>URL = Calibrated Range<br>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<br>(DC power port)           | IEC55022 CISPR 22 | 0.15MHz~30MHz   | OK                |
| 3    | Electrostatic Discharge (ESD) Immunity              | IEC61000-4-2      | 4kV(line)<br>8kV(Air)                                   | B                 |
| 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)<br>2kV (line to ground) (1.2us/50us) | B                 |
| 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-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 |     |     |     |     |    |     |     |     |     |     |                                 |