ALDPT

Pressure Transmitter
Differential Pressure Transmitter
Model ALDPT Series

GENERAL

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 standarded capabilities in an economical package. Installation options includes 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 V-cone, Orifice, Elbow, Venturi, and Wedge.

FEATURES

- High accuracy, very little temperature effect (±0.15% FS/10°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 ExiaIICT4 or Explosion Proof ExdIICT6, ATEX approved
- Auto-zero adjustment
- Analog 4~20 mA_{DC} two wire linear output
- HART Protocol available

SPECIFICATIONS

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

INSTAL LATION

Supply & Load Requirements

- Power supply: $24V_{DC}$, R≤ (U_S-12V)/Imax kΩ
  I_{max}=23 mA
- Maximum voltage: $42V_{DC}$
- Minimum voltage: $12V_{DC}$
  $15V_{DC}$ (with LCD display)
- Electrical Connection
  M20x1.5 Via cable entry
  Screw terminals are suitable for wire cross-sections of 0.5~2.5mm^2
- 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: ± 0.075% (includes linearity, hysteresis, and repeatability)
- Accuracy: ± (0.0075×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 $_{DC}$, 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	±(0.45×TD+0.25)%×Span	±(0.15%URL+0.10%Span)/4MPa	±0.2%×Span/4MPa	±0.5%×Span/year
0~0.2~6KPa	±(0.30×TD+0.20)%×Span	±(0.10%URL+0.075%Span)/16MPa	±0.2%×Span/16MPa	±0.2%×Span/year
Others	±(0.20×TD+0.10)%×Span	±(0.05%URL+0.05%Span)/16MPa	±0.1%×Span/16MPa	±0.1%×Span/year

Pressure Transmitter

Measuring Range	-40°C~+85°C temperature effects	Stability	
GP 0~0.6~6KPa	± (0.30×TD+0.20)%×Span	±0.2%×Span/year	Note:TD = Max Range ÷ Calibrated Range URL = Calibrated Range Span = Max Range
AP 0~2~40KPa	± (0.30×TD+0.20)%×Span	±0.2%×Span/year	
Others	± (0.20×TD+0.10)%×Span	±0.1%×Span/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 pressue > static pressure *1.5, for both directions

Over Temperature effects:

±0.075% × Span

Power supply effects:

±0.001% /10V (12~42V_{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 (DC power port)	IEC55022 CISPR 22	0.15MHz~30MHz	OK
3	Electrostatic Discharge (ESD) Immunity	IEC61000-4-2	4kV(line) 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) 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: ±0.075%, ±0.2%, ±0.5%
  - Isolation Diaphragm: SS# 316L, Hastelloy C

- ALDPT DP - Differential Pressure Transmitter

  - Fluids; gas, steam, liquid
  - Measuring Range: 0 -100pa~3Mpa
  - Accuracy: ±0.075%, ±0.2%, ±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: ±0.075%, ±0.1%
  - Isolating Diaphragm: SS# 316L, Hastelloy C, Tan

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Pressure Transmitter: ALDPT GP/AP

TYPE OF FLUID	Please provide the name of your fluid, including operating density and viscosity
PROCESS PRESSURE & TEMPERATURE	Working temperature, pressure measuring range and connection
TYPE OF ELECTRONICS	Output and communication

ALDPT GP/AP	**-	**-	**-	**-	**-	**-	**-	**-	**-	**-	**-	DESCRIPTION
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 $_{DC}$ with keystroke set up				S								Output signal
Intelligent 4~20mA $_{DC}$ with keystoke and HART				I								
Intelligent 4~20mA $_{DC}$ 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		

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Pressure Transmitter: ALDPT DP

TYPE OF FLUID	Please provide the name of your fluid, including operating density and viscosity
PROCESS PRESSURE & TEMPERATURE	Working temperature, pressure measure range and connection
TYPE OF ELECTRONICS	Output and communication

ALDPT DP	**_	**_	**_	**_	**_	**	**_	**_	**_	**_	**_	DESCRIPTION
△ 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 $_{DC}$ with keystroke set up				S								Ouput Signal
4~20mA $_{DC}$ with keystroke and RS485				I								
4~20mA $_{DC}$ 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 ¼-18 NPT female thread, no relief valve							S					Drain/Vent Valve
7/16-20 UNF and ¼-18 NPT female thread, Relief valves at end of flanges							B					
7/16-20 UNF and ¼-18 NPT female thread, Relief valves at upper part of the flanges							T					
7/16-20 UNF and ¼-18 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 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	
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	

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Multivariable DP Transmitter: ALDPT MV

TYPE OF FLUID	Please provide the name of your fluid, including operating density and viscosity
PROCESS PRESSURE & TEMPERATURE	Working temperature, pressure measure range and connection
TYPE OF ELECTRONICS	Output and communication

ALDPT-MV-	**_	**_	**_	**_	**_	**	**_	**_	**_	**_	DESCRIPTION
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 $_{DC}$ with keystroke set up				S							Ouput Signal
4~20mA $_{DC}$ 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					
7/16-20 UNF and ¼-18 NPT female thread, no relief valve							S				Drain/Vent Valve
7/16-20 UNF and ¼-18 NPT female thread, Relief valves at end of flanges							B				
7/16-20 UNF and ¼-18 NPT female thread, Relief valves at upper part of the flanges							T				
7/16-20 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	