

Introduction

501D Series Automat Differential pressure transmitter is the part of series 501, consisting of certified electronic. 501D series SMART DP transmitters are microprocessor- based instruments that combine the analog signal advantages with (4 - 20 mA) together with the flexibility of digital communication using HART® protocol. The DP Transmitter can be configured by using Universal Hand Held HART communicator (HHT) or by Computer (PC) with dedicated Automat software. 501D series capacitive smart transmitter are new generation intelligent transmitters. It applies the sensor kernel with ROSEMOUNT® technology as well as the advance digital technology developed by M/s V. Automat & Instruments Pvt. Ltd. The Automat DP transmitter series 501D spans from 0-20mm H₂O to 70 Kg/Cm².



Description :

The medium pressure is transferred to the measuring chaff in the center of the chamber. The medium pressure is transferred to the measuring chaff which is elastic element used to check and measure the pressure acted on it. The displacement of the measuring chaffs (Max. 0.004inch(0.10mm)) is in direct proportion to the differential pressure. The position of the measuring chaff is detected by the fixed capacitive plates at two sides by means of direct digital capacitive circuit.

The electronic signal is ambient, temperature compensated and amplified by the differential amplifier. The signal pass filter dampens the effects of process turbulence and prevents saturation of the dc amplifier and the current driver. The dc amplifier provides non interacting Zero and Span adjustments.

We adopt the principle of replacing analog signal amplifying circuit and A/D conversion circuit with direct digital capacitive circuit, and meantime take the digital compensation technology to compensate temperature and static pressure, which greatly improves the measurement precision and reduces the temperature drift. The complete unit transmitter is characterized by its small size, high reliability and long-term stability. With extremely high performance price ratio this Microprocessor based digital smart DP transmitter is maintenance free & accurate. The circuit within the transmitter provides Reverse polarity protection, Transient power surge protection, and Electromagnetic interference (EMI) protection. Apart from flow measurement, DP transmitter can also be used to measure level and pressure.

Range:

- | | |
|-------------------------------------|--------------------------------------|
| 3) (0-20~715mmH ₂ O) | 6) (0-0.18~7kgf/cm ²) |
| 4) (0-96~3810 mmH ₂ O) | 7) (0-0.525~21kgf/cm ²) |
| 5) (0-477~19050 mmH ₂ O) | 8) (01-1.75~70 kgf/cm ²) |

Overpressure Limit: The transmitter will not be damaged when 0 (absolute pressure) ~100kg/cm² is applied to any side of the transmitter. The flange can bear the pressure of 200kg/cm². The normal operating pressure ranges from 3.45kPa (absolute pressure) to the upper limit of the transmitter range.

Migration Characteristic : Under whatever output conditions, neither the upper limit nor the lower limit of the range can exceed the range limit after positive/negative migration.

Technical Specification

1. **Range** : Refer table
2. **Volume deviation** : less than 0.16cm³
3. **Zero Adjustment** : ± 15% of Span
4. **Span Limited** : 25% of range
5. **Damping** : 0.2-32 s Adjustable
6. **Output Signal** : 4-20 mA dc with linear & square root output obtained by software
7. **Reference Accuracy** : Repeatability, Hysteresis & Non Linearity: ± 0.25% of full scale. (±0.15%on request)
8. **Range Ratio** : 10:1
9. **Power Supply** : External 24V DC (range 12-45V DC)
Maximum: a) 35 V dc for Explosion proof housing.
b) 30 V dc for intrinsically safe housing
10. **Load Resistance** : 600 ohms at 24V DC.
11. **Power supply effect** : Less than +0.005%/Volt of output range
12. **Temp Limit** : 85° C of maximum range
13. **Process Connection** : ½" NPT Female.
14. **Electrical Connection** : ½" - 14 NPT.
15. **Elect. Classification** : a) Weather proof IP 66 (To be designated as W).
b) Explosion proof: Ex 'd' zone 1 & 2, II c T6 (to be designated as E).
c) Intrinsically safe (To be designated as I)

Differential Pressure (Flow) Transmitter

501D		Intelligent Differential Pressure (Flow) Transmitter				
	Code	Measurement Range				
	3)	(0-20~715mmH ₂ O)				
	4)	(0-96~3810 mmH ₂ O)				
	5)	(0-477~19050 mmH ₂ O)				
	6)	(0-0.18~7kgf/cm ²)				
	7)	(0-0.525~21kgf/cm ²)				
	8)	(01-1.75~70 kgf/cm ²)				
	Code	Output				
	E	4-20mA DC linear output superimposed with HART Protocol digital signal				
	J	4-20mA DC square root output superimposed with HART protocol digital signal				
	Code	Material				
		Flange Coupling	Drain Tap	Isolation Chaff	Filling Liquid	
	22	316L SST	316L SST	316L SST	Silicone oil	
	23	316L SST	316L SST	Hastelloy C	Silicone oil	
	24	316L SST	316L SST	Monel	Silicone oil	
	25	316L SST	316L SST	Tantalum	Silicone oil	
	33	Hastelloy C	Hastelloy C	Hastelloy C	Silicone oil	
	35	Hastelloy C	Hastelloy C	Tantalum	Silicone oil	
	44	Monel	Monel	Monel	Silicone oil	
	Code	Optional Parts				
	M	LCD display				
	B1	Bend bracket for pipe-type				
	B2	Bend bracket for disk-type				
	B3	Flat bracket for pipe-type				
	D1	With flange drain tap on the top				
	D2	With flange drain tap on the bottom				
	Y	½ NPT				
	N	1/4 NPT				
	W	Weather Proof				
	E	Explosion proof				
	I	Intrinsically				

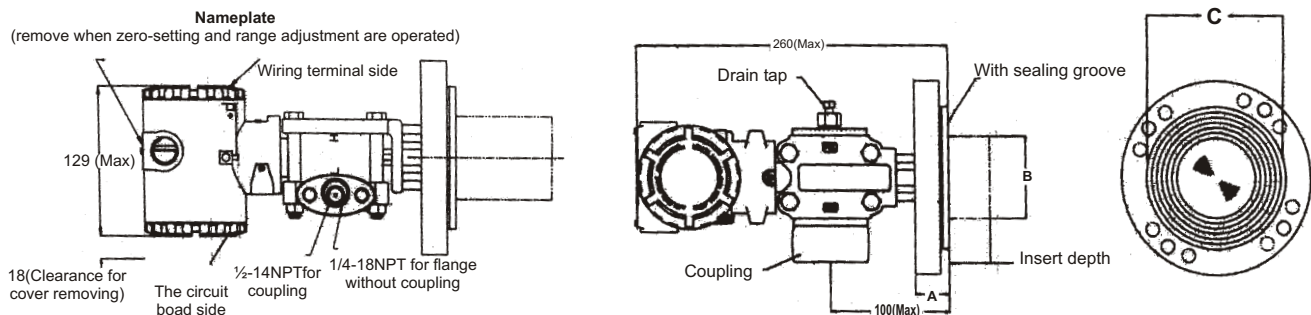
DIFFERENTIAL PRESSURE LEVEL TRANSMITTERS

Series 501D

Technical Specification

1. **Range** : Refer Table
2. **Volume deviation** : less than 0.16cm³
3. **Zero Adjustment** : ±15% of Span
4. **Span Limited** : 25% of range
5. **Damping** : 0.2-32 s Adjustable
6. **Output Signal** : 4-20 mA dc linear output superimposed with HART protocol digital signal (Two wire system)
7. **Reference Accuracy** : Repeatability, Hysteresis & Non Linearity: ± 0.25% of full scale. (±0.15% on demand)
8. **Range Ratio** : 10:1
9. **Power Supply** : External 24V DC (range 12-45V DC)
Maximum: a) 35 V dc for Explosion proof housing.
 b) 30 V dc for intrinsically safe housing
10. **Load Resistance** : 600 ohms at 24V DC.
11. **Power supply effect** : Less than +0.005%/Volt of output range
12. **Temp Limit (Operating)** : 85° C of maximum range
13. **Temp Limit (Process)** : 145° C with Silicon Oil Medium
14. **Vibration Effect** : ± 0.05%/g of the maximum range in axial at the frequency of 200Hz.
15. **Electromagnetic Radiation** : In conformity with IEC801
16. **Process Connection** : ½ " NPT Female.
17. **Electrical Connection** : ½" - 14 NPT.
18. **Elect. Classification** : a) Weather proof IP 66 (To be designated as W).
 b) Explosion proof: Ex 'd' zone 1 & 2, II C T6 (to be designated as E).
 c) Intrinsically safe (To be designated as I)
19. **Migration Characteristic** : Under whatever output conditions, neither the upper limit nor the lower limit of the range can exceed the range limit after positive/negative migration.
20. **Static Pressure and Overpressure Limit**
 150lb flange: 15kg/cm² (at 37° C filled with silicon oil)
 300lb flange: 30kg/cm² (at 37° C filled with silicon oil)
21. **Connecting Fitting for Process Pressure**
 High -pressure side : 3" or 4" 150lb flange or 300lb flange.
 Low -pressure side : The connecting thread of the flange is 1/4-18NPT (taper-pipe-thread).
 The connecting thread of the joint is ½-14NPT (taper-pipe-thread)

Flange Size (mm)							Bolt hole (mm)		
Code	Size	Specification	Diameter	A	B	C	Amount	Diameter	Distribution diameter
A	3"	150lb	190.5	30	66	127	4	19	152
B	4"	150lb	228.6	30	89	157	8	19	190
C	3"	300lb	209.6	35	66	127	8	22.2	168
D	4"	300lb	254	38	89	157	8	22.2	200



501DL Smart Flange Liquid Level Transmitters Catalogue

Intelligent Flange Liquid Level Transmitter

501DL		501DL Intelligent Flange Liquid Level Transmitter			
Code	Measurement Range				
4)	0-20 ~ 300mm H ₂ O				
5)	0-50 ~ 1300mm H ₂ O				
6)	0-130 ~ 5000mm H ₂ O				
7)	For Higher Ranges Contact factory				
Code	Output				
E	4-20mA DC linear output superimposed with HART Protocol digital signal				
Code	Size	Length Inserted	Material of Chaff at High Pressure Side		
A0	3"	0	316L SST		
A2	3"	50.8 mm (2 inch)	316L SST		
A4	3"	101.6 mm (4 inch)	316L SST		
A6	3"	152.4 mm (6 inch)	316L SST		
B0	4"	0	316L SST		
B2	4"	50.8 mm (2 inch)	316L SST		
B4	4"	101.6 mm (4 inch)	316L SST		
B6	4"	152.4 mm (6 inch)	316L SST		
C0	3"	0	Hastelloy C		
C2	3"	50.8mm (2 inch)	Hastelloy C		
C4	3"	101.6mm (4 inch)	Hastelloy C		
C6	3"	152.4mm (6 inch)	Hastelloy C		
D0	3"	0	Hastelloy C		
D2	3"	50.8mm (2 inch)	Hastelloy C		
D4	3"	101.6mm (4 inch)	Hastelloy C		
D6	3"	152.4mm (6 inch)	Hastelloy C		
E0	3"	0	Tantalum		
F0	4"	0	Tantalum		
Code	Installation Flange				
A	3" 150 lb				
B	4" 150 lb				
C	3" 300 lb				
D	4" 300 lb				
Code	Flange Coupling	Material			
Code	Flange Coupling	Isolation Chaff			
22	316L SST	316L SST			
23	316L SST	Hastelloy C			
25	316L SST	Tantalum			
33	Hastelloy C	Hastelloy C			
35	Hastelloy C	Tantalum			
2A	316L SST	316L SST			
2B	316L SST	Hastelloy C			
2D	316L SST	Tantalum			
3B	Hastelloy C	Hastelloy C			
3D	Hastelloy C	Tantalum			
Code	Filling Liquid at High Pressure Side	Operation Temperature (°C)			
D	Silicone oil	-40~149			
F	Inert liquid	-18~204			
S	Syltherm800 silicone oil	-40~205			
Code	Optional Parts				
U	M4	LCD display			

V. AUTOMAT & INSTRUMENTS (P) LTD.

AUTOMAT HOUSE, F-61, Okhla Industrial Area, Phase-I, New Delhi - 110 020, INDIA
 Phone : 26810307, 26810280, 26816349, 26817268, 26817820, Fax : 091-11-26819440

Grams : SWITCH E-mail : vautomat@airtelbroadband.in ; vautomat@vsnl.com Website : www.vautomatindia.com

MARKETING OFFICES IN BARODA, MUMBAI, KOLKATA, JAMSHEDPUR, SECUNDERABAD & CHENNAI

See Website for address (Specifications Subject to change without prior notice)