



# ALIADP

## Smart Differential Pressure Level Transmitter

### Model ADP9000L Series

## GENERAL

**ALIADP** The ADP9000L Series is a digital differential pressure transmitter designed for industrial level measurement applications. The ADP9000L can be configured to provide integrated solutions for a broad range of pressure and flow measurement applications.

## FEATURES

- Updating time of output current in 200 ms
- Improved performance, increased accuracy and greater stability
- Two years stability of 0.15%
- 0.075% accuracy
- Parameter setting by keypad directly
- 4-20 mA output plus direct digital HART communication
- Automatic zero calibration by push-button
- Explosion proof and weather proof housing

## STANDARD SPECIFICATION

- Process Fluid : Liquid, Gas, Vapor
- Application : Liquid Level, Differential Pressure, Gauge Pressure, Absolute Pressure
- Measuring Range : 0-6.0 kPa~0-40 kPa (Minimum)  
: 0-4.0 MPa~0-20.0 MPa (Maximum)
- Turndown Ratio : 100:1
- Accuracy : +/-0.075% of span
- Stability : +/-0.15% of URL for 2 years
- Working Temperature : -40~250 °C
- Max. Pressure : 40 MPa (Dependent on flange rating)
- Material
  - Flange / Adapter : Carbon Steel / Stainless Steel 304 / Stainless Steel 316
  - Diaphragm : Stainless Steel 316L / Hastelloy B / Hastelloy C / Monel / Tantalum
  - Extended Tube : Stainless Steel 316
  - Bolts & Nuts : Carbon Steel / Stainless Steel 316
  - Name / Tag Plate : Stainless Steel 304 / Stainless Steel 316
  - Converter Housing : Low copper cast aluminum alloy with polyurethane, light blue paint
  - Fill Fluid : Silicone Oil / High Temperature Silicone Oil  
Fluorine Oil / Vegetable Oil
- Protection Class : IP67 (Standard)  
: Intrinsically Safe, Eex ia IIC T5 (Standard)  
: Explosion Proof, Ex d IIB T5



- Display : 5 Digits programmable & 0-100% Bargraph
- Display Unit : Standard 22 different engineering unit  
5 Digits programmable for special unit
- Keypad : 3 Internal keys for programming and output setting
- Current Output : 4-20 mA 2 wires  
with Hart Signal (Compatible)  
Load :  $R_{ohm} = (VDC-9) * 50$
- Power Supply : 9-36 VDC
- Digital Communication : Hart Protocol
- Damping : 0-32 Seconds
- Response Time : 100 ms
- Turn on Time : 2 Seconds with minimum damping
- Zero Calibration : Automatic calibration by push-button
- Cable Entry : 1/2" NPT (Female) / M20 Conduit Threads
- Temperature Effect : +/-0.18%~+/-0.5% of span per 20 °C
- EMI / RFI Effect : Follow SAMA PMC 33.1 from 20-1000 MHz and for field strengths up to 30 V/m
- Process Connection
  - High Pressure Side : 1-1/2", 2", 3", 4" Flanges  
ANSI / DIN / JIS / Tri-Clamp
  - Extended Diaphragm : 2", 4", 6" length
  - Low Pressure Side : 1/4"-18 NPT , 1/2"-14 NPT
- Ambient Temperature : -25~85 °C
- Dimensions : 102 mm (W) \* 188 mm (H) \* 189 mm (D)
- Weight : 8-15 kg



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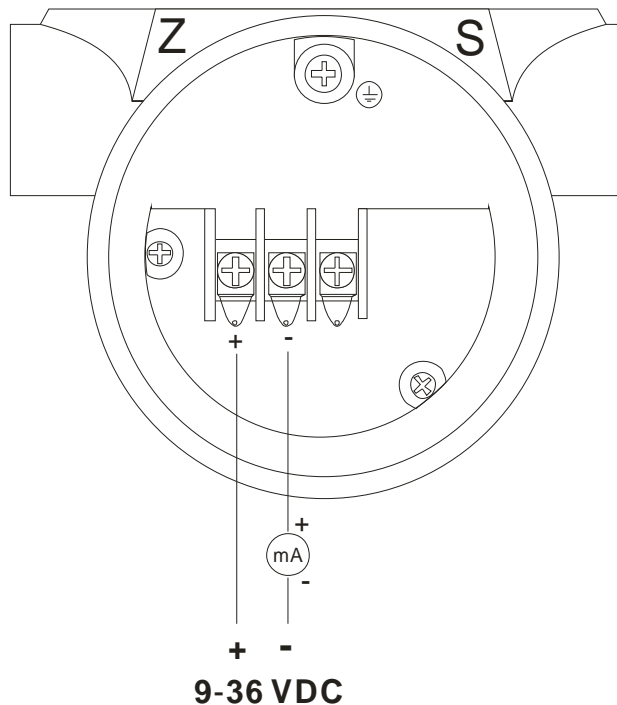


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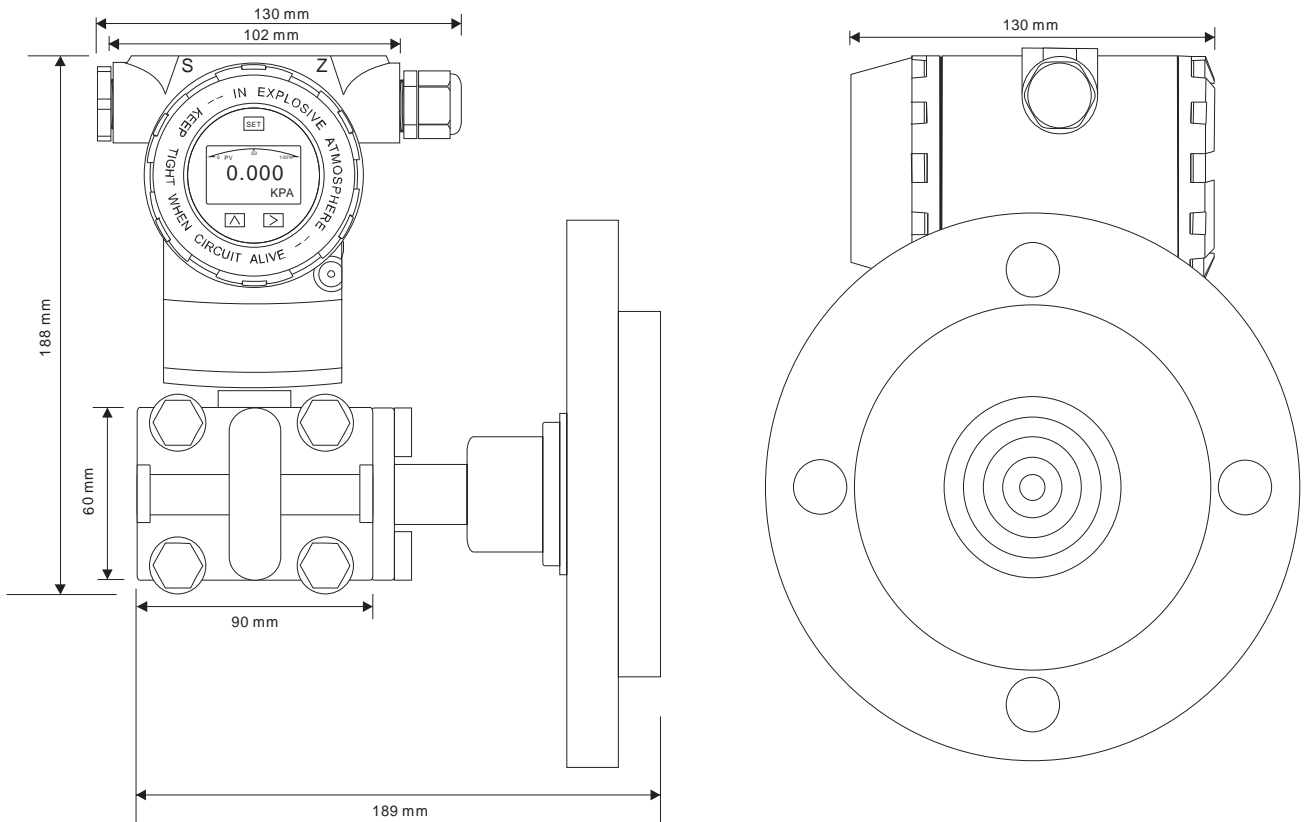
**MEASURING RANGE**

| Range Code | Pressure Range |              |                             |                              | Transmitter           |                |                   |
|------------|----------------|--------------|-----------------------------|------------------------------|-----------------------|----------------|-------------------|
|            | Low Range      | High Range   | Low Range                   | High Range                   | Differential Pressure | Level Pressure | Absolute Pressure |
| 4          | 0-6.0 kPa      | 0-40 kPa     | 0-611.82 mmH <sub>2</sub> O | 0-4078 mmH <sub>2</sub> O    | ◆                     | ◆              | ◆                 |
|            | 0-60 mbar      | 0-400 mbar   | 0-24.088 inH <sub>2</sub> O | 0-160.6 inH <sub>2</sub> O   |                       |                |                   |
|            | 0-0.87 psi     | 0-5.802 psi  | 0-0.061 kgf/cm <sup>2</sup> | 0-0.408 kgf/cm <sup>2</sup>  |                       |                |                   |
| 5          | 0-40 kPa       | 0-200 kPa    | 0-4.079 mH <sub>2</sub> O   | 0-20.39 mH <sub>2</sub> O    | ◆                     | ◆              | ◆                 |
|            | 0-400 mbar     | 0-2000 mbar  | 0-160.6 inH <sub>2</sub> O  | 0-802.9 inH <sub>2</sub> O   |                       |                |                   |
|            | 0-5.802 psi    | 0-29.0 psi   | 0-0.408 kgf/cm <sup>2</sup> | 0-2.039 kgf/cm <sup>2</sup>  |                       |                |                   |
| 6          | 0-160 kPa      | 0-1000 kPa   | 0-16.32 mH <sub>2</sub> O   | 0-101.97 mH <sub>2</sub> O   | ◆                     | ◆              | ◆                 |
|            | 0-1.6 bar      | 0-10 bar     | 0-642.3 inH <sub>2</sub> O  | 0-4014 inH <sub>2</sub> O    |                       |                |                   |
|            | 0-23.21 psi    | 0-145 psi    | 0-1.632 kgf/cm <sup>2</sup> | 0-10.197 kgf/cm <sup>2</sup> |                       |                |                   |
| 7          | 0-400 kPa      | 0-2500 kPa   | 0-40.79 mH <sub>2</sub> O   | 0-254.9 mH <sub>2</sub> O    | ◆                     | ◆              | ◆                 |
|            | 0-4.0 bar      | 0-25 bar     | 0-1605 inH <sub>2</sub> O   | 0-10036 inH <sub>2</sub> O   |                       |                |                   |
|            | 0-58.02 psi    | 0-362.6 psi  | 0-4.079 kgf/cm <sup>2</sup> | 0-25.49 kgf/cm <sup>2</sup>  |                       |                |                   |
| 8          | 0-1.6 MPa      | 0-8.0 MPa    | 0-163.1 mH <sub>2</sub> O   | 0-815.76 mH <sub>2</sub> O   |                       | ◆              |                   |
|            | 0-16 bar       | 0-80 bar     | 0-6423.4 inH <sub>2</sub> O | 0-32117 inH <sub>2</sub> O   |                       |                |                   |
|            | 0-232.1 psi    | 0-1160.3 psi | 0-16.32 kgf/cm <sup>2</sup> | 0-81.578 kgf/cm <sup>2</sup> |                       |                |                   |
| 9          | 0-4.0 MPa      | 0-20 MPa     | 0-407.9 mH <sub>2</sub> O   | 0-2039.4 mH <sub>2</sub> O   |                       | ◆              |                   |
|            | 0-40 bar       | 0-200 bar    | 0-16059 inH <sub>2</sub> O  | 0-80292.6 inH <sub>2</sub> O |                       |                |                   |
|            | 0-580.2 psi    | 0-2901 psi   | 0-40.79 kgf/cm <sup>2</sup> | 0-203.94 kgf/cm <sup>2</sup> |                       |                |                   |

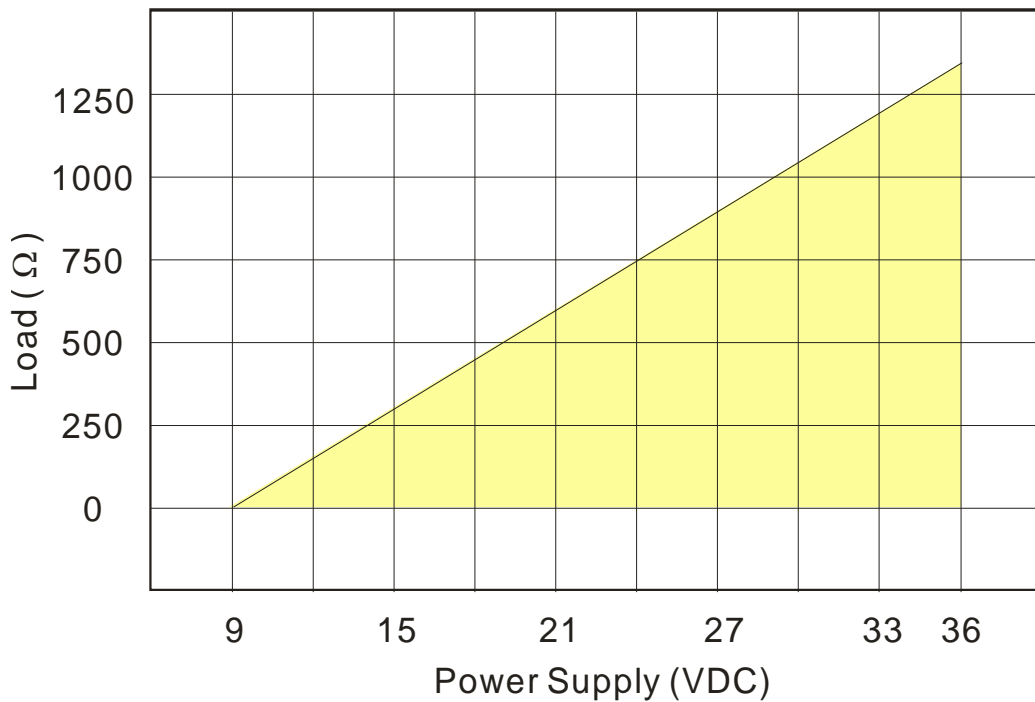
**WIRING DIAGRAM**



**DIMENSIONS**



**Supply Voltage VS Loop Load**



**MODEL SELECTION GUIDE**

| ADP9000L Series                      |     |   |   |   |   |    |   |   |    |   |       |  |
|--------------------------------------|-----|---|---|---|---|----|---|---|----|---|-------|--|
| Example: ADP9000L-4A30N-4NN-NN-EX/HT |     |   |   |   |   |    |   |   |    |   |       |  |
| ADP9000L-                            | X   | X | X | X | X | -X | X | X | -X | X | -XX   | Description                                    |
| Pressure Range                       | 4   |   |   |   |   |    |   |   |    |   |       | 0-6.0 (0.4) kPa ... 0-40 kPa                   |
|                                      | 5   |   |   |   |   |    |   |   |    |   |       | 0-40 (2.0) kPa ... 0-200 kPa                   |
|                                      | 6   |   |   |   |   |    |   |   |    |   |       | 0-160 (10.0) kPa ... 0-1000 kPa                |
|                                      | 7   |   |   |   |   |    |   |   |    |   |       | 0-400 (25.0) kPa ... 0-2500 kPa                |
|                                      | 8   |   |   |   |   |    |   |   |    |   |       | 0-1.6 (0.08) MPa ... 0-8.0 MPa                 |
|                                      | 9   |   |   |   |   |    |   |   |    |   |       | 0-4.0 (0.20) MPa ... 0-20 MPa                  |
| Process Connection                   | 1   |   |   |   |   |    |   |   |    |   |       | PN10   |
|                                      | 2   |   |   |   |   |    |   |   |    |   |       | PN16   |
|                                      | 3   |   |   |   |   |    |   |   |    |   |       | PN25   |
|                                      | 4   |   |   |   |   |    |   |   |    |   |       | PN40   |
|                                      | A   |   |   |   |   |    |   |   |    |   |       | ANSI 150#                                      |
|                                      | B   |   |   |   |   |    |   |   |    |   |       | ANSI 300#                                      |
|                                      | J   |   |   |   |   |    |   |   |    |   |       | JIS 10K  |
|                                      | K   |   |   |   |   |    |   |   |    |   |       | JIS 20K  |
| Z                                    |     |   |   |   |   |    |   |   |    |   | Other |  |
| Flange Rating                        | 1   |   |   |   |   |    |   |   |    |   |       | 1-1/2" (Diaphragm Diameter If Extended: 38 mm) |
|                                      | 2   |   |   |   |   |    |   |   |    |   |       | 2" (Diaphragm Diameter If Extended: 48 mm)     |
|                                      | 3   |   |   |   |   |    |   |   |    |   |       | 3" (Diaphragm Diameter If Extended: 66 mm)     |
|                                      | 4   |   |   |   |   |    |   |   |    |   |       | 4" (Diaphragm Diameter If Extended: 89 mm)     |
| Extended Diaphragm Length            | 0   |   |   |   |   |    |   |   |    |   |       | Flush Diaphragm                                |
|                                      | 2   |   |   |   |   |    |   |   |    |   |       | 2" (50 mm) _ Extented Tube Material: S.S. 316  |
|                                      | 4   |   |   |   |   |    |   |   |    |   |       | 4" (100 mm) _ Extented Tube Material: S.S. 316 |
|                                      | 6   |   |   |   |   |    |   |   |    |   |       | 6" (150 mm) _ Extented Tube Material: S.S. 316 |
| Diaphragm Material                   | N   |   |   |   |   |    |   |   |    |   |       | Stainless Steel 316L                           |
|                                      | B   |   |   |   |   |    |   |   |    |   |       | Hastelloy B                                    |
|                                      | C   |   |   |   |   |    |   |   |    |   |       | Hastelloy C                                    |
|                                      | T   |   |   |   |   |    |   |   |    |   |       | Tantalum                                       |
| Flange Material                      | -N  |   |   |   |   |    |   |   |    |   |       | Carbon Steel                                   |
|                                      | -4  |   |   |   |   |    |   |   |    |   |       | Stainless Steel 304                            |
|                                      | -6  |   |   |   |   |    |   |   |    |   |       | Stainless Steel 316                            |
| Low Pressure Side Process Connection | N   |   |   |   |   |    |   |   |    |   |       | 1/4"-18 NPT                                    |
|                                      | A   |   |   |   |   |    |   |   |    |   |       | 1/2"-14 NPT (with Adapter)                     |
|                                      | Z   |   |   |   |   |    |   |   |    |   |       | Other  |
| Bolts / Nuts Material                | N   |   |   |   |   |    |   |   |    |   |       | Carbon Steel                                   |
|                                      | S   |   |   |   |   |    |   |   |    |   |       | Stainless Steel 316                            |
| Fill Fluid                           | -N  |   |   |   |   |    |   |   |    |   |       | Silicone Oil (Max. Temperature 130 °C)         |
|                                      | -S  |   |   |   |   |    |   |   |    |   |       | HT Silicone Oil (Max. Temperature 250 °C)      |
|                                      | -F  |   |   |   |   |    |   |   |    |   |       | Fluorine Oil (Max. Temperature 160 °C)         |
|                                      | -V  |   |   |   |   |    |   |   |    |   |       | Vegetable Oil (Max. Temperature 130 °C)        |
| Cable Entry                          | N   |   |   |   |   |    |   |   |    |   |       | M20 Conduit Threads                            |
|                                      | P   |   |   |   |   |    |   |   |    |   |       | 1/2" NPT (Female)                              |
|                                      | Z   |   |   |   |   |    |   |   |    |   |       | Other  |
| Option                               | -NN |   |   |   |   |    |   |   |    |   |       | None   |
|                                      | -EX |   |   |   |   |    |   |   |    |   |       | Explosion Proof, Ex d IIB T5                   |
|                                      | -S6 |   |   |   |   |    |   |   |    |   |       | Stainless Steel 316 Name Plate and Tag Plate   |
|                                      | -HT |   |   |   |   |    |   |   |    |   |       | HART Signal (Compatible)                       |
|                                      | -RS |   |   |   |   |    |   |   |    |   |       | Customized range setting                       |
|                                      | -RC |   |   |   |   |    |   |   |    |   |       | Customized range calibration                   |
|                                      | -ZZ |   |   |   |   |    |   |   |    |   |       | Others   |