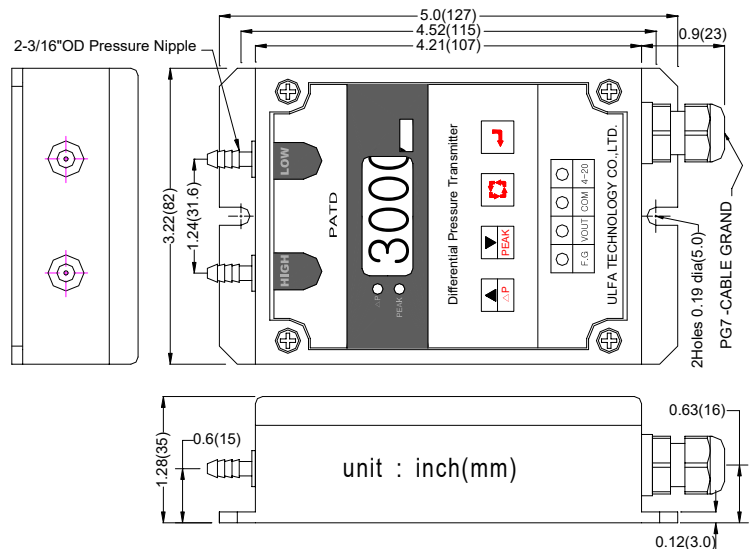


# Instruction Manual

(Digital Differential Pressure Transmitter)



1. General Specification
2. Installation
3. Wiring
4. Function
5. Setting & Calibration



### General

PATD Series pressure transmitter are measures and controls positive, negative(vacuum) and differential pressure of air or non corrosive gases, and for the variously choice of ranges available to suit your needs precisely.

The PATD Widely used to measure fan and blower pressures, filter resistance, pressure drop across orifice plates, liquid levels in storage tanks and many other applications. The PATD model has four functions of gauge, peak pressure detection, Offset( $\Delta p$ ) pressure and transmitter. It is very easy to set and use by front pad key.

Accuracy is  $\pm 0.25\%$  of full scale.

### Range Table

Model No	Range	Resolution
-B15M	$\pm 15.0$ mmH <sub>2</sub> O	0.1 mmH <sub>2</sub> O
-B150M	$\pm 150.0$ mmH <sub>2</sub> O	0.1 mmH <sub>2</sub> O
-B1500M	$\pm 1500$ mmH <sub>2</sub> O	1 mmH <sub>2</sub> O
-B760H	$\pm 760$ mmHg	1 mmHg
-D30M	0~30.0 mmH <sub>2</sub> O	0.1 mmH <sub>2</sub> O
-D300M	0~300.0 mmH <sub>2</sub> O	0.1 mmH <sub>2</sub> O
-D3000M	0~3000 mmH <sub>2</sub> O	1 mmH <sub>2</sub> O
-B01K	$\pm 1.000$ kg/cm <sup>2</sup>	0.001 kg/cm <sup>2</sup>
-B07K	$\pm 7.00$ kg/cm <sup>2</sup>	0.01 kg/cm <sup>2</sup>

We can apply to other user specification (Pressure units and range)

### Specification

#### GENERAL

Maximum Pressure: Rated Range x 3  
 Media Compatibility: Air and non corrosive gas  
 Pressure Range: Refer to range table

#### ELECTRICAL

Power Supply: DC24V(100-220VAC 50~60Hz)  
 Connections: 2 screw terminal block  
 Display: 4 Digit LCD  
 Warm up Time: 15 minutes

#### TRANSMITTER

Connections: 2 Screw terminal block  
 Output Signal: 4-20mADC(limited at 30mADC)  
 Loop Resistance: 0 - 1100 $\Omega$   
 Zero & Span Adj: One touch Adjustable on Panel

#### PERFORMANCE AT 23 °C

Zero Output: 4 mA  
 Full Span Output: 20 mA  
 Accuracy:  $\pm 0.25\%$  FSO(Includes Linearity, Hysteresis & Repeatability)  
 Operating Temperature: -10 to 70 °C

#### MECHANICAL

Pressure Connections: 3/16" OD Tube Nipple  
 Materials: ABS Mold Resin  
 Water & Dust proof: IP65  
 Weight: 215g

#### STANDARD ACCESSORIES

One(1) Cable Grand  
 Two(2) Mount Screw  
 Instruction Manual

## Installation

**LOCATION** : Select your site location , Clean and dry, no shock and vibration, proper to the ambient temperature and humidity in use.

### MOUNTING

The PATD Series Digital Pressure Transmitter is designed for floor and wall mounting. You may prepare the horizontal or vertical location and tightening PATD .

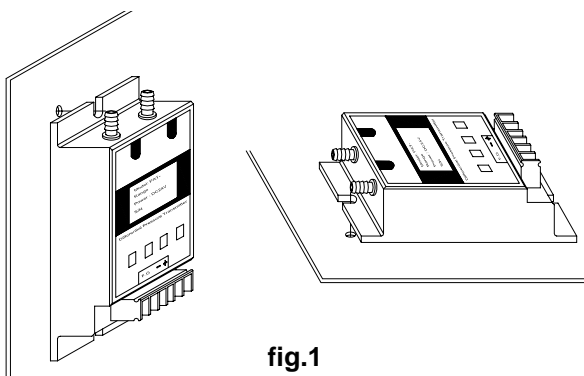


fig.1

### PRESSURE PORT CONNECTION

Tow(2) 5 barbed nipples are mounted all PATD Series Pressure Transmitter

1. Standard pressure connections are barbed nipples for 3/16" I.D. tubing.
2. If you use the PATD to measure differential pressure, high pressure is connect to "HIGH" port, and low pressure is connect to "LOW" port.
3. If you use PATD to measure single pressure, positive pressure is connect to "HIGH" port and negative pressure(vacuum) is connect to "LOW" port. (In this case, another port is open to air)

**Caution** : do not supply shock pressure to pressure ports. It may cause to sensor broken

## Wiring

### POWER CONNECTION

The following procedures are to be used to install a standard 24V DC main power source.

1. Before connection, the user must first confirm that the power specification is DC24V or AC100-220V.
2. Verify that the facility's main power source is turned off or disconnected.
3. Connect lead cable to power terminal matching polarity as shown in FIG.2 below. Take care that wrong wiring will damage the Instrument and malfunction (AC220V is not concerned to polarity)

### CURRENT OUT CONNECTION(4-20mA)

The PATD sends a standard 2wire 4-20mA current out

1. Connect lead cable to current out terminal matching polarity as shown in FIG.2 below.
2. Do not run the signal cable along with any high voltage or power cable or put them in the same race way. It may cause malfunction due to induction.

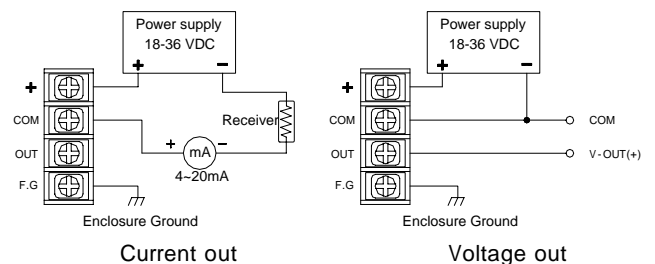


fig.2

The ranges of optimum receiver resistance is refer to below graph.

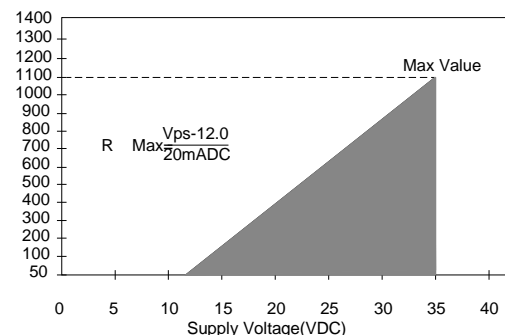


fig.3

### POWER ON

Reconfirmation your connection is correct. And power switch on.

## Function

**Zero setting** : Optimize display and current out to zero automatically by front key pressed.

**Peak pressure Measurement** : This mode is display for peak pressure by supplied pressure. And the display is cleared by press enter key in the peak mode.

**Offset( p) pressure Measurement** : This mode is display the changed pressure based on the current pressure. Current pressure is turned into "0" when offset mode selected. This mode does not concern to 4-20mA current out put.

**Sampling time setting** : Sample rate is 0.1sec of this product. Sampling time is measuring time by sample rate. For example, if setting time is 2 sec, PATD measures 20 times for 2 seconds and out to display and 4-20mA out put by average of 20 times measured value.

**Transmitter** : PATD has 4-20mA current out put. Span (20mA) range can be changed within original range.

**Communication(option)** : Measurement pressure can be sent by RS232 or RS485 for option specification.

**ID setting** : This mode set identification number for communication.

**Over pressure warning** : PATD displays warning on LCD for over pressure (positive and negative). Upper 4 elements of segment("— — — —") blink for warning when measurement pressure over 10% for high pressure(factory setting value), And under 4 elements of segment("\_ \_ \_ \_") blink for warning when measurement pressure under 10% for low pressure(factory setting value),

**Factory setting recovery** : The parameters are changed all to factory setting value and all user setting value is cleared.

## Setting and Calibration

Hear by describe key function and setting methode. Please read this section carefully for the correct and optimum use of this product.

### Key functions

	UP	- Increase setting value - Offset mode set/reset
	DOWN	- Decrease setting value - Peak pressure mode set/reset
	MODE	- Entering into the setting mode - Setting item circulation
	ENTER	- Save setting value - Clear peak value in the peak mode - Release setting mode

### Peak mode

Press the PEAK(down) key once to set peak mode

"PEA" displayed like left while press peak key

Press the ENTER to reset peak value and newly start

Press the PEAK(down) key once more to release peak mode

### Offset mode

Press the P(UP) key once to set offset mode

"dELT" displayed like left while press P key

Press the P(UP) key once more to release offset mode

## User setting mode

**Entering User setting mode :** Press MODE key for more than 3seconds till appear "I n t" on LCD into the user setting mode. Press the MODE key once in user setting mode to change setting item. The setting item circulate " I n t " " PoFS " " P 4 " " P20 " " Id " " FACT " " I n t " while mode key press repeated. Each item setting methode is refer to next pages.

**Save :** If you complete your setting in the each mode, Press ENTER once to save and exit to measure mode. Press ENTER for more than 3 seconds to save and exist in the setting mode.

**Release User setting mode :** Press ENTER once to save and exit to measure mode. If you are not operate this instrument for about 1 minute, It's released user setting mode automatically and return to measuring mode.

## Sampling time setting

It can be set 0.1~5.0 seconds by 0.1 sec resolution. PATD reading pressure 0.1sec interval for a setting time and calculate average pressure to display and 4-20mA output.  
 (ex) setting time : 2 sec  
 PATD reading pressure 20 times for 2 seconds and calculate average of measured 20 data to display and 4-20mA current output.  
 This functions is useful to measure hunted pressure

Press MODE key for more than 3 seconds till appear "Int" on LCD display like left.

Release MODE key then appear current set time on LCD display (default set time is 0.5 sec)

Set your sampling time use up/down key

Press ENTER once to save and exit to measure mode.

Press ENTER key for more than 3 seconds till appear "SAvE" on display to save and exist in the sampling time setting mode

## Zero setting

Optimize zero to display and current out automatically by front key pressed.

**CAUTION :** Release pressure port free before zero set

Press MODE for more than 3 seconds till appear "Int" on LCD display

Press MODE key once till appear "PoFS" on LCD display.

Press ENTER once to set zero and exit to measure mode. "PoFS" blink for about 5 seconds to calculate zero.

Press ENTER key for more than 5 seconds till appear "SAvE" on LCD display to save and exist in the setting mode.

## 4mA current setting

This function is set pressure level to 4mA current out. Generally pressure zero is setting to 4mA current out. By the way, negative pressure is setting in another case. PATD can be set any pressure level to 4mA current out between low and high pressure range. Low and high pressure ranges are setting in factory.

Press MODE key for more than 3 seconds till appear "Int" on LCD display.

Press MODE key once till appear "P4" on LCD display.

Set your pressure level to 4mA out use up/down key

Press ENTER once to save and exit to measure mode.

Press ENTER key for more than 3 seconds till appear "SAvE" on LCD display to save and exist in the setting mode

## 20mA current setting

This function is set pressure level to 20mA current out, That is set span. PATD can be set any pressure level to 20mA current out between low and high pressure ranges.

Low and high pressure ranges are setting in factory.

Press MODE key for more than 3 seconds till appear "Int" on LCD display.

Press MODE key once till appear "P20" on LCD display.

Set your pressure level to 20mA current out use up/down key

Press ENTER key once to save and exit to measure mode.

Press ENTER key for more than 3 seconds till appear "SAvE" on LCD display to save and exist in the setting mode

## Recall to Factory setting value

This function is recall to initial states of factory out from unmatched user parameters that zero, span etc.

Press MODE key for more than 3 seconds till appear "Int" on LCD display.

Press MODE key once till appear "FACT" on LCD display.

Press ENTER key once to recall and exit to measure mode.

Press ENTER key for more than 3 seconds till appear "SAvE" on LCD display to recall and exist in the setting mode

## ID No setting

ID number is use for address for communication to master. It's concern to PATD communication function installed.(option)

Press MODE key for more than 3 seconds till appear "Int" on LCD display.

Press MODE key once till appear "ID" on LCD display.

Set your ID No use up/down key(0~255) default set is 0.

Press ENTER key once to save and exit to measure mode.

Press ENTER key for more than 3 seconds till appear "SAvE" on LCD display to save and exist in the setting mode.

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