



# Installation Guide

## Series DPL

### Differential Pressure Transmitter

#### 4.3 Current Output Zero Adjustment

While monitoring the current output between +EXC and -COM, and with both pressure ports open to atmosphere, the zero may be adjusted by turning the zero adjustment screw (See Diagram 1 for location of zero adjustment). The zero pressure factory settings are 4mA (0.16mA) for unidirectional pressure ranges and 12mA (0.16mA) for bidirectional ranges.

#### 4.4 Current Output Span Adjustment

Span or full scale output adjustments should only be performed by using an accurate pressure standard (electronic manometer, digital pressure gage, etc.) with at least comparable accuracy to the Series DPL transmitter (<math>\pm 1\%</math> FS). With full range pressure applied to the high pressure port (reference port open to atmosphere), the span may be adjusted by turning the SPAN adjustment screw (See Diagram 1 for location of SPAN adjustment). The factory settings are 20mA (0.16mA) for unidirectional and bidirectional pressure ranges.

## 5.0 SERIES DPL PERFORMANCE SPECIFICATIONS

<b>Accuracy</b>	RSS* $\pm 1.0\%$ FS (at constant temperature)
<b>Non-Linearity, BFSL</b>	$\pm 0.98\%$ FS
<b>Hysteresis</b>	0.1% FS
<b>Non-Repeatability</b>	0.05% FS
*RSS of Non-Linearity, Non-Repeatability and Hysteresis.	

#### Thermal Effects

<b>Compensated Range</b>	0 to +150°F (-18 to +65°C)
<b>Zero/Span Shift %FS/°F (°C)</b>	0.033°F (0.06°C)
<b>Maximum Line Pressure</b>	10 PSI (65 kPa)
<b>Overpressure (DP on either side):</b>	

<u>Range</u>	<u>Overpressure</u>
< 1.0" w.c. (250 Pa)	2 PSI (14 kPa)
1.0"-2.5" w.c. (250-625 Pa)	5 PSI (35 kPa)
>2.5" w.c. (625Pa)	10 PSI (69 kPa)
<b>Warm-up Shift</b>	$\pm 0.1\%$ FS total

#### Position Effects

(Unit is factory calibrated at 0g effect in the vertical position)

<u>Range</u>	<u>Zero Offset (%FS/G)</u>
0-1" w.c. (0-250 Pa)	.22
0-5" w.c. (0-1.3 kPa)	.14
0-30" w.c. (0-7.5 kPa)	.06

## 1.0 GENERAL INFORMATION

Every DPL Model has been tested and calibrated prior to shipment. Performance specifications are shown on page 4 of this Guide.

Series DPL pressure transmitters sense differential or gage (static) pressure and convert this pressure difference to a proportional high level analog output for both unidirectional and bidirectional pressure ranges. The Series DPL is available in the following excitation and output versions:

<u>Excitation</u>	<u>Output</u>
9-30 VDC/VAC	0-5 VDC
12-30 VDC/VAC	0-10 VDC
9-30 VDC (measured between the + and - terminals)	4-20mA

Check the label on the unit to verify the excitation requirements and output.

## 2.0 MECHANICAL INSTALLATION

### 2.1 Media Compatibility

Series DPL transmitters are designed to be used with air or non-conductive gases. Use with liquids or corrosive gases will damage the unit.

### 2.2 Environment

The operating and compensated temperature limits of the Series DPL are 0°F to +150°F (-18°C to +65°C)

### 2.3 Pressure Fittings

The Series DPL is supplied with two integrally molded 6.2mm O.D. pressure connections for the pressure signal and typically installed with push-on tubing. Both the positive (high) pressure port and the reference (low) pressure port are located on the bottom of the unit, labeled "+" and "-" respectively.

### 3.0 ELECTRICAL INSTALLATION

Access the electrical terminations by opening the cover. The label on the inside of the cover contains wiring terminal designations.

#### 3.1 Voltage Output Units

The voltage output is a 3-wire circuit, with three terminals available for wiring. These terminals have the designation COM, OUT and EXC (see Diagram 1). The -Excitation and -Output are common on the circuit (see Diagram 2). The voltage output can operate from 9-30 VDC/VAC excitation with 0-5 VDC output, or 12-30 VDC/VAC excitation with 0-10 VDC output.

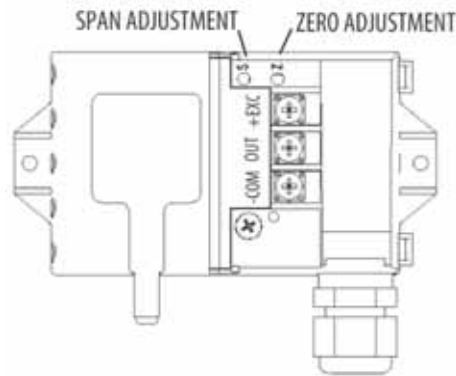


Diagram 1

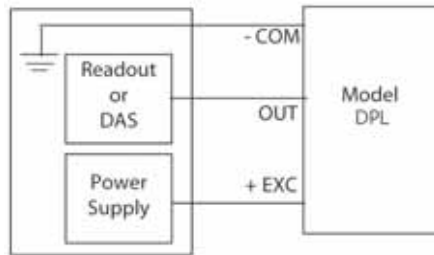


Diagram 2 (Voltage Output Circuit)

- +EXC Connected to positive terminal of DC/AC power supply
- COM Connect as the reference for power supply and output signal
- OUT Connect to positive terminal of control or pressure monitor

#### 3.2 Current Output Units

Current output models are a two-wire loop-powered 4 to 20mA output (see Diagram 3).

The current flows into + terminal and returns back to the power supply

through the - terminal (see Diagram 3). The power supply must be a DC voltage source with a voltage range between 9 and 30 VDC measured between + terminal and - terminals. The unit is calibrated at the factory with a 24 VDC loop supply voltage and a 250 ohm load.

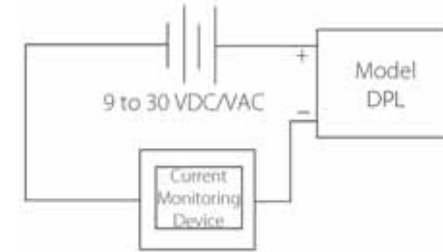


Diagram 3 (Current Output Circuit)

### 4.0. CALIBRATION

The Series DPL transmitter is factory calibrated and should not require field adjustment. Generally, the mounting position will have a zero shift effect on ranges below 1" w.c. (250 Pa). Whenever possible, any zero and/or span offsets should be corrected by software adjustment in the user's control system. However, both zero and span adjustments are accessible on the front of the unit by opening the cover. The Series DPL transmitter is calibrated in the vertical position at the factory. (See Diagram 1 for location of adjustment screws).

#### 4.1 Voltage Output Zero Adjustment

While monitoring the voltage between the positive output (OUT) and common (COM), and with both pressure ports open to atmosphere, the zero may be adjusted by turning the zero adjustment screw. For 0-5 VDC output units, the factory settings are 0.0 VDC ( $\pm 50\text{mV}$ ) for unidirectional pressure ranges and 2.5 VDC ( $\pm 50\text{mV}$ ) for bidirectional pressure ranges.

#### 4.2 Voltage Output Span Adjustment (Complete the zero adjustment before setting span.)

Span or full scale output adjustments should be performed using an accurate pressure standard (electronic manometer, digital pressure gage, etc.), with comparable accuracy ( $< \pm 1\%$  FS). With full range pressure applied to the high pressure port (reference port open to atmosphere), the span may be adjusted by turning the SPAN adjustment screw. For 0-5 VDC output units, the factory settings are 5.0 VDC ( $\pm 50\text{mV}$ ) for unidirectional and bidirectional ranges. Optional outputs are set at the same  $\pm 1\%$  factory setting.