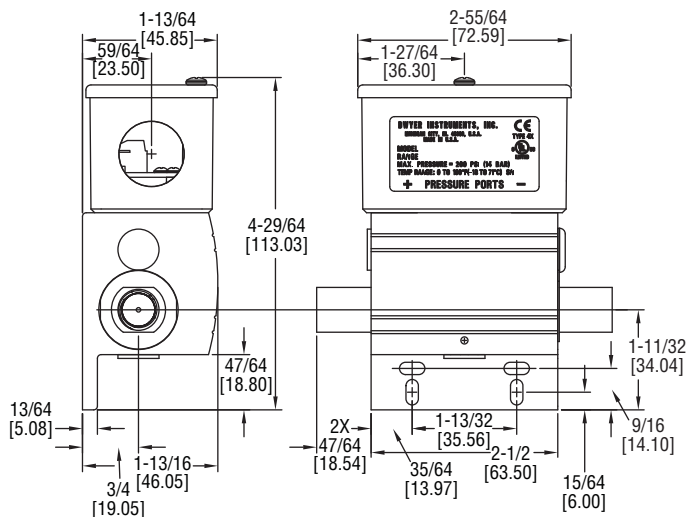




# Series DX Differential Pressure Switch

## Specifications - Installation and Operating Instructions



The Series DX is a pressure switch that makes a contact output based on the differential pressure between two pressure sources. Unit incorporates a SPDT snap switch in a weatherproof, type 4X enclosure. Series DX features low differential pressure set points with high single pressure limit.

### OPERATING PRINCIPLE

The DX uses opposing diaphragms to sense the high and low pressure. A pivot mechanism transfers the difference of the two pressures to the switch.

Example	DX	W	1	1	153	2	M	DXW-11-153-2-M
Series	DX							Differential Pressure Switch
Construction		W						Weatherproof
Wetted Materials			1					Brass/Fluoroelastomer
Process Connection				1				1/4" NPT
Circuit Options					153			SPDT
Range						1		2.5 to 10 psi
						2		10 to 25 psi
						3		25 to 50 psi
						4		50 to 75 psi
Options							SST PRESET	Stainless Steel tag Preset set point

### SPECIFICATIONS

- Service:** Compatible gases and liquids.
- Wetted Materials:** Connection: Brass; Diaphragm: Fluoroelastomer.
- Temperature Limits:** 30 to 140°F (-1 to 60°C).
- Pressure Limits:** 200 psig (13.8 bar).
- Enclosure Rating:** Weatherproof UL type 4X (IP65).
- Repeatability:** ±2% of full range.
- Switch Type:** SPDT snap switch.
- Electrical Rating:** 5A @ 125/250 VAC (~), 5A res. @ 30 VDC (---).
- Electrical Connection:** Removable terminal block.
- Conduit Connection:** 0.871" diameter hole for 1/2" conduit fitting.
- Process Connection:** 1/4" NPT female. Continuous single side only pressure should not exceed 1.25 x full differential range.
- Mounting Orientation:** Ports on horizontal plane, ±10°.
- Set Point Adjustment:** External screw.
- Housing Materials:** Body: Aluminum; Housing: Polycarbonate; Cover: 300 SS.
- Vibration and Shock:** Set point repeats after 2.5 Gs, 5 to 500 Hz. Set point repeats after a 15 Gs, 10 millisecond duration.
- Altitude Limit:** 6560 ft (2000 m).
- Humidity Limit:** 80% (non-condensing).
- Pollution Degree:** 2.
- Environment:** Intended for indoor and outdoor use.
- Weight:** 1 lb 3 oz (0.54 kg).
- Agency Approvals:** CE, UL.

Adjustable Range psid (bar)	Fixed Deadband psid (bar)	
	At Low Set Point	At High Set Point
2.5 to 10 (0.17 to 0.69)	1.5 (0.10)	2.5 (0.17)
10 to 25 (0.69 to 1.72)	2.5 (0.17)	3.5 (0.24)
25 to 50 (1.72 to 3.45)	3.5 (0.24)	6.0 (0.41)
50 to 75 (3.46 to 5.17)	6.0 (0.41)	8.0 (0.55)

Approximate Deadbands

**UNPACKING**

Remove the DX from the shipping carton and inspect for damage. If damage is found, notify the carrier immediately.

**INSTALLATION**

**CAUTION** Insure that the process fluid is compatible with the wetted materials.

**CAUTION** Do not exceed the maximum device ratings.

**CAUTION** Insure that the system is not pressurized before installing or removing this device or other objects from the system.

The DX is to be mounted with the pressure connections horizontal  $\pm 10^\circ$ .

For pipe mounting, mount the unit from the pressure connections to the pipe. Make sure the piping is properly supported to handle the weight of the pressure switch.

For surface mounting, mount the unit to the selected surface using the mounting ear holes provided using two #6 or #8 screws. See the Figure 2 for mounting hole spacing.

Make sure that connections are connected to the proper port. The high pressure port is marked with the "+" sign and is on the left side of the unit with the label side facing you. The low pressure port is marked by the "-" sign and is the right side of the unit. Piping or tubing should always be turned into the pressure port, do not turn the pressure switch. When installing the piping or tubing into the switch always use a wrench on the flats of the pressure connection. Use pipe thread sealant tape or other suitable pipe joint compound when making the pressure connection.

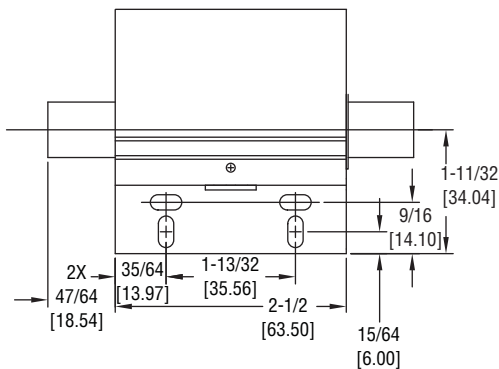


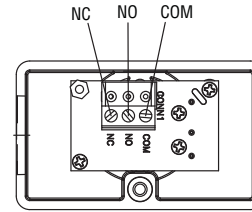
Figure 2: Mounting Hole Dimensions

**ELECTRICAL CONNECTION**

A SPDT snap action switch is provided. The output logic is shown in Table 1.

Condition	NO	NC
Differential Pressure Above Set Point	Closed	Open
Differential Pressure Below Set Point	Open	Closed

Table 1: Switch Action



VIEW OF TERMINAL BLOCK INSIDE SWITCH HOUSING

Figure 2: Wiring Diagram

**WARNING** Power must be off while wiring connections are being made.

**NOTICE** Installation must be made in accordance with local codes and regulations.

Electrical connections are made to the removable terminal block inside the enclosure. Remove the terminal block from the circuit board for wiring if desired. Feed stripped and tinned leads through the conduit opening and connect them as shown in Figure 2. 250V @ 60C 14 to 24 AWG / 2.5 to .25 mm<sup>2</sup> wiring with PVC or equivalent insulation with 94-V0 or FV-0 flammability rating is recommended for the switch. Replace terminal block after wiring. The DX provides one 0.871" diameter hole for 1/2" conduit fitting. The conduit connections must be made such that condensation is not allowed to enter the sensor housing. If necessary install a conduit breather drain in a separate conduit body to prevent buildup of moisture.

**NOTICE** For weatherproof applications, install directly to conduit or use the optional cable gland accessory.

**SETPOINT ADJUSTMENT**

The set point is adjusted with a standard slotted head screw driver.

- 1) Remove rubber plug over set point adjustment screw located on the right side of the unit (with the label side facing you).
- 2) Insert the screw driver to turn the set point adjustment.
- 3) A clockwise rotation is an increase in differential pressure set point and a counterclockwise rotation is a decrease in differential pressure set point. (The set point screw can be turned too far as to fall out; do not turn the screw to the point that there are no longer any female threads visible in the switch body).
- 4) Using a pressure source and pressure gauge adjust the set point screw to the set point desired while monitoring the contact output.
- 5) Once desired set point is achieved replace set point adjustment cover.

**NOTICE** Design a fail-safe system that takes into consideration the possibility of switch failure, power failure, and operator error.

**Explanation of Symbols:**

Symbol	Publication	Description
—	IEC 50417 - 5031	Direct current
~	IEC 50417 - 5032	Alternating current
⊕	IEC 50417 - 5019	Protective conductor terminal

**MAINTENANCE & REPAIR**

Inspect and clean switch with water or damp cloth as needed. Disassembly or modifications made by the user will void the warranty and could impair the continued safety of the product. If repair is required obtain a Return Goods Authorization (RGA) number and send the unit, freight prepaid, to the address below. Please include a detailed description of the problem and conditions under which the problem was encountered.

Dwyer Instruments, Inc.  
Attn: Repair Department  
102 Indiana Hwy 212  
Michigan City, IN 46360