

MODEL DXLdp DIFFERENTIAL PRESSURE TRANSDUCER OPERATING & INSTRUCTION SHEET



⚠️ WARNING! READ ⚠️ BEFORE INSTALLATION

1. GENERAL:

A failure resulting in injury or damage may be caused by excessive overpressure, excessive vibration or pressure pulsation, excessive instrument temperature, corrosion of the pressure containing parts, or other misuse. Consult Ashcroft Inc., Stratford, Connecticut, USA before installing if there are any questions or concerns.

2. OVERPRESSURE:

Pressure spikes in excess of the rated overpressure capability of the transducer may cause irreversible electrical and/or mechanical damage to the pressure measuring and containing elements.

3. STATIC ELECTRICAL CHARGES:

Any electrical device may be susceptible to damage when exposed to static electrical charges. To avoid damage to the transducer the operator/installer should follow proper ESD (electrostatic discharge) protection procedures before handling the pressure transducer.

Description:

Congratulations on your purchase of the Ashcroft® DXLdp low differential pressure transducer. The DXLdp utilizes the same highly reliable variable capacitance sensor used in traditional Ashcroft® XLdp family of low differential transducers. A selection of both unidirectional and bi-directional pressure ranges are offered, accuracies of 1%, 0.5% and 0.25% and a wide assortment of output signals.

The DIN rail-mounting package offers a new and efficient use of mounting space for enclosure mount applications. Optional features such as the SpoolCal® process valve actuator, LED's with front access test jacks and 2:1 turn down provide added value when validating a process on line or calibrating the unit. These options are available through suffixed (X) variations on the part number. Contact the factory for DXLdp upgrades.

Media:

The DXLdp is designed to measure clean, dry non-corrosive gases. (Consult with factory for use on other media). Not for use on liquids.

Mounting:

The unit can mount to three types of DIN sizes including EN50022, EN50035 & EN50045 (not included). When securing to EN50022 rail first hook the top portion of the rear clip onto the top of the rail and push gently into place. To remove simply place finger behind lower rear lever and pull forward. To remove from the EN50035 rail, grasp the unit, push up and rotate the bottom out. For the EN50045, pull down and rotate the bottom out.

Multiple units can be stacked across the rail. Internal circuitry is vented through the bottom of each unit. Tag holes are fabricated into the lower rear lever and the housing below the terminal strip for calibration reference tagging and/or ID location. Refer to Drawing #1.

Power requirements:

The DXLdp is wired (3 wire) (2 wire) for Voltage and Current output respectively. Reference Drawing #2.

Voltage Output

The DXLdp will operate on any supply voltage from 12-36 Vdc drawing less than 10 mA in full function LED variations (24 Vdc typical).

Current Output

The voltage required for a 4-20 mA output is dependent on the loop resistance of the circuit. Refer to Drawing #3 showing the minimum supply voltage (Vmin) required for a given Loop Resistance (RL).

OPTIONS

The three options available include LED (XDL), SpoolCal® (XPV) and 2:1 Turn down (X21).

OPTION: LED RANGE INDICATION (XDL)

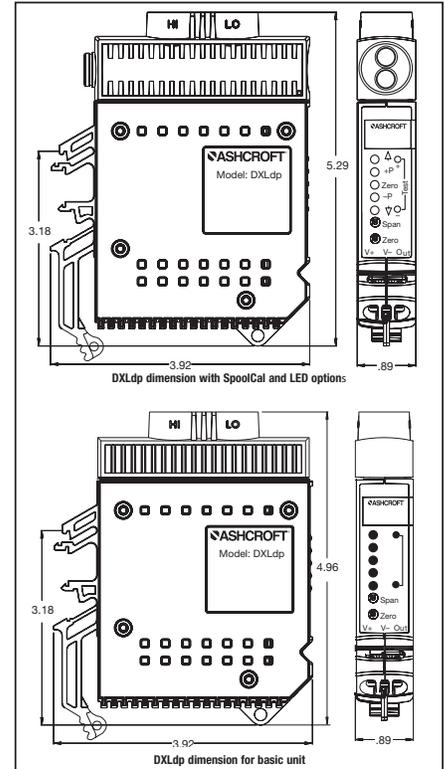
Provides a quick visual in/out of range status or diagnostic indication. Not to be used for calibration reference. This feature includes front access test jacks for uninterrupted signal reference.

LED INDICATION	TYPICAL ACCURACY
Amber Zero Pressure	±3% on nominal zero
Green In Range Pressure	Beyond ±3% to ±106% of range
Red Out of Range Pressure	Beyond ±106% of range

LED Activation:

<i>Unidirectional ranges</i>	<i>Bidirectional ranges</i>
• Red, top & bottom LED	• Red, top & bottom LED
• Green, top LED	• Green, top & bottom LED
• Amber, center LED	• Amber, center LED

Standard Mounting Position



Drawing #1

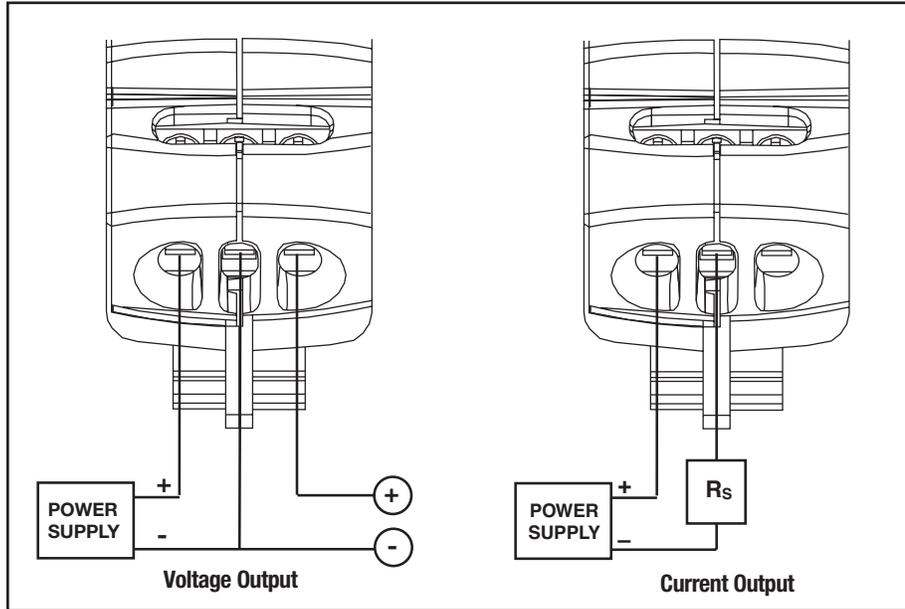
Front Access Test Jacks:

Provides on-line process reference signal or calibration signal without disconnecting power supply wiring. Measurements can be made using a standard multi-meter or data collection instrument. Contact the factory for more information on the Ashcroft® ATE handheld calibrator. Reference signals through the test jacks are made in series for 4-20 mA output and in parallel for voltage output. Gold plated contacts accept standard 0.08" microtip test leads, snapping in place for secure measurements.

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ELECTRICAL CONNECTIONS



Drawing #2

OPTION: SPOOLCAL® (XPV)

The rotating process valve actuator in conjunction with the SpoolCal® actuator tool provides two types of tests including Calibrate (CAL) and Monitor (MON) through the appropriate Hi and Lo Port of the SpoolCal® actuator tool. In the (CAL) mode the DXLdp is isolated from the process and allows externally generated test pressure input for calibration. In the (MON) mode the system pressures can be monitored with an Ashcroft® ATE Calibrator or other handheld instrument without physically unplugging the process tubes. In this mode an on-line measurement can be captured. In conjunction with the (XDL) option, a reference signal can also be captured without process interruption.

The (XPV) option supplies a SpoolCal® actuator tool and 7' of silicon tubing. The actuator tool identifies the above positions and tests, including high (HI) and low (LO) differential pressure reference.

From the (OFF) position the SpoolCal® actuator tool can be inserted and removed. The following tests can be performed:

Calibration (CAL):

Both zero and Span adjustment pots are non-interactive and accessible from the front of the unit. Note: Due to the sensing technology used rarely are actual zero and span adjustments needed. Zero and span pots are available on the basic unit. Requires XDL and XPV options.

- Insert SpoolCal® actuator tool.
- A 90-degree clockwise rotation isolates the DXLdp from the process.
- Apply zero pressure. This can be best produced by shorting the HI and LO ports on the SpoolCal® actuator tool using the silicon tubing supplied. Verify or make zero adjustment.
- An external pressure generator can be used to produce the required span pressure. Verify or make span adjustment.
- Measure record signal via front access test jacks, option (XDL).

Monitor (MON):

Provides on line or uninterrupted measurement point capability when XPV option is again selected in combination with the (XDL) option, including the front access test jacks.

- Insert SpoolCal® actuator tool
- A 90-degree counterclockwise rotation tee's the process to both the DXLdp sensor and out through the SpoolCal® actuator tool, to provide external measurement or recording capabilities.

OPTION: 2:1 TURN DOWN (X21)

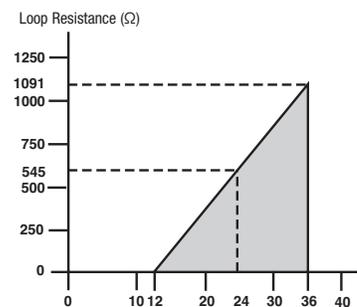
Provides optional in field scalability via internal jumpers.

Example: Given a 1.0" DXLdp with 4-20 mA output. The unit can be adjusted to operate full scale at 0.5". In addition, the 4-20 mA reference output remains in calibration.

Steps (Following instructions on label):

1. Lay unit on right side. Remove reusable left side label.
2. Pry off access door and discard.
3. Using needle nose pliers or twisters, move jumper from top to bottom position.
4. Reattach label.
5. Reverse range label on face of unit.

Load Limitations 4-20mA Output



$$V_{min} = 12V - [0.022A \cdot (R_L)]$$

*Includes a 10% safety factor

$$R_L = R_S + R_W$$

$$R_L = \text{Loop Resistance (ohms)}$$

$$R_S = \text{Sense Resistance (ohms)}$$

$$R_W = \text{Wire Resistance (ohms)}$$

Drawing #3