MODEL IXLdp TRANSDUCER INSTRUCTION SHEET

ASHCROFT®

⚠ 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 observe the following:

- Ground the body of the transducer BEFORE making any electrical connections.
- When disconnecting, remove the ground LAST!

Note: The shield and drain wire in the cable (if supplied) is not connected to the transducer body, and is not a suitable ground.

DESCRIPTION

The Industrial Low Pressure Differential Transducer consists of a silicon diaphragm supported between two layers of metallized glass. The Si-Glas technology combines the inherent high sensitivity of a variable capacitance transducer using a micro-machined, single crystal diaphragm which provides excellent stability and repeatability.

The transducer should be used with clean, dry air or other dry non-corrosive gases. Both unidirectional (e.g. 0/1.0 in. W.C.) and bidirectional (e.g. +/– 5.0 in. W.C.) pressure ranges are offered as well as a wide selection of output signals.

The storage temperature limits of the transducer are –40 to 210°F. The unit can operate between –20 and 185°F and is temperature compensated between 0 and 160°F.

MOUNTING

The unit should be mounted with #8 or #10 screws using the three mounting feet provided (see Fig. 1). Easy access to the covers may be a consideration when mounting. The transducer can be mounted in any orientation with virtually no effect on calibration. Any minor zero pressure offsets that are encountered can be adjusted using the zero adjust potentiometer. (See the Calibration section for more details on the zeroing procedure.)

PIPING

The "high" and "low" pressure connection ports are plugged to avoid debris entering the unit. The plugs should be left in place until the tubing and fittings are connected. The two ¼″ NPT pressure connections should be sealed to the transducer housing using teflon tape. The use of a dope-type sealant should not be used since it may cause measurement errors because of outgassing.

WIRING

Voltage Output:

The IXLdp requires 12-36 VDC excitation for operation and will draw less than 5 mA. Warm-up is typically less than 15 seconds.

Current Output:

The voltage required for a 4-20mA output is dependent upon the loop resistance of the circuit (see Fig. 2). The voltage required is proportional to the load (loop resistance) being driven. Figure 2 shows the minimum supply voltage (V_{min}) required for a given loop resistance. Warm-up is typically less than 15 seconds.

The field wiring terminals can be accessed by unscrewing the four cover screws and removing the terminal block access cover (see Fig. 1). Once the cover is removed, make sure no contaminants, (e.g. water, oil, chemicals, grease, dirt, etc.), enter the inside of the enclosure. Feed the cable from the conduit through one of the conduit attachment holes into the terminal area. Connect the conduit to the conduit connection threaded hole on the side of the transducer. Attach the cable wires to the appropriate terminals. The unused connection hole should be closed with a suitable conduit plug.

The transducer should be wired with a multiconductor shielded cable. Figures 3 and 4 show how the current and voltage output transducers should be wired. The transducer housing should be earth grounded at the ground screw using one of the cable's conductors as shown in Figures 3 and 4.

When the cover is reinstalled, make sure the gasket is seated correctly and all four screws are properly engaged and tightened.

CALIBRATION

The zero adjustment for the transducer can be accessed by unscrewing the four cover screws and removing the zero pot access cover (see Fig. 1). Once the cover is removed, make sure no contaminants, (e.g. water, oil, chemicals, grease, dirt, etc.), enter the enclosure. The zero adjustment range is approximately ±10% of span.

The offset or zero adjustment potentiometer is shown in Figure 1. A hole is provided in the fiber insulation board to access the pot adjustment screw. Before you adjust, make sure a short tube is connected from the "low" port to the "high" port of the transducer. This connection will ensure that both ports are at the same pressure. A clockwise rotation raises the output.

DO NOT ADJUST THE SPAN ADJUSTMENT POTENTIOMETER

Proper span calibration requires a pressure standard three to five times more accurate than the accuracy of the transducer.

When the cover is reinstalled, make sure the gasket is seated properly and all four screws are properly engaged and tightened.

SERVICE

There are no user serviceable parts inside the transducer. Servicing should only be carried out by factory-trained personnel. Service problems encountered in the field might be mechanical or electrical in nature.

Mechanical problems might be attributed to plugged or leaking pressure lines, or faulty pressure sources.

Electrical problems might be attributed to improper wiring, bad connections (e.g. open, shorts, etc.), malfunctioning or improper power supply.

PHYSICAL

Weight: approx. 2 lbs.
NEMA 4X rated enclosure

OPTIONAL FEATURES

Variable Damping

A third potentiometer, placed to the left of the zero potentiometer, allows the user to adjust the unit's response time.

Multiple Range

By relocating the shunt jumper, the user can "re-range" the unit. The unit can be re-ranged by a ½, ⅓, ¼ and a ⅕. For example, a unidirectional 5 in. W.C. unit can become a 2.5 in. W.C., 1.67 in. W.C., 1.25 in. W.C. or a 1.0 in. W.C. range.

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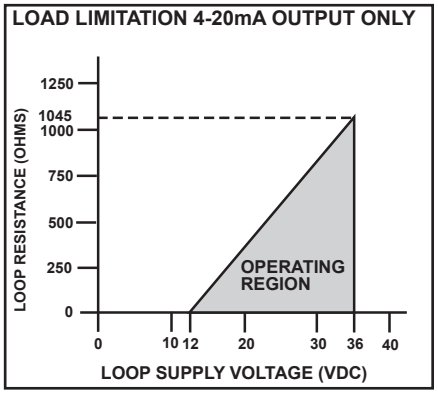

Figure 2. Loop Supply Voltage vs. Loop Resistance

$V_{min} = 12 + (.022A \times R_L)$
$R_L = RS + RW$
R_L = Loop Resistance (ohms)
R_s = Sense Resistance (ohms)
R_w = Wire Resistance (ohms)
*INCLUDES A 10% SAFETY FACTOR

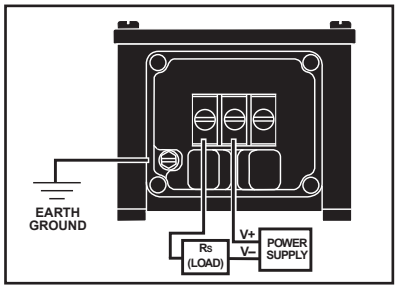

Figure 3.
Current (4-20mA) Output Wiring

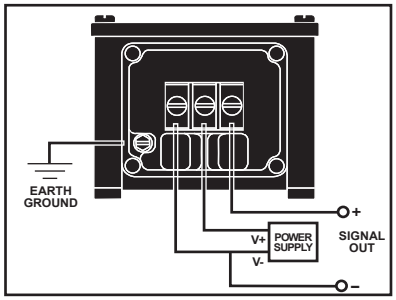

Figure 4.
Voltage Output Wiring

Figure 1.
General Dimensions (INCHES)