

K1, K2, K8 PRESSURE TRANSDUCER INSTRUCTION SHEET



WARNING!

This instrument is 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 braided shield and drain wire in the cable (if supplied) is not connected to the transducer body, and is not a suitable ground.

CAUTION: 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 element(s).

Mounting

The transducer requires no special mounting hardware, and can be mounted in any plane with negligible position error.

Although the unit can withstand normal vibration without damage or significant output effects, it is always good practice to mount the transducer where there is minimum vibration.

For units with NPT type pressure fittings apply teflon tape or an equivalent sealant to the threads before installing.

When tightening, apply a wrench to the hex wrench flats located just above the pressure fitting. **DO NOT** tighten by using a pipe wrench on the housing.

Power Supply – K1 Models Only

The supply voltage for the 1-5 and 1-6 Vdc output transducers must be within the range of 10 to 36 Vdc. The maximum supply voltage for a 4-20mA current output transducer is 36 Vdc while the minimum supply voltage is dependent upon the loop resistance of the circuit. The load limitation chart shows the minimum supply voltage (V_{min}) required for a given loop resistance (R_{LOOP}).

Noise

For minimum noise susceptibility, avoid running the transducer's cable in a conduit that contains high current AC power cables. Where possible avoid running the cable near inductive equipment.

Shield Wiring

Connect the braided shield to the guard terminal on the reading instrument (meter, etc.) if available or to ground or to the power supply negative terminal.

Adjustment Potentiometers

The zero and span pots are accessible through the top of the case. Loosen the four screws and separate the top carefully. The zero pot is marked with a white dot.

Vent Tube

The cable will have a clear Teflon vent tube that's required at pressure below 500 psi to provide atmospheric reference. The open end should be placed in a dry area.

Output – K8 Only

Sensitivity may be from 6 mV/V to 18 mV/V for any individual transducer. Zero offset is within ± 3 mV/V. Output is proportional to supply voltage (ratiometric).

Excitation – K8 & K2

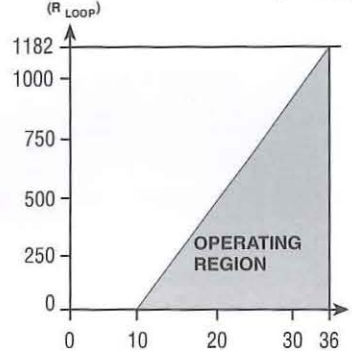
For proper operation a voltage within the range of 5 to 10 Vdc must be applied between the transducer's supply terminals.

Life Support Policy

Dresser's products are not authorized for use as critical components in life support devices or systems without the express written approval of the General Manager, Transducer Operation of Dresser Industries Instrument Division. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

Load Limitations 4-20mA Output Only



$$V_{min} = 10V + (.022A \times R_L)$$

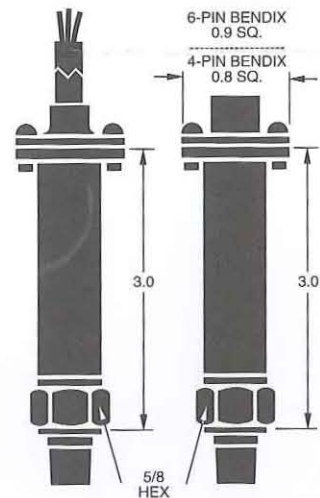
$$R_L = R_s + R_w$$

R_L = Loop Resistance (ohms)

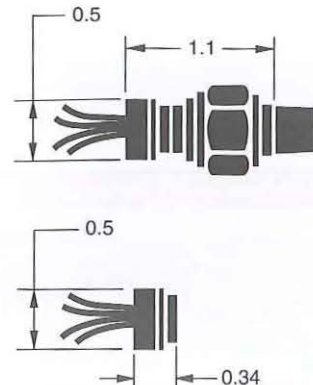
R_s = Sense Resistance (ohms)

R_w = Wire Resistance (ohms)

K1, K2 Transducers



K8 Transducers



K1 Transducers – Electrical Connections

Voltage Output Units 1-5, 1-6 Vdc



Cable Type F2
 Red = + Power
 White = Common
 Green = Output



Cable Type C1
 Red = + Power
 White = Common
 Green = Output



Hirschmann Type
 PIN-1 = + Power
 PIN-2 = Common
 PIN-4 = Output



Bendix 4-Pin, 6-Pin
 Pin A = + Power
 Pin B = Output
 Pin D = Common

Current Output Units 4-20mA



Cable Type F2
 Red = + Power
 Black = - Power



Cable Type C1
 Red = + Power
 Black = - Power



Hirschmann Type
 PIN-1 = + Power
 PIN-2 = - Power



Bendix 4-Pin, 6-Pin
 Pin A = + Power
 Pin B = - Power

K2 Transducers – Electrical Connections

Ratiometric (mV/V)



Cable Type F2
 Red = + Power
 White = - Power
 Green = + Output
 Black = - Output



Cable Type C1
 Red = + Power
 White = - Power
 Green = + Output
 Black = - Output



Bendix 4-Pin
 Pin A = + Power
 Pin B = + Output
 Pin C = - Output
 Pin D = - Power



Bendix 6-Pin
 Pin A = + Power
 Pin D = - Power
 Pin B = + Output
 Pin C = - Output
 Pin E = Shunt Cal.
 Pin F = Shunt Cal.

K8 Transducers – Electrical Connections

Ratiometric (mV/V)



Cable Type F2
 Red = + Power
 White = - Power
 Green = + Output
 Black = - Output



4 Inch Leads
 Red = + Power
 White = - Power
 Green = + Output
 Blue = - Output

Special Wiring – See “X” Variation On Unit Label

Variation	Wire Hookup
XTQ	Red = + Power Black = Common White = Output
XTG	Red = + Power Black = Common Green = Output

WARNING: READ BEFORE INSTALLATION

Fluid hammer and surges can destroy any pressure transducer and must always be avoided. A pressure snubber should be installed to eliminate the damaging hammer effects. Fluid hammer occurs when a liquid flow is suddenly stopped, as with quick closing solenoid valves. Surges occur when flow is suddenly begun, as when a pump is turned on at full power or a valve is quickly opened.

Liquid surges are particularly damaging to pressure transducers if the pipe is originally empty. To avoid damaging surges, fluid lines should remain full (if possible), pumps should be brought up to power slowly, and valves opened slowly. To avoid damage from both fluid hammer and surges, a surge chamber should be installed.

Symptoms of fluid hammer and surge's damaging effects:

- Pressure transducer exhibits an output at zero pressure (large zero offset). If zero offset is less than 10% FS, user can usually re-zero transducer, install proper snubber and continue monitoring pressures.
- Pressure transducer output remains constant regardless of pressure.
- In severe cases, there will be no output.

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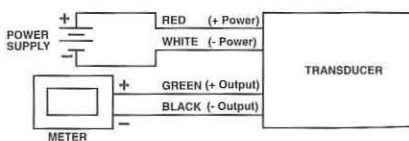
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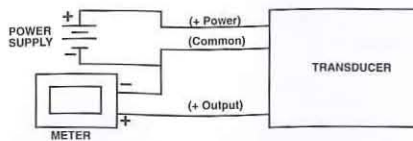
Recalibration Instructions:

- Apply 0% Full Scale Pressure.
- Set the output using the *Zero adjustment potentiometer*.
- Apply 100% Full Scale Pressure.
- Set the output using the *Span adjustment potentiometer*.
- Repeat steps 1 thru 4 as necessary.

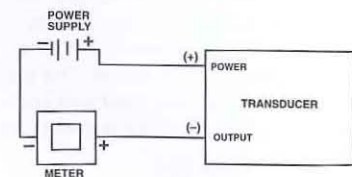
Wiring Diagrams for All Transducers



4-Wire Ratiometric (mV/V)



3-Wire Voltage



4-20 mA