PTT 220/222 and K8 Pressure Transducers

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 Cooper Instruments if there are any questions or concerns.

NOTE: DO NOT USE ON OXYGEN SERVICE

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 element(s).

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 surges damaging effects:

- Pressure transducer exhibits an output at zero pressure (large zero offset).
- Pressure transducer output remains constant regardless of pressure.
- In severe cases, there will be no output.

FREEZING:

Prohibit freezing of media in pressure port. Unit should be drained (mount in vertical position with electrical termination upward) to prevent possible overpressure damage to frozen media.

3. STATIC ELECTRIAL CHARGES

Any electrical device may be susceptible to damage when exposed to static electrical charges. To avoid damage to the transducer observe the following:

Operator/installer should follow proper ESD (electrostatic discharge) protection procedures before handling the pressure transducer

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

4. USE IN LIFE SUPPORT DEVICES

Cooper's products are not authorized for use as critical components in life support devices or systems without the express written approval of Cooper Instruments. As used herein:

a) 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 or use provided in the labeling, can be reasonably expected to result in a significant injury to the user.

b) 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.

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-PTT 220 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.

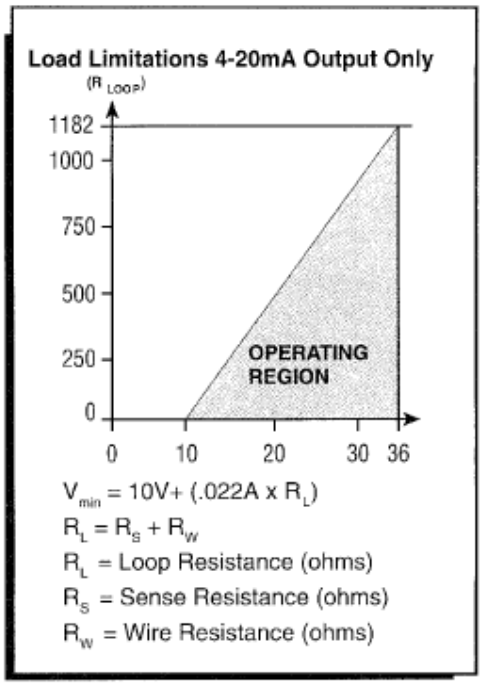
SHIELD WIRING
Connect the braided shield to the guard terminal on the reading instrument (meter, etc.) if available or to ground or to the power supply negative terminal.

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 with in ±3 mV/V. Output is proportional to supply voltage (ratiometric).

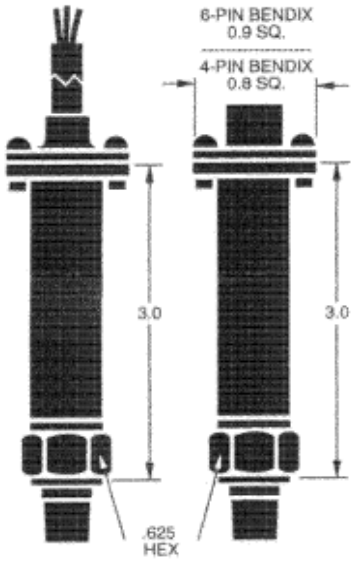
EXCITATION-K8 and PTT 222 only
For proper operation a voltage within the range of 5 to 10 Vdc must be applied between the transducer's supply terminals.

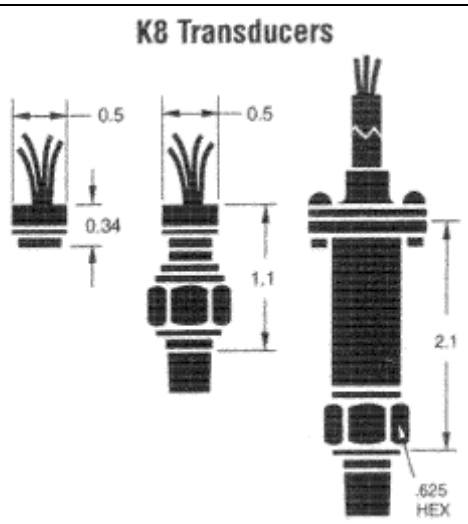


RECALIBRATION INSTRUCTIONS:

1. Apply 0% full scale pressure.
2. Set the output using the *Zero adjustment potentiometer*.
3. Apply 100% full scale pressure.
4. Set the output using the *Span adjustment potentiometer*.
5. Repeat steps 1 thru 4 as necessary.

PTT 220/222 Transducers





Voltage Output Units 1-5, 1-6 Vdc

CONNECTOR TYPE		MATING CONNECTOR CABLE CODING
Hirschmann Type		
PIN 1	= + Power	Red
PIN 2	= Common	Black
PIN 4	= Output	Green
Bendix 4-Pin, 6-Pin		
Pin A	= + Power	Red
Pin B	= Output	Green
Pin D	= Common	White
Cable Type F2		
Red	= + Power	
White	= Common	N/A
Green	= Output	
Cable Type C1		
Red	= + Power	
White	= Common	N/A
Green	= Output	

Current Output Units 4-20mA

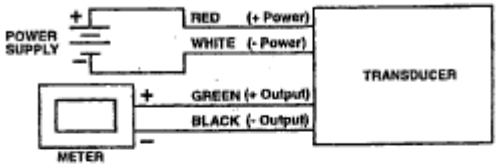
Cable Type F2
Red = + Power
Black = – Power

Cable Type C1
Red = + Power
Black = – Power

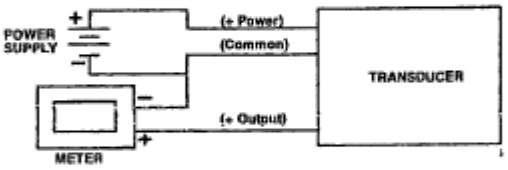
Hirschmann Type
PIN-1 = + Power
PIN-2 = – Power

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

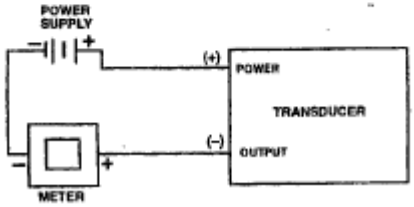
Wiring Diagrams for All Transducers



4-Wire Ratiometric (mV/V)



3-Wire Voltage



4-20 mA

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.

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

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
*Orange = + Power, RoHS compliant versions