



## Instruments to Industry Ltd

Euro Works - Hawksley Industrial Estate - Hawksley Street

Oldham - OL8 4PQ - United Kingdom

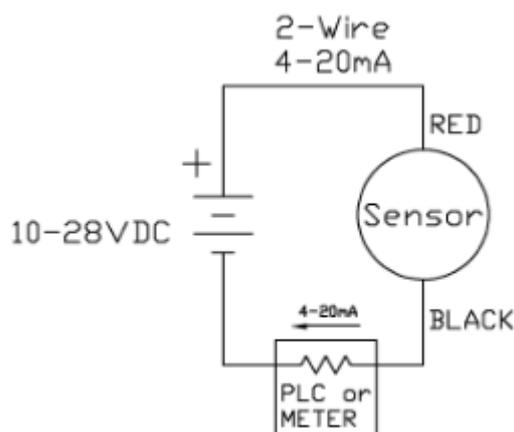
T: +44 (0) 161 652 7741 E: [sales@itidirect.co.uk](mailto:sales@itidirect.co.uk) W: [www.itidirect.co.uk](http://www.itidirect.co.uk)

### What is the difference between a pressure sensor, pressure transducer, and pressure transmitter?

All three terms are often interchanged and used without any relevance to the meaning that we mention below, the definitions can also often differ depending on the manufacturer of the device. These are general definitions. A pressure sensor is typically a mill volt output signal, a pressure transducer has an amplified voltage output such as 0-10v, and a pressure transmitter offers a 4-20mA output signal.

### How to wire a pressure transducer and a process indicator with a 4-20mA loop.

The diagram below is relevant if the 4-20mA device requires an external power source to power the loop, in this case the pressure transducer and instrument would have 2 input connections.



### **What does long term stability mean?**

Long-term stability is normally associated with the change in a zero offset due to aging of component and the change to the diaphragm over a period of time. It normally causes the zero reading to go higher or lower over time.

### **What is the difference between gauge, absolute, and differential pressure?**

Gauge pressure is referenced to the ambient (atmospheric) pressure conditions. Absolute pressure sensors are referenced to a full vacuum. Differential pressure is the difference in pressure between two points.

### **What process connections are available for pressure transducers?**

Instruments to Industry offer G1/4 (1/4"BSPP) as standard, typically male threads.

Custom configurations are also possible for OEM or volume applications. We can also offer thread adaptors for application were they can be safely installed.

Common Thread Types: NPT, UNF, BSP, Metric, DIN standard

### **What types of electrical connections are available on pressure transducers?**

Certain products and applications, due to IP ratings, require specific electrical connections. Instruments to Industry can supply pressure transducers with integral connectors, in-line connectors, and other cable options.

### **How do I choose the best output signal?**

Selecting an output signal requires an understanding of the application, environment, supply voltage and any instrumentation that is available to read the process signal.

Common Output Signals: 4-20mA, 1-5V, RS-485, 10mV/V, 0-10V and IO Link.

### **Millivolt Output Pressure Sensors**

Pressure devices with a millivolt output sometimes fall into the economical price category. The output of the millivolt sensor can vary by each manufacturer but can be up to 100mv full range. The output of the device is directly proportional to the pressure transducer input excitation. If the excitation changes, the output signal will also change, it is advised to use a regulated power supply. The distance between the instrumentation and the sensor should be short, and the reading could be affected by electrical noise due to the low end volts signal.

## **Voltage Output Pressure Transducers**

A voltage output transducer includes some signal conditioning which provide a DC output that is usually either 0-5Vdc or 0-10Vdc. As the output signal is not normally a direct function of the excitation voltage (as a millivolt transducer would be) and unregulated power supply could be used. Due to the output level being much higher in this case, the voltage output pressure transducers are not as susceptible to electrical noise.

## **4-20 mA Output Pressure Transmitters**

The pressure transmitter converts the physical measurement of the process pressure into an industry-standard signal that could interface with a wide range of instruments. The 4-20mA signal is the least affected by electrical noise and any lead wire resistance, this style of pressure measuring device is the best one to use when you are transmitting the signal over long distances. They are generally designed for general purpose applications where a reliable signal is required.