

# DID YOU KNOW?

NO: 299

March 18, 2015

## PRESSURE TRANSMITTER VERSUS PRESSURE TRANSDUCER

### Note

For those end users who have one of the rare PRIMUS sterilizers having a pressure transmitter, PRIMUS needs to know that information in order to send the proper replacement control board with resistors installed.

### Pressure Sensors

A **pressure sensor** measures pressure, typically of gases or liquids.

Pressure is an expression of the force required to stop a fluid from expanding, and is usually stated in terms of force per unit area.

A pressure sensor usually acts as a **transducer** as it generates a signal as a function of the pressure imposed.

In a pressure **transmitter**, the pressure changes act on a “bellows” type instrument that moves a solenoid iron core. This changes the electrical output of a solenoid coil. This signal is transmitted to a control circuit where it is converted into a pressure indication and/or a control function.

### Pressure Transducer

A pressure transducer is a device that converts an applied pressure into an electrical signal. A transducer typically provides a millivolt electrical output signal which varies with changes in pressure when connected to an appropriate power supply.

Transducers are voltage-output devices that are sensitive to electromagnetic interference. The electrical resistance of the connecting cable can cause significant errors if the cable is long. Transducers require three or four connecting wires to supply power and deliver the output signal.

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## **PRESSURE TRANSMITTER VERSUS PRESSURE TRANSDUCER (CONTINUED)**

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If the electrical connections are short, such as in the laboratory or inside an electronics enclosure, a pressure transducer is typically used because it is smaller and has few active electronic components that can be upset by electromagnetic interference.

### **Pressure Transmitter**

A pressure transmitter is simply a pressure transducer with extra electronics to transmit a 4 to 20 mA output signal.

Because it only needs 2 wire connections and solid-state electronics, the size and cost of a pressure transmitter sensor has shrunk over the years. It is now difficult to tell the difference between a pressure transducer and transmitter by just looking at its size and shape.

One of the benefits of pressure transmitters is that they incorporate zero and span adjustment potentiometers which allow for easy calibration.

### **Identifying a Transducer and a Transmitter**

The general rule of thumb is that if the pressure sensor has a millivolt or non-amplified output, it is a pressure transducer. If the pressure sensor has a voltage (e.g. 0-5Vdc , 0-10Vdc or 1-5Vdc ) output, it is an amplified voltage output pressure transducer.

If a pressure sensor has a current loop output (e.g. 2 wire 4-20mA or 3 wire 0 /4-20mA), it is a pressure transmitter.

### **Uses of PRIMUS Transducers and Transmitters**

The majority of the PRIMUS sterilizers in Life Science and Healthcare utilize PRIMUS P/N 400281 (Pressure Transducer), especially with PSS5 controls. The majority of PRIMUS sterilizers used in BioPharma applications utilize P/N 400563 or P/N 400333 (Sanitary Pressure Transmitter), especially with PSS6, PSS7 and PSS9 Allen-Bradley control platforms.

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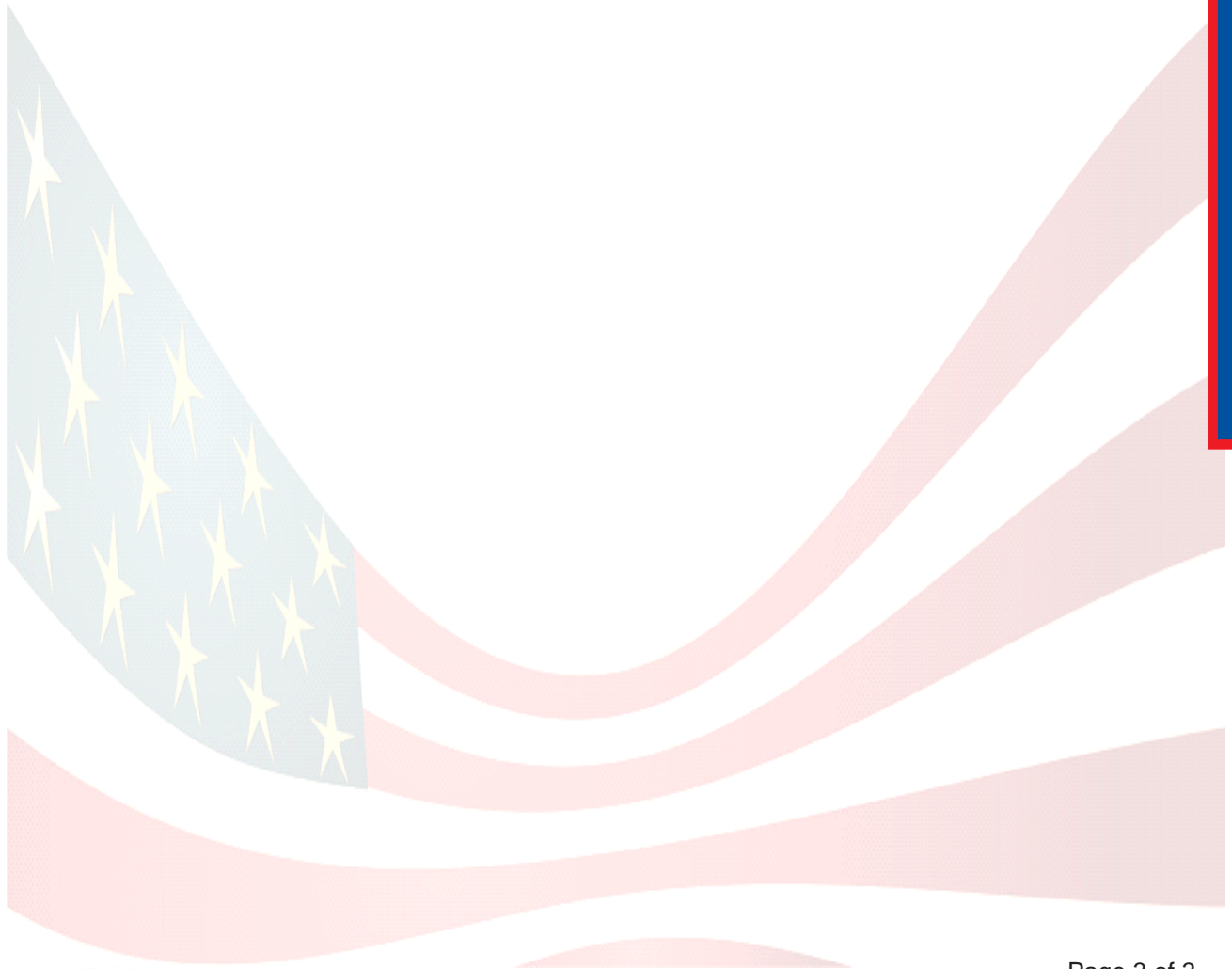
## **PRESSURE TRANSMITTER VERSUS PRESSURE TRANSDUCER (CONTINUED)**

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### **Ordering the Correct Replacement Part**

If there is a question concerning which pressure transducer or transmitter is required on a specific PRIMUS sterilizer, please contact the PRIMUS Parts Department at (402) 344-4200 Ext. 7.

It is very important to provide the sterilizer's respective Model Number and either the Serial Number or Job Number to determine the correct part.



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