

Frequently Asked Questions

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General

Q: WHAT COMMON OUTPUT SIGNALS ARE AVAILABLE?

A: 0-30 mVDC, 4-20 mA, and 0-5 VDC (Transducer Series Dependent). Other output signals are available. Please contact Taber Sales for more information.

Q: WHAT IS DIFFERENCE BETWEEN GAUGE (VENTED) AND STANDARD GAUGE PRESSURE?

A: Taber offers vented or standard gauge transducers that reference the current, local barometric pressure as the offset. Otherwise, Taber offsets gauge transducers to 14.7 PSIA (Standard Gauge Pressure).

Q: WHAT IS THE DIFFERENCE BETWEEN BI-DIRECTIONAL VS. UNI-DIRECTIONAL PRESSURE?

A: A unidirectional differential transducer is only compensated on the "High Pressure" side. A bidirectional differential transducer is compensated on both the "High Pressure" and "Low Pressure" side.

Q: WHAT IS THE SHELF LIFE OF THE TRANSDUCER?

A: The standard shelf life is one year. Taber recommends recalibration and recertification

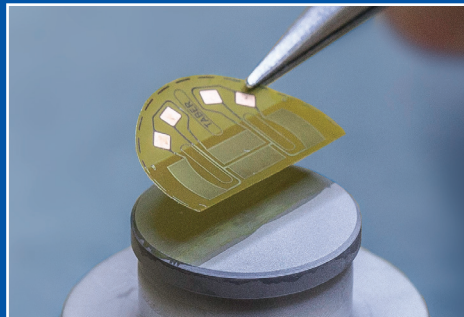
if the transducer is not being used to avoid any potential error due to storage conditions uncontrolled by Taber. Materials used in the construction of the transducers however have an unlimited shelf life.

QUESTION:

What type of Pressure Transducers does Taber manufacture?

ANSWER:

Bonded Foil Strain Gage Pressure Transducers (Wheatstone-Bridge Technology)

**Q: HOW OFTEN SHOULD THE TRANSDUCER BE CALIBRATED?**

A: Periodic calibration of any pressure transducer is recommended as a verification of proper operation within designed specifications. How often a calibration is performed will depend on the application and frequency of use the pressure transducer has seen. For example, an instrument that is used infrequently and merely sits in storage might be calibrated only once every 12 months. For transducers that are used to perform aggressive testing on a daily basis, the

user may want to calibrate the transducer every few weeks. Calibration is most often transducer dependent. For program transducers (built to a customer's statement of work and specifications), calibration is unnecessary. For commercial customers of standard transducers, it's typically customer dependent.

Electrical

Q: HOW DO I WIRE THE TRANSDUCER TO MY DATA ACQUISITION SYSTEM?

A: This is dependent on the transducer, the output/receptacle type, and the wiring configuration. Please contact Taber Sales for more information.

Q: DOES MY TRANSDUCER HAVE REVERSE POLARITY PROTECTION?

A: Taber P2911, P4911, P5411, and P5911 transducers have reverse polarity protection. For this option on other transducer models, please contact Taber for details.

Q: IF I INCORRECTLY WIRE WILL MY TRANSDUCER BE DAMAGED?

A: It is unlikely that incorrect wiring will damage the transducer. However, since there are often many variables in such a scenario, please contact Taber to verify.

Q: WHAT IS THE INPUT IMPEDANCE VALUE OF THE TRANSDUCER?

A: This is dependent on the output range of the transducer and the model chosen. Please contact Taber for more details.

Q: WHAT EMI/EMC PROTECTION IS INCORPORATED IN EMI/EMC BULKHEAD FILTERING?

A: This depends on the filtering added, and the transducer it's applied to. Please contact Taber Sales for more information.

Q: WHAT IS THE RESOLUTION OF THE TRANSDUCER?

A: Taber transducers are analog. Therefore, they do not have a specific resolution.

Q: IS THE TRANSDUCER ESD SENSITIVE? WHICH CLASS?

A: Transducers with active electronics are ESD sensitive. All amplified transducers should be considered ESD sensitive.

Q: WHAT EMI/EMC SPECIFICATIONS/CATEGORIES/CHARACTERISTICS DO THE TRANSDUCERS MEET IN STANDARD CONFIGURATION?

A: EMI/EMC requirements are relatively complex. In general, EMI/EMC requirements per MIL-STD-461 are the industry standard. Any non-amplified transducer would meet these requirements, however for amplified transducers additional engineering is needed.

Q: WHAT IS THE OUTPUT IMPEDANCE VALUE OF THE TRANSDUCER? (see chart below)

A: This is dependent on transducer output and model. For general information for certain transducer models, see below. For all other models, please contact Taber for more details.

<i>Model</i>	<i>Max Output Impedance</i>
P2911	1,500 ohms
P4911	250 ohms
P5411	250 ohms
P5911	250 ohms

Electrical

Q: WHEN DO I NEED SPACE GRADE EEE COMPONENTS? WHAT IS CLASS S VS. CLASS T?

A: Space Grade components are normally necessary when a transducer is to be used in a setting where the highest reliability levels are required. Typically, radiation concerns are also present.

CLASS S is the standard space grade reliability level, whereas Class T is a level higher.

CLASS T is typically only used in the most aggressive environments, and often involves performing up-screening tests on Class S components.

Q: WHAT IS THE DIFFERENCE BETWEEN NON-AMPLIFIED AND AMPLIFIED OUTPUTS?

A: Non-amplified transducers have outputs of between 1.5mV/V and 3mV/V. Amplified versions have outputs of 0-5VDC, 0-10VDC, or 4-20mA in general (also 1-5 VDC and 0-100 mV). Amplified units have active electronics and offer more features, but cannot withstand as great of a temperature range or dynamic environments.

Q: WHAT IS THE DIFFERENCE BETWEEN NON-ISOLATED AND ISOLATED OUTPUTS?

A: Typically referring to the transducer output being isolated from the input voltage. For non-isolated transducers, a precision power supply is recommended, as the transducer output is impacted by changes in the input voltage. For an isolated transducer, the input voltage can vary within a set range and the output voltage will not appreciably change.

Q: WHAT IS AN RTD?

A: It is a resistance temperature detector. RTD's are simple sensors used to measure temperature, and can be placed within the body of a transducer.

Q: WHAT RECEPTACLES ARE AVAILABLE?

A: See Reference Drawings. Please contact Taber Sales or visit the Taber Transducer website.

Q: HOW DO I DETERMINE MY WIRING CODE?

A: This is dependent on the transducer, the output/receptacle type, and the wiring configuration. Please contact Taber Sales for more information.

Q: ARE RADIATION HARDENED COMPONENTS AVAILABLE?

A: For the 4911/5411/5911 Series, all components are radiation hardened up to 100 kRad.

Q: WHAT IS A SHUNT? INTERNAL VS. EXTERNAL SHUNT?

A: Shunts are utilized in order for the transducer to provide output without any pressure being applied (typically around ~80%FSO).

INTERNAL SHUNTS - Taber provides the resistor inside the transducer so the user can measure the voltage difference across the shunted pins on the receptacle.

EXTERNAL SHUNTS - The user positions their resistor across the shunted pins in order to measure the voltage difference.

Mechanical

Q: FLUID COMPATIBILITY AND TRANSDUCER MATERIALS - WHEN DO I NEED TO HAVE SPECIAL MATERIALS?

A: Taber recommends special materials be used for hydrogen and hypergolic applications, and potentially for oxygen applications as well if it is a high pressure application.

Q: ARE PRESSURE PORT INSTALLATION TORQUE SPECIFICATIONS AVAILABLE?

A: Pressure port installation torque specifications depend on the pressure port type and size, but there are recommended values for most of the ports Taber uses for its Transducers. Pressure port installation torque also depends on the level of lubrication of the threads or if they are torqued dry. Contact Taber Sales for more information.



Performance

Q: WHAT IS THE LEAKAGE RATE TABER TRANSDUCERS MEET?

A: $\leq 5 \times 10^{-8}$ scc/sec

Q: WHAT IS THE RESPONSE TIME OF THE TRANSDUCER?

A: Response time is transducer dependent. Most transducers manufactured by Taber have a response time around 5-10 ms.

Q: WHAT REQUIREMENTS ARE THERE FOR VIBRATION AND SHOCK LEVELS, DURATION, ETC.? DOES TABER BUILD TO STANDARDS (MIL-STD'S, ETC.)?

A: These requirements are often customer dependent and the transducers can be designed to meet customer criteria. Please reference the Transducer data sheets for more information. Contact Transducer Sales for more information if there are additional questions.

**COMPENSATED
TEMPERATURE
RANGE**

VS.

**OPERATING
TEMPERATURE
RANGE**

VS.

**SURVIVAL
TEMPERATURE
RANGE**

COMPENSATED TEMPERATURE RANGE (CTR) - Temperature range in which the transducer will operate within the total error band.

OPERATING TEMPERATURE RANGE - Temperature range in which the transducer will operate without degradation of performance once it returns to the CTR.

SURVIVAL TEMPERATURE RANGE - Temperature range at which the transducer components do not degrade and will return to operating capability when the transducer returns to the Operating Temperature Range or the CTR. Survival temperature of the transducer is based off of the component least resistant to extreme temperatures.

Manufacturing

Q: HOW LONG IS THE UNIT POWERED ON FOR DURING THE MANUFACTURING PROCESS?

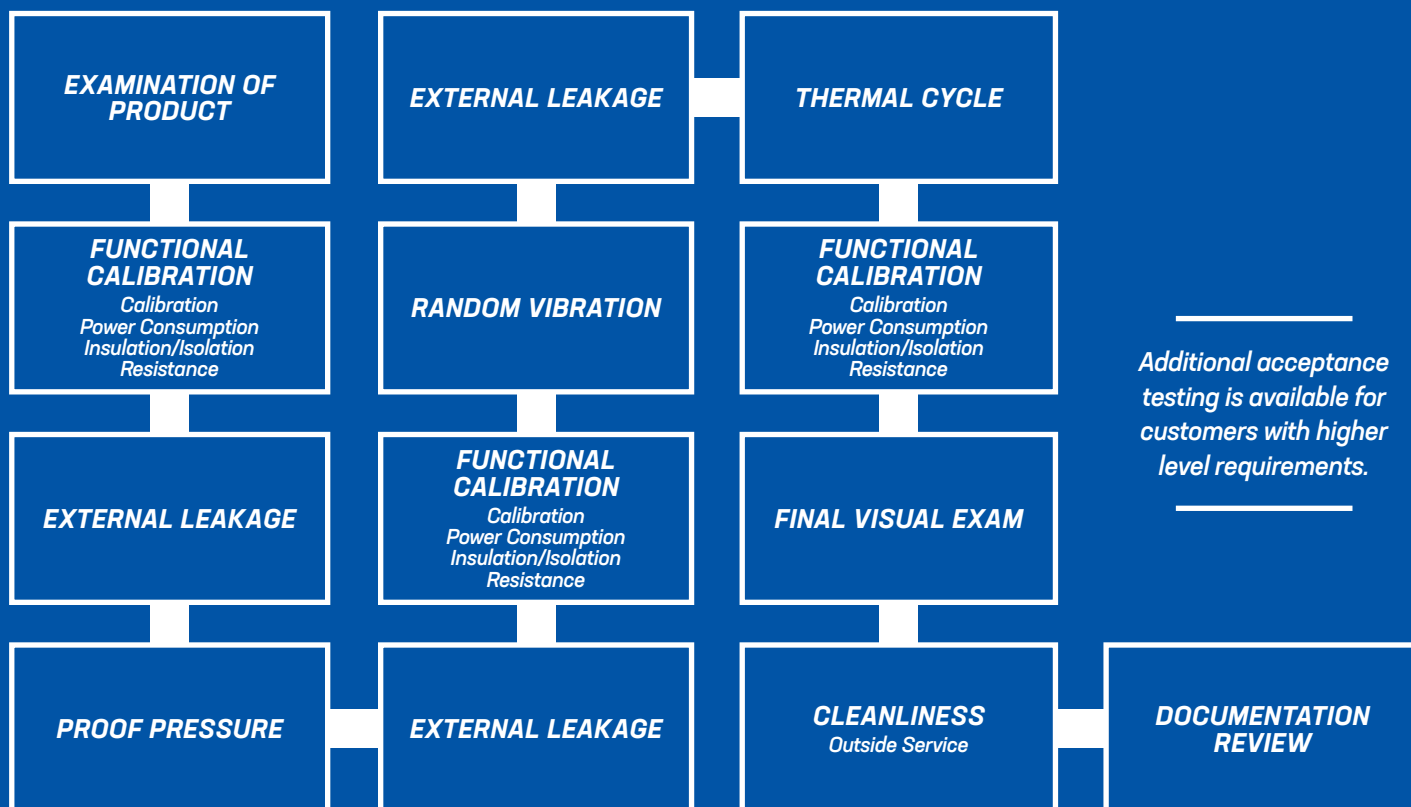
A: This varies depending on the transducer. Please contact Taber Sales for more information.

Q: HOW MANY TIMES IS THE TRANSDUCER PRESSURE CYCLED DURING MANUFACTURE?

A: Depending on the transducer model and customer specific application, this varies by transducer. However all Taber pressure transducers go through numerous proof pressure and MEOP cycles in order to condition them for use according to each customer specific application.

EXAMPLE TEST SEQUENCE FOR HIGH RELIABILITY TRANSDUCERS

Taber will provide a calibration data sheet showing the performance across temperature and pressure for each transducer, along with calculated error performance. See below for a sample acceptance test sequence.



Troubleshooting

Determine if any of the following questions are applicable. If the problem is still undetermined, contact Taber for assistance.

NO OUTPUT?

1. Is the transducer connected to power?
2. Is the transducer wired correctly?
3. Is the DAQ sensitivity set to a level where it can read the appropriate output?

UNRELIABLE OUTPUT?

1. Is the transducer connected to a regulated power supply if non-isolated?
2. Is the transducer connected securely to the pressure line with no leakage?
3. Is there any EMI/EMC events occurring in the general vicinity of the transducer?
4. Has the transducer been over-pressurized beyond its proof pressure?

ZERO DRIFT?

1. Is the output drifting in one direction over time, or does it return to its original output upon power cycling?
2. Is the transducer powered on and allowed to settle prior to taking measurements?
3. Is there a leak in the pressure line to the transducer?

