

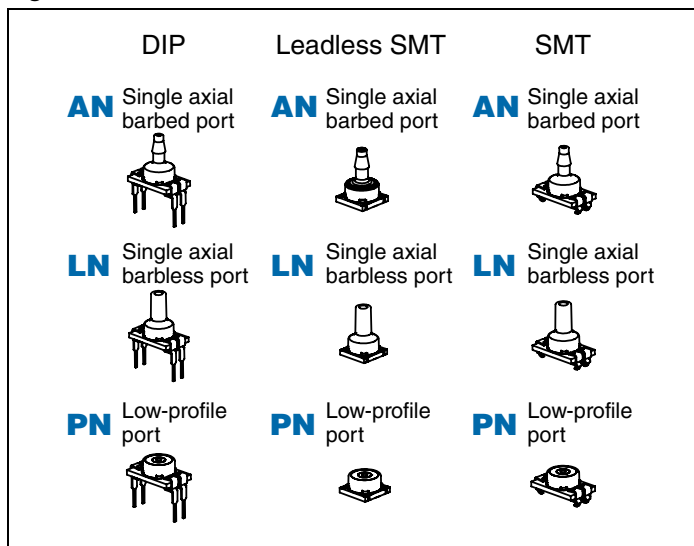
Technical Note

Pneumatic Interface Recommendations for Honeywell Basic Board Mount Pressure Sensors: TBP Series, Compensated/Unamplified NBP Series, Uncompensated/Unamplified

1.0 INTRODUCTION

There are three methods to pneumatically connect Honeywell's Basic Board Mount Pressure Sensors: TBP and NBP Series, to the end user's system, depending on the porting selected for the sensor (see Figure 1). These methods include tubing, O-rings, and clamping.

Figure 1. TBP and NBP Series Pressure Ports



2.0 Tubing

Tubing is a common method of pneumatically connecting to the sensors, and, depending on the working pressure range and operating temperature, the corresponding type of tubing can be selected (i.e., Superthane®, silicone, and vinyl).

Silicone tubing, for instance, tends to be the easiest to connect to but its working pressure is not as high as the other materials.

The lower the shore for the tubing, the easier it is to insert the tubing onto the sensor's port. However, the lower shore tubing also has lower working pressures. For working pressures of 20 psi and below, silicone or vinyl tubing tends to be used; for pressures above 20 psi, Superthane® or low-density polyethylene tubing can be considered.

The tubing used needs to be matched to the application to provide the required operating temperature range and working pressure. Table 1 shows some recommended tubing for Honeywell's Basic Board Mount Pressure Sensor, "A" port (Figure 1).

Table 1. Recommended Tubing for Honeywell Basic Board Mount Pressure Sensors

Manufacturer	Type	Part Number	ID (in)	OD (in)	Pressure at 25 °C (psi)
Frelin-Wade	Free-Thane (polyurethane)	1A-156-11	0.093	0.156	100
Frelin-Wade	nylon	1A-200-01	0.093	0.125	270
NewAge Industries	PVC	1100225	0.094	0.156	42
NewAge Industries	silicone	28003150	0.094	0.156	20

NOTICE

A technique sometimes used to apply a more rigid tubing-to-port connection is to use a low power heat gun to slightly heat the tubing. Once cooled, the tubing tends to grip the port better.

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3.0 O-RINGS

O-rings may also be used to connect pneumatically to the sensor. This method is generally for devices using the “LN” or “PN” port options (Figure 1).

- “PN” A 70 Shore 2-006 O-ring is the recommended O-ring size used to connect to the “PN” port.
- Most O-ring manufacturers recommend a compression of 20% to 25% to provide the proper O-ring compression over the temperature range.
- For the “PN” option, a 5-583 size O-ring 70 shore is recommended. This O-ring fits around the diameter of the sensor body.
- Silicone or fluorosilicone O-rings are commonly used as they tend to take less of a set over temperature verses other O-ring materials.

4.0 CLAMPING

Generally, when the working pressure is 15 psi or less, clamps are typically not required. As each application is different, the end use must be taken into account before determining whether clamps are necessary to ensure that the tubing remains in place and doesn't leak. Such considerations include vibration, pressure spikes, and the tubing being used. A common method of clamping is to use a plastic cable tie such as can be found in most hardware stores. Ties are available in a variety of sizes. They are relatively easy to install and stay in place over time.

NOTICE

A small drop of epoxy can be either applied to the port prior to the tubing being placed onto the port or applied at the end of the tubing once the tubing is in place instead of a clamp. This holds the tubing in place and can further act as a sealing agent to help ensure a leak-tight connection between the port and tubing. A room temperature sealant is generally used for this purpose. Ensure that the epoxy doesn't block the hole in the port as it needs to remain open.

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