Before starting up any gas equipment it is important to check the gas pressures — both inlet and manifold (outlet) pressure. It is important to understand that these settings can make a big difference in how the equipment is going to work. This applies to both residential and commercial equipment, single stage and multi-stage equipment, as well as whole house generators.

Improper gas pressure on the manifold side can cause the unit to overheat if it is too high. Too little gas pressure can cause nuisance lockouts on the flame sensor. Likewise, too much on the inlet side of the valve will cause gas valve failures or no heat calls because the valve cannot open against “high pressures”. Too little inlet pressure can cause sooting in the heat exchanger and contribute to nuisance lockouts.

So, what are the guidelines for inlet and manifold pressures? What should the inlet gas line pressure be for the equipment to operate safely? The incoming gas pressure must be between, 3.5 – 10.5 INWC for natural gas and between 8 – 13 INWC for propane in order to obtain the BTU input specified on the rating plate and/or the nominal manifold pressure specified on the rating plate, and for the equipment to work properly. With the correct manifold pressure you will now be able to set the correct firing rate. The manifold pressure varies greatly depending on the type of gas valve being used. You should always check the install instructions. On multi-stage units, there are high and low fire settings both need to be checked, most adjustments are only made on low fire, again check the install instructions.

One good check is to leave the manometer hooked up to the inlet side and then watch it as the unit operates. This is especially important on “high pressure gas” supply systems and propane applications, anyplace a pressure regulator is used. A sometimes the inlet pressure drop, possibly due to a faulty regulator, when the gas valve opens. A lot of techs will hook up the meter, see that they have good incoming pressure and then remove the meter to the manifold side. Then they see a problem on the manifold side and condemn the gas valve when there is nothing wrong with it, the problem was with the regulator. Gas pressure, both inlet and outlet, are important for proper operation of any heating system.

Other uses for a dual port manometer is checking pressure switches, as well as checking static pressure on a forced air system using the ASPI static pressure probes.