

Tech To Tech

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Welcome to the first edition of “Tech to Tech”, a column written for technicians by a technician. Each month we will cover technical issues related to the installation and servicing of HVAC equipment.

This month we will be discussing Electronic Testing Devices like digital multi-meters, anemometer, temperature-probes, manometers and how versatile they are.

If you had to describe these devices with one word, what would it be? For me, the word that best describes these invaluable tools is “answers”. They provide quick and accurate measurements that allow you to make better decisions that help prevent costly callbacks, save time and make your job easier.

How do you know the voltage, ohms, amps or microfarads without a digital multi-meter? How do you know the temperature or temperature differentials without a temperature probe or gun? How do you get relative humidity or wet bulb measurements without a digital psychrometer? Do you know all of the things you can do with a manometer? Without these devices, how can any HVAC technician (installer or service) properly troubleshoot or startup equipment? Without them you are guessing and this can lead to costly mistakes.

Example: how do you know what the gas pressure is after converting a gas valve? Do you use the technician’s tale of screwing the adjustment screw all the way in and backing it out four turns or use a manometer? I can tell you from experience that the gas valve is not always set at the proper pressure for natural gas coming from the factory. Gas pressure should always be checked & verified in either of these situations.

Only when a technician has and knows how to use these devices and the multitude of answers they can provide, does he truly understand their value.

Here is a list of some of the basic testing devices and some of the functions they perform:

Digital Multi-meters: depends of model used but most mid level models can do the listed test

- Voltage AC and DC
- Amperage
- Micro-amps
- Ohms
- Capacitance
- Frequency/Duty Cycle
- Diodes

Temperature Probes, Gun or Temp-humidity testers:

- Temperature
- Percentage of relative humidity-temperature

Many start up or troubleshooting calculations depend on temperature and/or humidity readings.

Do you know the calculation that requires a temperature differential plugged into a formula that will give you a ballpark CFM rate of the system you are working on?

Anemometers:

- ❑ Depending on which model you are using, the readings will be in FPM (feet per minute) which can be converted to CFM or direct CFM readings
- ❑ This is a very quick and painless way to know if you have enough or too much air flowing through the ducts

Digital Manometer:

- ❑ Measures pressure in inches of water column, if you are thinking this is only for measuring gas pressure, please think again
- ❑ The manometer can also be used to measure static pressure of a duct system, pressure differentials across coils, and the amount vacuum a draft-inducer is creating.

These are just a few of the electronic testing devices that all technicians should have and know how to use.

By now if you are wondering why I haven't included how to do any specific test with the above-mentioned devices, then wonder no more.

On Monday March 5th, 2007 from 5:30 to 7pm, Total Air Supply will sponsor a **free** class on how to use these and other electronic testing devices, hosted by yours truly, in our classroom at the Nashua, NH branch located at 171 East Hollis St.. **Even though we have tools available for purchase, there will be no sales pitches or obligation to buy; only straight instruction on the features of and how to use these devices and associated formulas.**

This class is also going to be given at the New Hampshire Plumbing and Mechanical Contractors tradeshow on March 2nd and 3rd. For times call Diane at 603-483-8200 and you can visit their web site at www.nhpmc.org. Please try to attend this show, as it is not just for plumbers. There will be many exhibits geared for the HVAC technician and it is a great opportunity to expand your knowledge of other areas of the trade.

You now have three opportunities to see what electronic test devices may fit your needs and how they can help you quickly and efficiently determine how HVAC systems are operating.

So please come on down and see first hand how many questions they can "answer" for you.

**We also are doing a "then and now" display of test devices. If you have an old school test device such as a sling psychrometer, analog clamp on meter or any other old school test device and would consider loaning it for the display, it would be much appreciated. The devices will be displayed in a locked showcase, for their security.

Don't forget to tell your friends or others to send me an email at randal@totalairsupply.com or call 603-889-0100 and they can join the email club.

The topic for March: Combustion Air

Until next month, stay warm.

Randal