1. What is a sensor?

A sensor can be defined as any instrument that measures some type of physical or chemical characteristic and converts that measurement into a signal that can be read by an observer or automated data collection system. We are all familiar with sensors and use them on a daily basis: among the simplest of sensors are thermometers to measure temperature and measuring tapes to measure distance.

Getting readings from a sensor can be as simple as using a visual reference scale built into the sensor (such as basic thermometer or measuring tape), or it may involve reading a digital/analog signal produced by a sensor. In the latter case, the sensor is combined with a meter. The terms sensors and meters are often used interchangeably, but they actually refer to different things: sensors respond to a physical or chemical condition and produce a signal; meters can be used to measure and display that signal in an understandable format. In many cases, sensors and meters are used together and they may be combined into a single instrument.

Figure 1. Decagon's VP3 sensor is a digital sensor. The sensor measures temperature and relative humidity and then calculates vapor pressure deficit (Photo courtesy of Decagon Devices).

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