Selecting a Hygrometer

How to Choose a Best-Fit Hygrometer
How to Choose a Best-Fit Hygrometer

Selecting a Hygrometer
These 10 questions should be asked and answered as you determine your best-fit hygrometer.

1. Why do we need to measure?
   • to meet a customer’s specification
   • regulatory requirement
   • internal need to maintain product quality
   • internal desire to control energy consumption
   • determine efficiency, i.e. drying time
   • to avoid/predict condensation
   • to prevent static electricity
   • automate a process
   • maintain human or animal comfort

2. What humidity parameter will we use?
   • RH, Td, a, x, h, ppm, Tw?
   • relative measure or absolute measure
   • will the instrument sensor measure the parameter or calculate it
   • what is our industry using
   • will the parameter we choose fulfill the reason for the measurement

3. What is the expected range of measurement?
   • RH, Td, a, x, h, ppm, Tw?
   • temperature range of the process
   • pressure range of the process
   • flow rate at the sensor

4. What level of performance will we need?
   • uncertainty or accuracy (for our range of measurement)
   • response time required for control or condition changes
   • stability or drift
   • repeatability, linearity, hysteresis
   • resolution of output

5. What format will we need for output?
   • display only
   • signal (RS232, mA, VDC, Ethernet, Modbus, Lonworks)
   • measurement report only or controlling a process
   • how many parameters & how many channels do we require
   • will we need the instrument to log data & download
   • will we want to have the ability to configure in the field
   • is the output automatically adjusted for temperature and pressure
   • do we require temperature as one of the measurement outputs
How to Choose a Best-Fit Hygrometer

6 What is the most convenient & practical configuration for us?
   • fixed or portable
   • what type of power is available
   • remote probe or fixed/wall mount probe
   • if remote, what is the cable length to the probe
   • any probe size or mounting limitations
   • do we need it to be accessible for calibration, repair or maintenance
   • will we want to calibrate in place without disrupting our process
   • are the sensors interchangeable and replaceable in the field
   • can the probe be inserted and removed from the process without disrupting the plant operations

7. What is the composition of the air/gas to be measured?
   • do we know what chemicals may be present in our air
   • will the sensor measure accurately in our air or gas
   • do we have chemicals in the air and will they affect the measurement accuracy
   • are there special conditions that might affect measurement in our particular gas application

8. What are the installation requirements?
   • cable lengths to the transmitter; to the measurement point
   • will we need pressure or vacuum tight fittings
   • will we need vapor tight fittings; is the feed through vapor tight
   • will the measurement be made in the process
   • will we need to install a sampling system
   • will the sensor require the sample to be conditioned for accurate measurement
   • if we are measuring in extremely dry gas, are the materials non-hygroscopic and impermeable
   • do we need a NEMA or IP rated enclosure for the transmitter
   • is the area of installation rated as potentially explosive & is the instrument rated to meet it
   • will we need to insert or remove the probe from a process under pressure

9. Cost versus Performance, lifespan, maintenance?
   • higher accuracy, more options, working in extreme conditions = higher $$$
   • what is the recommended calibration interval, cost of calibration
   • can we calibrate it ourselves, what equipment would we need to buy
   • how easy is it to use, will we have to spend time and money in training, setup time
   • will we need an instrument that can stand up to harsh conditions, rough handling
   • what additional expense will incur for spare parts
   • what is the cost to our organization for poor measurement or poor performance
   • can we save money by using the same instrument in more than one application or location

10. What can I expect from the manufacturer for aftersales support?
    • consider availability & accessibility to technical support and aftersales support
    • consider the warranty period
    • is there domestic depot level repair facility available
    • can I modify or upgrade quickly and easily
    • how was I treated, what was expertise, availability of personnel during the sales process
    • what is the lead time for calibration or repair, option for rush service
    • was the manufacturer willing to provide a demo instrument to help me make a decision
    • is the manufacturer asking you these question???
Choosing a Humidity Measurement Instrument Vendor

• find a couple of suppliers
• evaluate the vendor based on the service you receive during your investigation phase
• you should be asked a lot of questions (like 1...10)
• Is there a demo instrument available to test?
• does the instrument include a calibration? accredited calibration?
• visit the factory
• is the sensor made by the manufacturer or is it purchased from a third party?
• is it only a vendor that you need? or do you need a vendor who can provide expertise?

For more information about measuring humidity, sign up for complimentary Vaisala Knowledge eNewsletters at www.vaisala.com/knowledge

For assistance with choosing a hygrometer, please feel free to utilize Vaisala Application Engineers as a resource.
  Direct tel. 1-800-408-9454
  E-mail. instruments@vaisala.com