



Dewpoint Measurement Application #1

Dry Compressed Air

- Application** Compressed air is found in several different varieties:
- Plant air—Raw compressed air from the aftercooler or compressor
 - Desiccant dried air—from either a heated or heatless twin tower desiccant drier set to provide a -40°F dewpoint at line pressure. This type of air stream is commonly referred to as “Instrument Air”
 - CDA—“Clean Dry Air” or desiccant dried air from a heatless desiccant drier, set to provide a -100°F dewpoint at line pressure.
- Problem** Air dryers can malfunction over time. The desiccant may lose its absorbency, a heater can fail, or a switching valve can hang up. Any of these conditions can cause a gradual or abrupt increase in the dewpoint. Wet air can ruin product or damage equipment.
- Solution** Install continuous dewpoint monitors on the outlet of each air drier to warn of an increasing dewpoint. Sensors are usually installed in a “sample cell” (extractive stainless steel block) with a continual bleed flow from the air line. This flow is normally left pressurized to provide a true pressure dewpoint. The pressure is only reduced after the sensor. The instrument will then transmit a 4-20ma signal to a DCS, or the relay contacts can be set to provide an audible or visual alarm.
- Equipment** Any Delta in-line instrument or 4-20 ma transmitter. Options exist for areas with Class 1, Div. 1 requirements. The SADP Mini portable can also be used for spot checking of several air dryers.
- Advantages** All Delta sensors are first aged, then calibrated to the highest possible accuracy, typically $\pm 0.7^{\circ}\text{F}$ dewpoint at up to 15 points, depending on the sensor range. The accuracy spec. of $\pm 3.6^{\circ}\text{F}$ is good for 1 year from date of delivery. All instruments and transmitters are supplied with a free NIST traceable report which documents the accuracy.