

## Hydrogen Cooling / Hydrogen Dryers

- Application** Hydrogen gas is used for cooling industrial turbine generators.
- Problem** Hydrogen gas has a very high heat transfer capability, and it is very free flowing (low viscosity). Both of these features make it ideal for rapidly cooling turbine generators. However, excessive moisture will reduce both these properties, and increase the potential for corrosion of the generator parts. Turbine generators have older style single tower desiccant dryers or newer dual-tower models. The single tower versions are very susceptible to moisture infiltration. The newer dual tower design is better, but a valve or component failure can cause system problems.
- Solution** Continuous monitoring of hydrogen dryers to warn of a wet-up in the system or a dryer failure. Normal measurements are moderate, in the range of  $-40^{\circ}\text{F}$  to  $0^{\circ}\text{F}$ .
- Equipment** Any in-line instrument will work for this application. Since hydrogen is a “Group B” rated gas, an intrinsically safe system with our approved Zener barrier will be required. The AMT-EX would be an ideal choice. An intrinsically safe portable instrument would be a good option if the application does not warrant continuous monitoring.
- Advantages** All Delta sensors will pick up a wet-up condition or dryer failure very rapidly.