

Cryogenic Gas Applications

- Application** Gases in cryogenic production plants or from liquid delivery systems. These are typically N₂, H₂, He, Ar, and O₂.
- Problem** Cryogenic gases are typically used in blanketing applications, such as heat treating, glove boxes or in semiconductor facilities (FABS). Water in the gases can lead to imperfections on the surfaces of the parts or to reduced computer chip yields. Moisture is reactive and can chemically alter processes in glove boxes.
- Solution** Continually monitor cryogenic gas lines at key points, such as production units, liquid and gaseous tank filling or delivery stations, and glove boxes. If many glove boxes or usage locations are in service, it is permissible to continually monitor the main gas line feeding them, and then check the individual glove boxes with a portable instrument.
- Equipment** In-line instruments with a sensor capable of at least -80°C (-112°F or 0.4 PPMv) is required. Some applications will require sensors capable of -110°C. Hydrogen will require either explosion-proof housings or intrinsically safe operation. Components in oxygen service may require de-greasing..
- Advantages** Delta moisture analyzers offer a very fast response, even when dried to the low levels found in most cryogenic applications. In addition, all dry gas sensors are stabilized cryogenic conditions, and calibrated as low as possible in this range.