



# ITT

## Neo-Dyn®

## Cryogenic Crisis

An ITT Neo-Dyn Temperature Switch Application story

*...one of the largest concerns is cryogenic liquid escaping the normal boundaries of the process.*

An interesting application for our 132TC temperature switch is for an installation where it's asked to do nothing at all. In fact, it's not even piped or plugged into the process. It's just hanging around, literally. What's going on with this you may ask?

One of the largest Specialty Gas manufacturers has selected the ITT Neo-Dyn temperature switches for monitoring ambient temperature as a protective safety device in their production facilities. These plants produce Nitrogen and Oxygen, the two largest volume industrial gases commercially produced, along with Argon. The process used to isolate and create these individual gases from air and transfer them into a liquid state is called Cryogenic Air Separation. In this process, air is compressed and cooled to cryogenic temperatures where it becomes liquefied. It then separates by density (like oil & Vinegar in a dressing bottle) in a distillation column. The temperature of the three liquids at this point is between -297F and -320F.

During the production process, one of the largest concerns is cryogenic liquid escaping the normal boundaries of the process. Such a failure could be caused by pump seal leaks, tank overflow or human error. If this condition were present, the process control system would have to respond to protect the personnel and the effected area. The ITT Neo-Dyn 132TC temperature switch used as a protective device is ideal for this application.

The way this application works is that several switches are installed at various points around and within the production area. Their job is to monitor the surrounding ambient temperature of the air. That is why they are not inserted into the process. The switches are set between -25F and -50F decreasing depending on the location. If there is a failure in the cryogenic process, liquid

at -300F would escape the system and lower the surrounding ambient temperature very fast. The 32TC would actuate when sensing a sudden drop in ambient temperature and alert personnel of the abnormal condition.



The inherent set point stability and immunity to shock plus the lack of routine maintenance/calibration provided by our "Nega Rate" Belleville Spring, were once again primary factors in this Specialty Gas manufacturers choice in safety and control. Are there Process plants in your area that could use this protection?