

LN₂ Autofill System

Physical Description

The LN₂ Autofill System provides vital features for the successful maintenance of detectors at liquid nitrogen temperatures. The system has a sensor placed at the venting outlet of the dewar, this enables the system to cut off supply when overflow is sensed, rather than simply imposing a time limit on the fill. Should there be a shortage of liquid nitrogen, or a fault with the system, an audible alarm will sound and the system will telephone a preconfigured number to inform of the situation.

This will give sufficient time for top up or exchange of the storage cryogen to prevent the detector cryostat emptying and the detector heating. The flow of nitrogen is controlled by two solenoid-operated valves, located one at each end of the transfer line as shown in Figure 1. Liquid nitrogen sensors are placed one at the open end of the transfer line (Sensor A) and one on the overflow from the detector dewar (Sensor B). Extra lengths of tubing are attached to the downstream sides of the blocks to direct overflow nitrogen safely away from personnel and equipment

Benefits

- Safety
- Reliable filling
- Release of staff for other tasks

Key Features

- Automatic phone dialling system to raise alarm in case of LN₂ shortage
- Automatic venting of gas in transfer line before refill
- Fill duration based on filling sensors
- Regular self testing of sensors

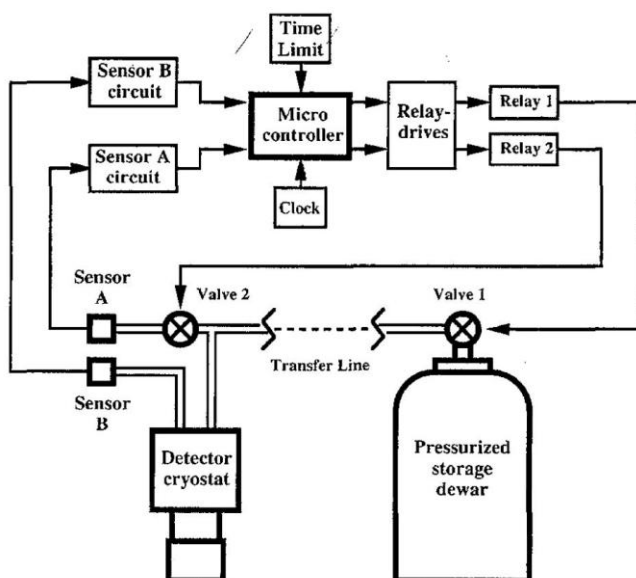


Figure 1: Block schematic of the filling system

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