

# Fast response of cold-cathode and ion pumps for interlock system

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## *Abstract*

The intent of the vacuum interlock system is to detect a vacuum fault condition and prevent damage to the ring hardware. In the case of a vacuum fault the gauges and ion pump controllers need to provide fast and reliable signal to the vacuum control system. As part of a characterization test, a spherical chamber, with a base pressure of low  $10^{-11}$  Torr range, was prepared to compare inverted-magnetron cold cathode gauges (CCG) and ion pump controller (IPC) signals. The analog output signals from all controllers were recorded during an air-in-rush test from a broken burst disk connected to a small  $N_2$  volume. Consideration was given to the gas dynamic expansion estimations in the chamber for comparison.