ORTEC®

HTDS
Hi-Tech Detection Systems

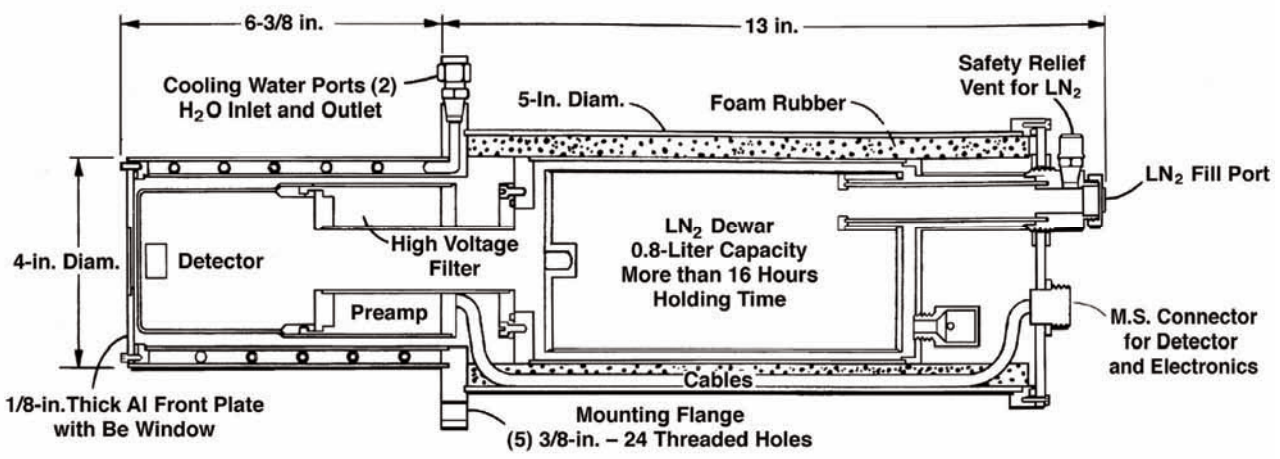
PGM-1
Pipe Gage Monitor

- **Compact (6-1/2 in. x 20 in. maximum dimensions)**
- **Lightweight detector/dewar package 8–10 lb stainless steel shroud 25 lb aluminum shroud ~12 lb**
- **1/4 in. Swagelock fittings for cooling end cap (optional)**
- **Foam-rubber insulation reduces shock**
- **External connections for in-situ LN_2 refilling**
- **Military specification electrical connections**
- **Water resistant**
- **Available with Be or Al end cap**

The ORTEC Pipe Gage Monitor (PGM-1) is designed to monitor fluid/vapor density in nuclear reactor coolant piping. Other applications include activated corrosion products monitoring, activation analysis of sulphur in coal slurry, and and stack monitoring. In applications requiring high-resolution gamma-ray spectroscopy, such as reactor coolant pipe monitoring, a high-purity germanium (HPGe) detector may be desirable. However, all germanium detectors require liquid nitrogen (LN_2) cooling to operate. A special dewar (thermos vessel) was designed to fit the compact space requirements.

The reactor coolant pipe is subject to temperatures of up to 650°F within 0.5 inches of the detector window. To ensure adequate cooling protection under this environment, a cooling coil is built into the stainless steel end cap to circulate cold water as required. This small but rugged package is bolted to the coolant pipe via a flange.

The liquid nitrogen is refilled periodically through a separate automated filling system attached to the rear of the housing. The holding time of the LN_2 dewar is more than 16 hours. Electrical connections (preamp power, detector, H.V. bias, H.V. cutoff, amplifier output, test pulser input) to and from the detector package are made through a military specification connector. This compact (approximately 20-in. in length and 6-1/2 in. in diameter maximum) rugged detector package can be operated either indoors or outdoors.



Detailed Illustration of the ORTEC Pipe Gage Monitor (PGM-1)

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