



## Instrumentation

Most of the components we supply to the instrumentation industry are from our valve and fitting lines. The rest, from our R&D 100 Award-winning pulsed discharge detectors to our application-dedicated trace gas analyzers, are primarily for gas detection and purification.

### Pulsed Discharge Detectors

#### Non-Radioactive, Multiple Mode Electron Capture / Helium Photoionization

VICI PDDs (pulsed discharge detectors) utilize a stable, low powered, pulsed DC discharge in helium as an ionization source. Eluants from the column, flowing counter to the flow of helium from the discharge zone, are ionized by photons from the helium discharge. The bias electrode(s) focus the resulting electrons toward the collector electrode, where they cause changes in the standing current which are quantified as the detector output. Performance is equal to or better than detectors with conventional radioactive sources.

In the electron capture mode, the PDD is a selective detector for monitoring high electron affinity compounds such as freons, chlorinated pesticides, and other halogen compounds. For this type of compound, the minimum detectable quantity (MDQ) is at the femtogram ( $10^{-15}$ ) or picogram ( $10^{-12}$ ) level.

In the helium photoionization mode, the PDD is a universal, non-destructive, high sensitivity detector. The response to both inorganic and organic compounds is linear over a wide range. Response to fixed gases is positive (increase in standing current), with an MDQ in the low ppb range.

The PDD in helium photoionization mode is an ideal replacement for FIDs in petrochemical or refinery environments, where the hydrogen and flame can be problematic. In addition, when the discharge gas is doped with argon, krypton, or xenon (depending on the desired cutoff point), the PDD functions as a specific photoionization detector for selective determination of aliphatics, aromatics, amines, and other species.



**R&D 100 AWARD  
WINNER**

#### MORE INFORMATION

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Plug-and-play detectors  
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