Spiraltron™ Electron Multipliers

Spiraltron™ Series of Electron Multipliers for High Pressure Applications

Applications

- ✓ Elevated pressures
- ✓ Portable mass spectrometers
- ✓ Residual gas analyzers
- ✓ Vacuum loadlocks
- ✓ Small ID vacuum systems
- ✓ Array detections, such as magnetic sector mass spectrometers

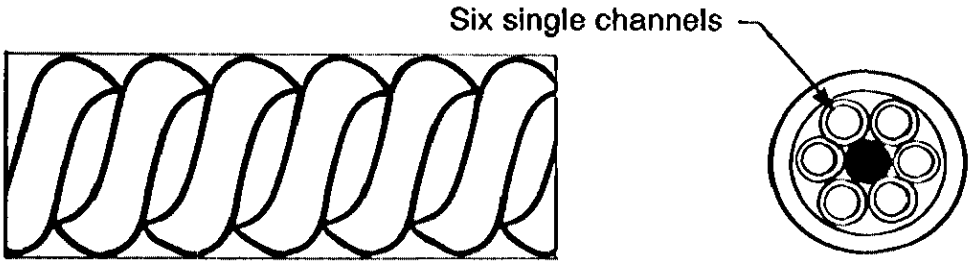
Features

- ✓ Longer life
- ✓ Higher dynamic range
- ✓ Reduced ion feedback
- ✓ High performance at elevated pressures
- ✓ Gains in excess of 100,000,000
- ✓ Noise less than 1 count/sec
- ✓ Excellent single ion sensitivity
- ✓ Small, compact linear configuration

PHOTONIS USA Spiraltron™ series of miniaturized channel electron multipliers can deliver high performance at pressures up to 10^{-2} torr. The internal spiral structure facilitates low noise performance by significantly reducing the ion feedback typically generated from the high concentration of residual gas molecules in high pressure environments.

Multichannel Construction

A Spiraltron™ detector is a Channeltron® electron multiplier consisting of six individual channels fed from a common collector cone. This multi-channel configuration provides a six-fold increase in surface area compared to single channel electron multipliers, leading to longer life. The spiral section of the detector consists of six single channels which are twisted – barber pole fashion – around a solid center. This geometry results in effectively six times the output surface area and, in addition, allows a straight channel geometry since the curvature preventing ion feedback is accomplished internally. This dramatically increases detector life and dynamic range.



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Benefits of Spiral Channel Technology

- Compact, on-axis design - eliminates need for curved channels
- High dynamic range with six channels - delays the onset of saturation
- Higher pressure operation – spiral architecture significantly reduces ion feedback
- Analog or pulse counting modes
- Long Life - extracted charge comes from six channels, not just one.
- Cone shape can be tailored for the application - round, square, rectangular

Spiraltron™

- Small, Linear Footprint
- Operates to 1 x10^{-4} torr

Spiraltron™ detectors operate at elevated pressures into the 10^{-4} torr range, a factor of 10 above CEMs and discrete dynode multipliers. Spiraltron™ electron multipliers are ideal for applications requiring high linearity. In addition, they provide excellent single ion sensitivity, producing Gaussian pulse height distributions (PHD).

MegaSpiraltron™

- Compact and rugged design
- Operates to 1 x 10^{-2} torr

The MegaSpiraltron™ detector is a physically small, robust ion detector that can achieve high gain while maintaining low noise. These detectors have a compact, durable design and are only 1.35” long and 0.6” in diameter making them an excellent choice for portable instrumentation.

MAGNUM™

- Easy integration
- Analog or pulse counting
- Operates to 7 x 10^{-4} torr

MAGNUM™ electron multipliers provide high dynamic range with high gain and low noise. The single piece cartridge design allows easy integration and replacement. MAGNUM™ detectors are available for analog or pulse counting applications, with standard or extended dynamic range performance.

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