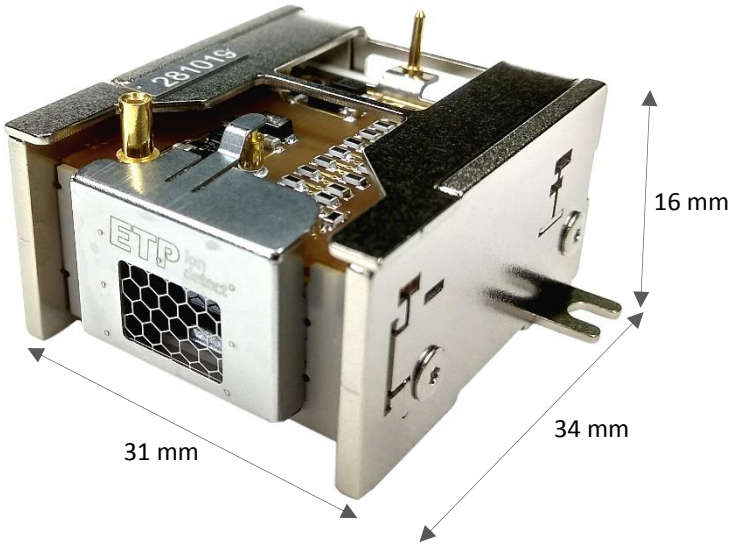
Adaptas' Next Generation MagneX® Micro Detector

Adaptas are proud to announce that we are bringing an all-new detector to market. Adaptas' next generation MagneX® Micro Detector encompasses award winning cross-field ETP MagneTOF® technology. This industry-leading technology provides the support needed for applications requiring a high performance miniature detector.

Some of the features of the new Micro detector include:

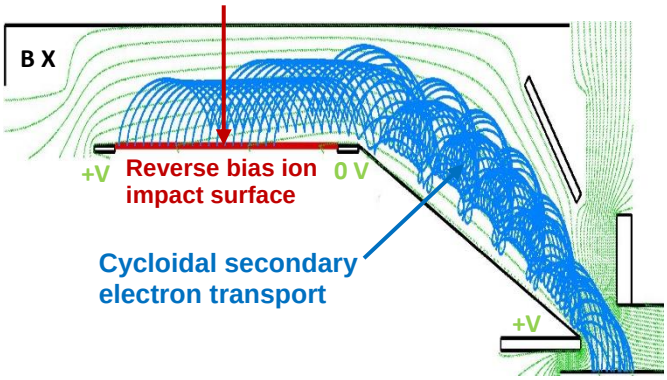


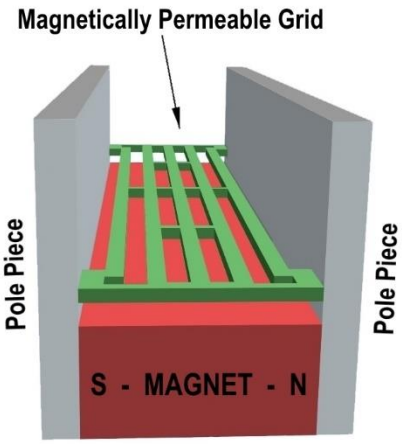
High performance miniaturized particle/ion detection

Having the smaller size allows for improved accuracy and performance through miniaturized particle and ion detection. Our MagneX® Micro detector is approximately 1/3rd the size of detectors with comparable performance, and has higher linearity than detectors of a similar size.

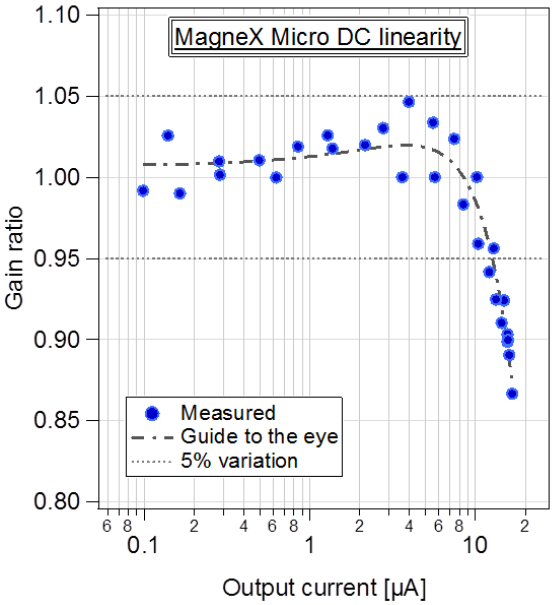
Cutting-edge reverse bias and magnetically permeable grid technology

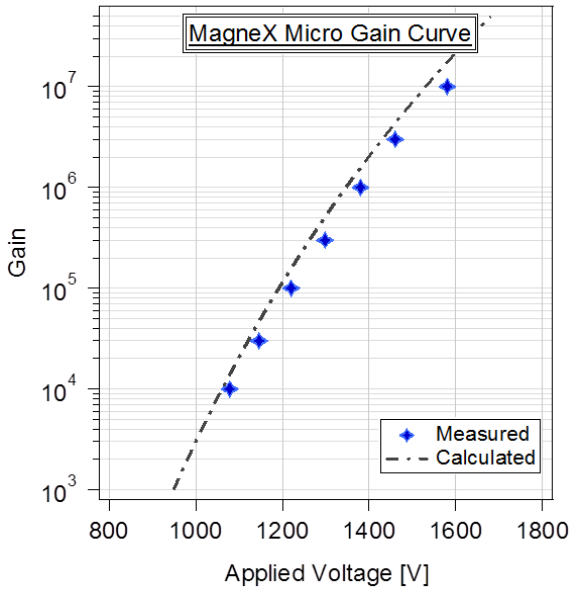
The MagneX® Micro incorporates ETP's patented reverse bias technology to efficiently (>99%) focus electrons from the ion impact plate to the amplifying section via cycloidal electron transport [patent - WO2017015700A1].





Transport of the electrons along the amplifying section is then optimised using a specialised ETP patented permeable grid [patent - WO2017132731A1].





Superior dynamic range and gain for a compact detector

Capable of achieving 10 µA linear output and 10^6 gain at 1400 V; the MagneX® Micro enables significantly increased dynamic range and exceptional gain characteristics for applications employing portable mass spectrometers such as residual gas and leak analysis, environmental and dedicated industrial sensors.

Fast pulse width

With a 1.5 ns FWHM single-ion pulse width; the MagneX® Micro can output ~4x the pulse height for the same gain (10 mV at $3x10^6$) of traditional pulse counting detectors. This extends its life and relaxes the gain requirement for pulse counting applications.

Large Sensitive Area

Detection efficiency has not been sacrificed. Despite its small form factor, the new detector features a relatively large sensitive area. Utilizing advanced crossed-field optics, the MagneX® Micro transports and focusses electrons from a large ion-impact area to a miniaturized multiplication channel.

Ideal for established and emerging MS technologies

The MagneX® Micro is suitable for a wide range of MS applications. For the mini mass spec market, the Micro will decrease the size and increase the performance of next gen instrumentation and new innovations.

Specifications

Model number	14DM584
Single-ion pulse width (FWHM)	1.5 ns
Multiple-ion pulse width (FWHM)	≤3.0 ns
Mechanical envelope size (nominal)	31 x 30 x 15.8 mm
Input aperture diameter (nominal)	8.8 x 7 mm
Maximum sustained linear output current (typical)	~10 µA
Typical voltage for gain of 10^5 (new multiplier)	~1200 V
Typical voltage for gain of 10^6 (new multiplier)	~1400 V
Maximum multiplier –HV voltage (at end of life) ⚠ Note: Operating a new detector at maximum voltage may result in damage to the detector	3000 V
Maximum dark counts: -HV = -2000 V (measured at 6E-6 Torr)	<50 cts/min
Maximum dark current: -HV = -2000 V (measured at 6E-6 Torr)	<1 pA
Maximum operating pressure	10^{-4} Torr
Long/short term storage requirements	Protect from dust and humidity
External magnetic field strength	~200 G @ 5 mm (~20 G @ 15 mm)
RoHS compliant	Yes (exemption 7c-1)

Dimensions