126 Ridge Road, Lansing, NY, 14882
Tel: (607) 533-3531 ● Fax: (607) 533-3618
adc@adc9001.com ● www.adc9001.com

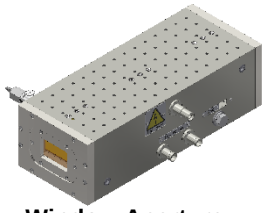
Ion Chambers Ordering Information

Customization available

IC-400 Series

			
Window Aperture 25mm x 40mm **Dimensions (w/o base)** 113.8(W) x 104.3(L) x 113.8(H) mm	**Window Aperture** 25mm x 40mm **Dimensions (w/o base)** 113.8(W) x 154.3(L) x 113.8(H) mm	**Window Aperture** 25mm x 40mm **Dimensions (w/o base)** 113.8(W) x 254.3(L) x 113.8(H) mm	**Window Aperture** 20mm x 35mm **Dimensions (w/o base)** 113.8(W) x 205.3(L) x 113.8(H) mm
IC-400-50	**IC-400-100**	**IC-400-200**	**IC-400-50-XY**

IC-500

		
Window Aperture 25mm x 40mm **Dimensions (w/o base)** 96.75(W) x 104.3(L) x 66(H) mm	**Window Aperture** 25mm x 40mm **Dimensions (w/o base)** 96.75(W) x 154.3(L) x 66(H) mm	**Window Aperture** 25mm x 40mm **Dimensions (w/o base)** 96.75(W) x 254.3(L) x 66(H) mm
IC-500-50	**IC-500-100**	**IC-500-200**

Micro Ion Chamber

Window Aperture
10 mm Diameter
Dimensions (w/o base)
19.28(W) x 56.07(L) x 94 .83(H) mm

MIC-205

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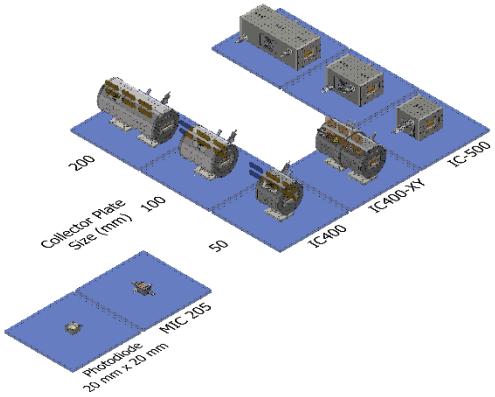
Ion Chambers



ADC's ion chambers are designed for precise, low noise x-ray measurement. The electrodes are constructed of nickel plated copper on fiberglass supports, all housed within a nickel plated aluminum frame. Each electrode is connected to an SHV connector. ¼" push to connect style fittings comprises the gas connections.

The system can be configured for air, vacuum, or ultra high vacuum operation through one of three interfaces. The air system stands alone mounted to the system table. The vacuum configuration interfaces through a NW40 style bulkhead fitting. The UHV version replaces the Kapton windows with beryllium windows and interfaces through a tapped DN63 CF flange.

One unique feature of the IC-400 & IC-500 series precision ion chambers is the incorporation of a split collector plate. The electrode is split in a saw tooth configuration with a height of approximately 10mm, 15mm, and 25mm such that, when the differential current is computed, allows use as a beam position monitor. Custom configuration of the window and electrode sizes is available upon request.

Micro Ion Chamber

A small ionization chamber detector (MIC-205) has been developed for monitoring the intensity of hard X-ray beam for Synchrotron facilities around the world. The small dimensions of the ionization chamber (20 mm along the beam direction and 30 mm perpendicular to it) make it possible to place it very close to the sample.

Advanced Design Consulting USA, Inc.
Standard Product

ISO 9001:2015 Certified

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Specifications

Windows
25 µm Kapton foil factory installed + Kapton film kit included: 25, 50, 125 µm

Body Material
Aluminum alloy

Electrode Gaps
10, 15, 20, 25mm (User adjustable)

Electrodes
Gold plated with guard rings

Working pressure
0.7 - 1 .3 Bar Absolute

Operating potential
Up to 1 .7 KV

Maximum pressure drop
< .0375 bar/min

Gas Connectors-
Chamber Gas Fitting:
Colder MCD 1002, 1/4” hose ‘push-to-connect’ normally closed.
Gas Adapter Insert:
Colder MCD2202 1/8” hose barb in-line coupling.

Electrical Connectors-
Low Voltage Electrode:
Standard 50ohm Female BNC
High Voltage Electrode:
Standard SHV BNC
Gridded Option:
Standard SHV BNC

Adapter Kits- (ONLY AVAILABLE FOR 400 SERIES)
NW25 IC-400 Adapter Kit, Part Number: 00018716
NW40 IC-400 Adapter Kit, Part Number: 00018718
NW50 IC-400 Adapter Kit, Part Number: 00018722
4.5" IC-400 Conflate Adapter Kit, Part Number: 0016209

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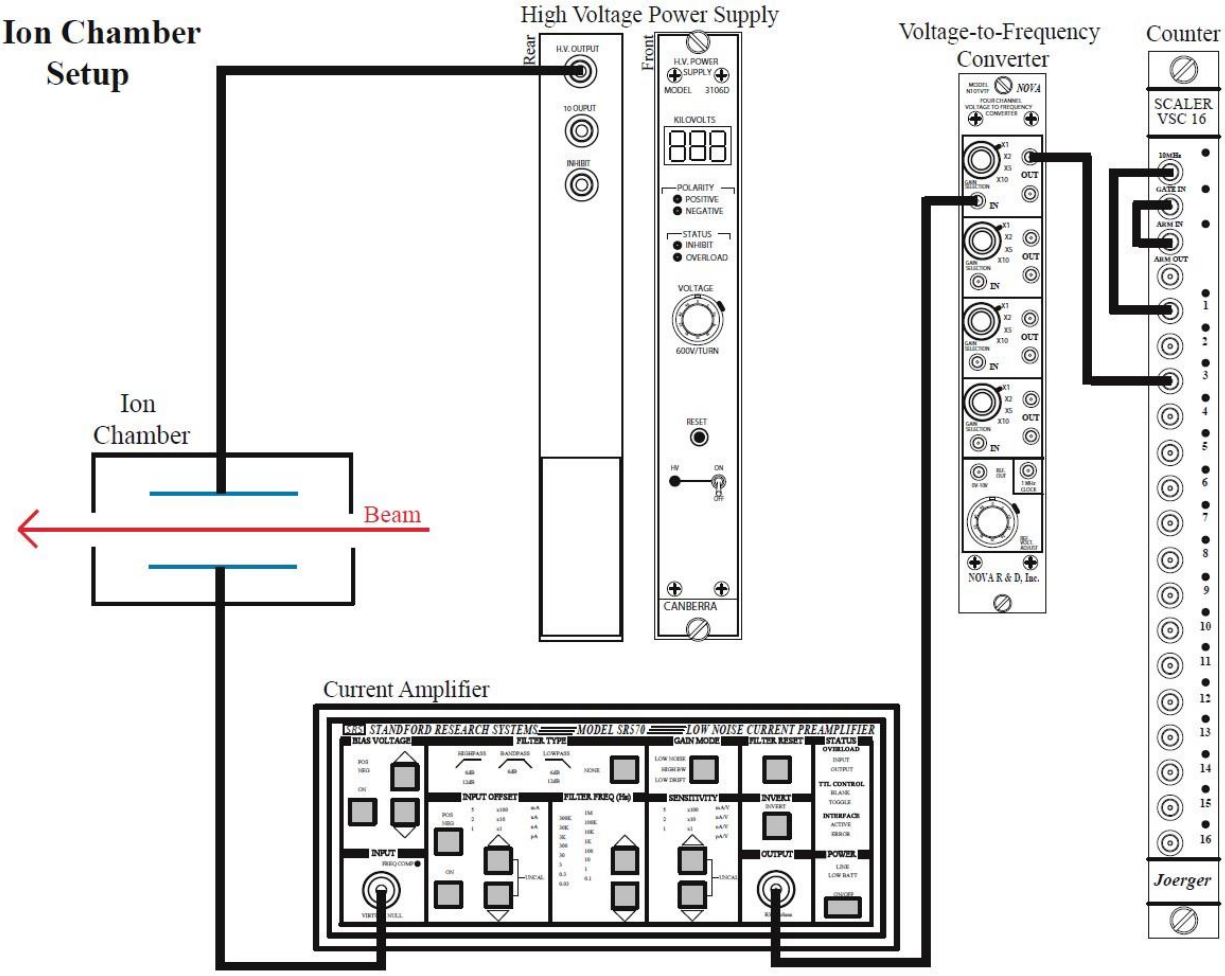
Electrical Connection



Drawing taken from Advanced Photon Source Sector 9

In a typical ion chamber setup (shown above) one of the electrodes is given a high voltage and as the beam goes through the chamber the gas ionizes and is collected on the low voltage collector plate. This collector plate signal is then increased by the current amplifier which outsputs to the voltage-to-frequency converter (VFC). This signal is then sent to the scaler (also called a counter) to be analized by the end user.

A position-sensitive (“split-“) ionization chamber can offer a convenient way of measuring the total intensity of an x-ray beam and its position along a line perpendicular to the optical axis with
μm precision. In a position-sensitive ion chamber the collection electrode is split into two halves, which symmetrically overlap the beam center line. When the x-ray beam passes the device in an off-center position, one half will generate a stronger signal than the other, the difference providing a good measure of the beam position. To accomplish beam monitoring in an ion chamber there must be nearly twice the amount of electronics are needed. (Figure 2)

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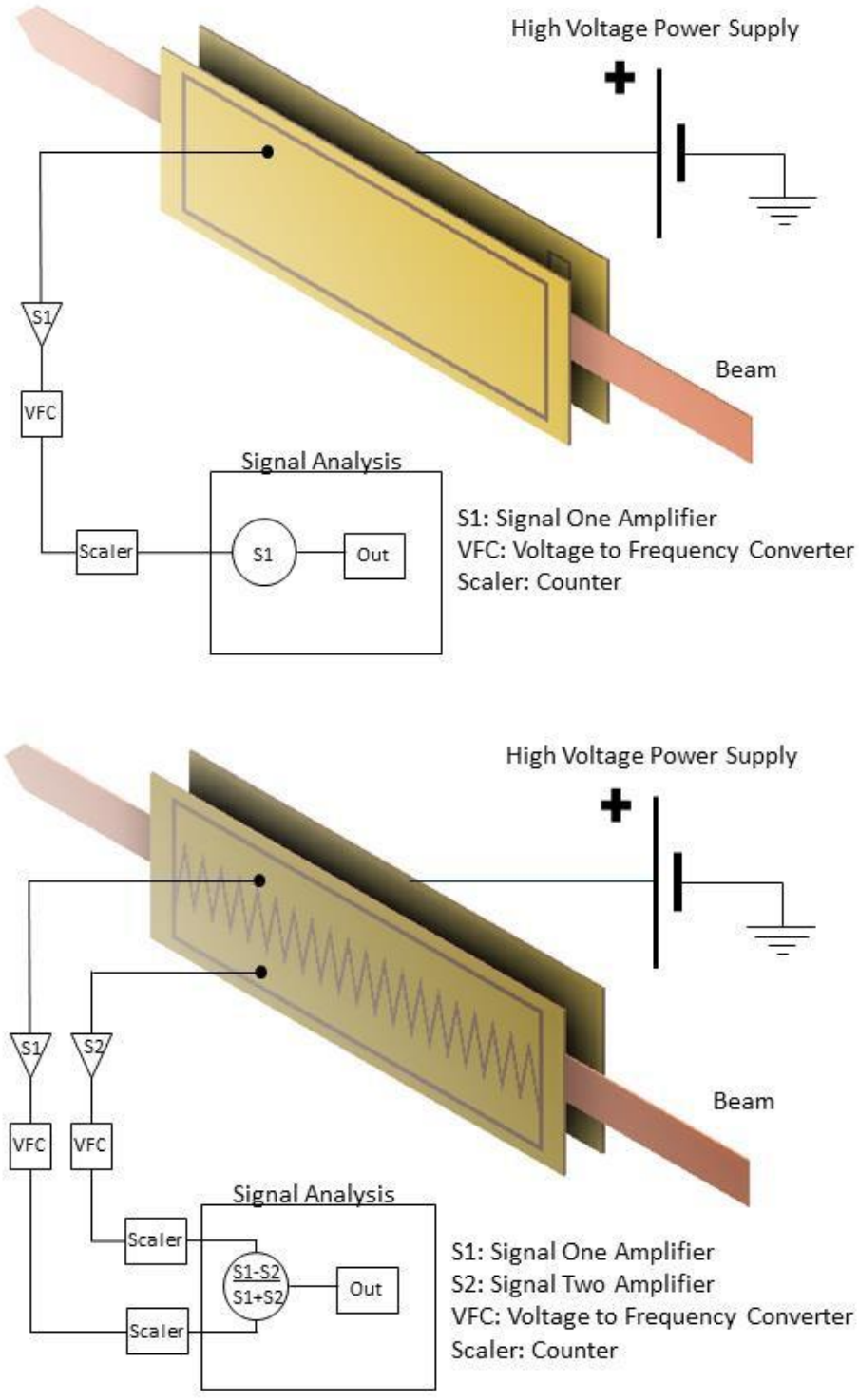

Figure 1 Single output ion chamber (top) & Position-sensitive ("split-") ionization chamber (bottom).