

IC Spec Ionisation Chamber



The IC Spec ionisation chamber has been specially designed for high precision X-ray intensity measurements at Synchrotrons and is particularly suited for transmission X-ray absorption spectroscopy measurements such as EXAFS or XANES. It has a large installed base and has undergone extensive testing on beamlines worldwide; it has been shown, at the European Synchrotron Radiation Facility, that it is capable of measuring EXAFS spectra with signal to noise of the order 10^5 (see graphs on the following page.)

The IC Spec chamber can be used with the IC Plus Electronics Module shown at the end of this section.

Specifications

Window aperture	6mm x 36mm	Electrode gap	30mm	Body length	342mm
Windows	70µm Kapton	Operating voltage	Upto 3kV	Flange diameter	150mm
Body material	Stainless steel body, Aluminium alloy end flanges	Electrode length	300mm	Working pressure	0.5 - 2.0 Bar Abs

Ordering information

IC Spec ionisation chamber with electrical safety box, short connector lead & burst disc	DIS-0100
Rigid and adjustable stand	DIS-0101
KF25 vacuum lock to provide filling and resealing capability, 1 required per installation	DIS-0102
Spare burst disc for chamber	DIS-0103

IC Plus Electronics Module

The optional electronics module has a preamplifier, voltage to frequency convertor, inputs/outputs for control and monitoring, high voltage supply with LCD display, and an RS232 communications port.

The module is available in two forms: stand-alone and plug-in. The stand-alone module requires extra cables but is suitable for use with any ion chamber (IC Plus, IC Prime, IC Spec, and third party chambers.) The plug-in module is only suitable for use with IC Plus chambers, and as it connects directly, offers improved low noise performance.



Specifications

Preamplifier		Voltage to frequency convertor	
Current range	0.1pA to 0.1mA	Frequency output	10KHz to 1MHz
Integration time	1s to 10µs	Linearity error	0.1% typical (100Hz to 1MHz)
Input bias current	100fA at 25°C	Output impedance	50Ω short circuit protected
Input current noise, f=0.1 to 10Hz	10fA p to p	High Voltage supply	
Input offset voltage	5µV/°C max 1µV/°C typical	Adjustable range	0-1700V in 1V steps
Input/output imp.	10 ¹² Ω / 50Ω	Noise	5mV p to p
Voltage output	0-10V	Max output current	1.2mA
		Temperature drift	20 ppm/°C typical

Ordering information

Plug-in module for IC Plus 50, IC Plus 150, and IC Plus 300	YMM-0004
Stand-alone module for use with any ion chamber, including IC Plus range	YMM-0005
Signal cable, BNC, 250mm long	CBY-1450
High Voltage cable, SHV, 250mm long	CBY-1451