rbd instruments

advancing materials science

ion source and controller

model 1401

description

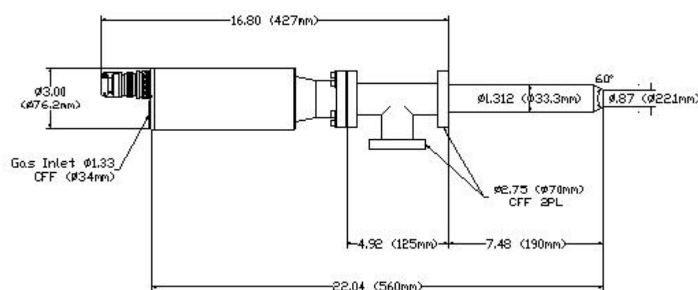
The Model 1401 Ion Source is ideal for use in surface chemistry experiments such as sample preparation and depth profiling with Auger and XPS. It can be used with most inert gasses.

With a beam current of 20 µA into a 0.4 mm diameter spot at a working distance of 25 mm, the source can deliver 10 times the current density of other commonly available ion sources. Select spot sizes down to 50 µm at a beam current of 1 µA from the front panel. Beam energy is variable from 5 eV to 5 kV while maintaining best focus at the sample. Beam current is adjustable independent of beam voltage over a wide range and is measurable from the front panel without external equipment.

Ion generation is by means of electron impact ionization, with dual filaments for long life of the source without having to break system vacuum. Ion source filaments are off axis to prevent line of sight deposition of the filament material onto the sample. The ion source may be differentially pumped either directly into the system vacuum or by means of a separate turbo pump for improved system vacuum.

The controller with power supplies and scan electronics is housed in a single 5.25”-high 19” rack-mount cabinet. The ion source can be controlled either from the front panel or through a flexible computer interface allowing control of beam and focus voltages, ionization current, gas, beam on/off, and raster. The raster scan is digitally generated for a uniform etch rate.

diagram



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benefits

- High current density of 15 to 50 mA/cm^2 depending on spot size selected
- Unique ion source design provides extremely stable emission
- Dual Tungsten filament, Yttria-coated Iridium optional
- UHV compatible
- Differential pumping port. Source may be pumped into the main chamber with increased chamber pressure and/or reduced performance
- Gun can be easily disassembled for cleaning of all internal components
- Electrical connections and gas inlet are all on the rear of the housing for simplified installation
- Preset extraction and condenser lens parameters (three spot size settings) for repeatable operation
- Integral measurement of beam current
- Direct measurement of ion source pressure
- System and cable interlocks prevent energizing high voltage when vacuum is poor or the cable is removed
- Power supply and raster generator in single 5.25”-high 19” rack-mount enclosure
- Digitally generated raster for uniform etch profile
- Optional computer control
- Optional ion source pressure regulation

specifications

Beam Energy	5 eV to 5 keV continuously variable
Beam Current Energy	20 µA maximum (Argon) @ 5 keV Beam
Spot Size (FWHM)	0.4 mm @ 20 µA, 50 µm @ 1.0 µA, 5 kV, 25 mm Working Distance
Raster Area	7 mm square @ 25 mm Working Distance
Electrical Requirements	115/220 V 50/60 Hz Auto-select
Mounting, Pumping Flanges	2.75” Conflat®
Gas Inlet	1-1/3” (34 mm) Conflat®

All specifications are subject to change without notice.

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