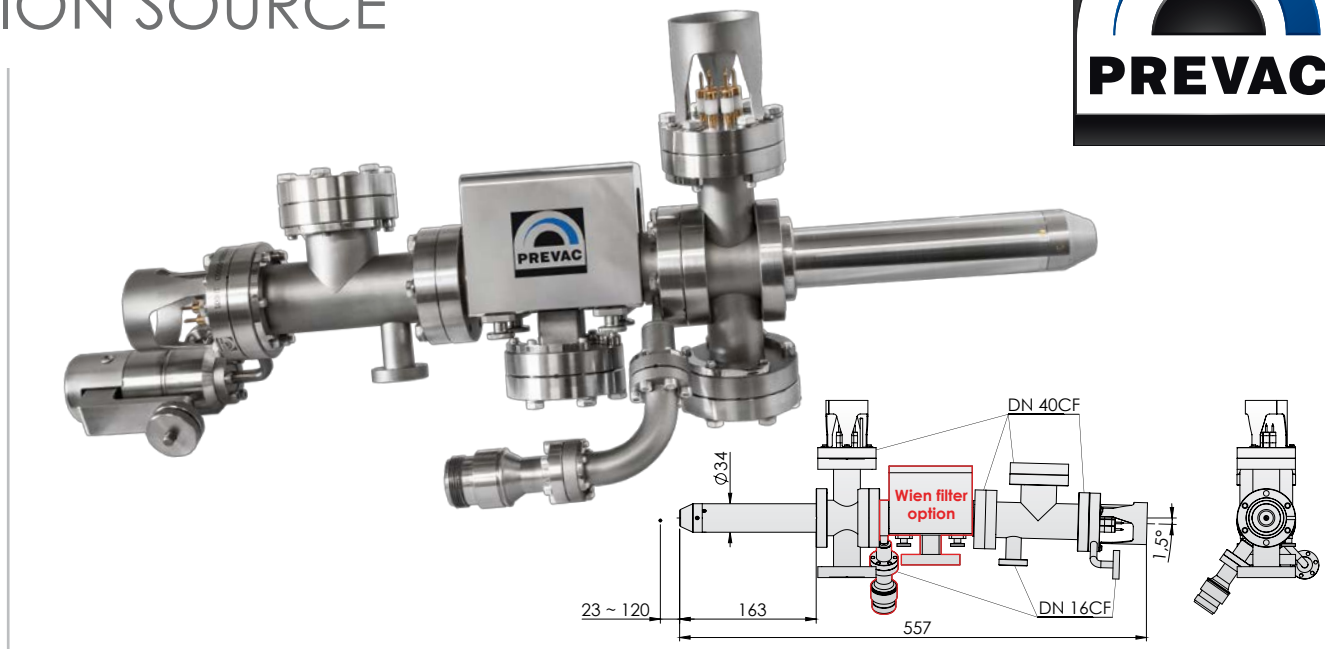
IS 40E1
ION SOURCE



DEPTH PROFILING | ISS | SIMS | SAMPLE CLEANING

DESCRIPTION

The IS 40E1 Ion Source is a two lens, extractor type, focused, differentially pumped ion gun. The source is able to raster a 10 mm x 10 mm area of the surface at the recommended working distance. It is particularly suitable for depth profiling in XPS, ISS and SIMS. The source can be also used for sample surface cleaning.

FEATURES

- Specially configured nose cone
- Operation with inert (Ar) & reactive gases (O_2, H_2, hydrocarbons with reduced lifetime)
- Continuously variable spot size
- Onside replaceable filament
- UHV gas inlet
- UHV conditions maintained in chamber
- Integrated scan and deflection unit
- Correction of incident electron beam angle (provided by IS40-PS power supply)

OPTIONS

- **Wien mass filter**
- Gas dosing system
- Linear shift: 25, 50, 75, 100 mm
- Differential pumping (2 stages)

TECHNICAL DATA

Mounting flange	DN 40 CF (rotatable)
Gases	Ar and reactive gases (O_2, H_2 hydrocarbons with reduced lifetime)
Energy range	0.15 keV - 5 keV
Scan area	10 mm × 10 mm (for distance of 23 mm)
Current density	up to 4 mA/cm^2 (for distance 23 mm)
Beam current	> 1 µA (for distance 23 mm)
Cathode type	yttrium oxide coated iridium
Small cone angle	50°
In vacuum side	no magnetic parts
Insertion length	163 mm; OD: 34 mm
FWHM	dependent on working distance (e.g. < 150 µm for distance 23 mm)
Typical working distance	23 - 120 mm
Bakeout temperature	up to 250 °C
Working pressure	10^{-8} mbar (with max beam current)

PREVAC sp. z o.o.
Raciborska Str. 61
PL44362 Rogów
sales@prevac.eu
+48 32 459 21 30
+48 32 459 20 01

IS40E1

IS40-PS

ION SOURCE POWER SUPPLY

(IS 40E1 mode)

DESCRIPTION

The IS40-PS power supply drives the IS40E1 Scanning Ion Source. It allows fine adjustment of the primary beam energy, ion density and beam profile (by adjustment of extractor, focus lenses, deflection and positioning elements). Up to 4 parameters can be varied via the digital encoder. The current status of each parameter is displayed on the large front panel LCD display. All settings can be manually adjusted or can be stored and recalled automatically after unit switch on. The unit also features a built in timer and automatic standby mode. Easy firmware update via USB port. The unit can be remotely controlled via RS232/485 or Ethernet interfaces. The unit is equipped with autosave function (the device save your parameters, preset and apply them automatically after restart).

OPTIONS

- Analog I/O card for vacuum measurement (1 gauge)

ION SOURCE CONTROL APPLICATION

TECHNICAL DATA

Supply voltage	100 - 240 V, 50-60 Hz, (power consumption max 250 W)
Beam energy (E)	0.15 - 5 keV, resolution 0.01 keV, ripple < 0.2 V_{pp}
Emission current (I_e)	0.01 - 10 mA, resolution 0.01 mA
Focus (1,2) voltage	0 - 5000 V, resolution 1 V, ripple < 0.2 V_{pp}
Extractor voltage (Ex)	60 - 100 % of energy, resolution 0.1 %, ripple < 0.2 V_{pp}
Beam position (Px, Py)	-5 mm - 5 mm, resolution 0.01 mm
Scanning area (Δx, Δy)	10 mm × 10 mm, resolution 0.01 mm
Scanning speed (time/dot)	20 µs - 30 ms
Timer	dual mode timer 0 s - 99 h 59 m
Vacuum measurement (optional)	CTR90, TTR91, TTR211, PTR225, PTR90, ITR90, ITR100, Baratron, ANALOG IN, MKS937A, PG105, MG13/14, PKR251/360/361, PCR280, ATMION
Communication interface	RS232/485, Ethernet
Communication protocol	MODBUS-TCP
User interface	7" TFT display with touchscreen, digital encoder
Interface languages	English, German, Polish
Dimensions	483 × 133 × 437 mm (W×H×D), 19" rack mountable
Weight (approx.)	12 kg

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IS40-PS POWER SUPPLY