



COMPACT ION TRAP SYSTEM

Related Products

- 4 K Cryogenic Ion Trap Housing
- Helical Resonator
- Helical Resonator Driver
- Ion Pump Driver
- Optics Package

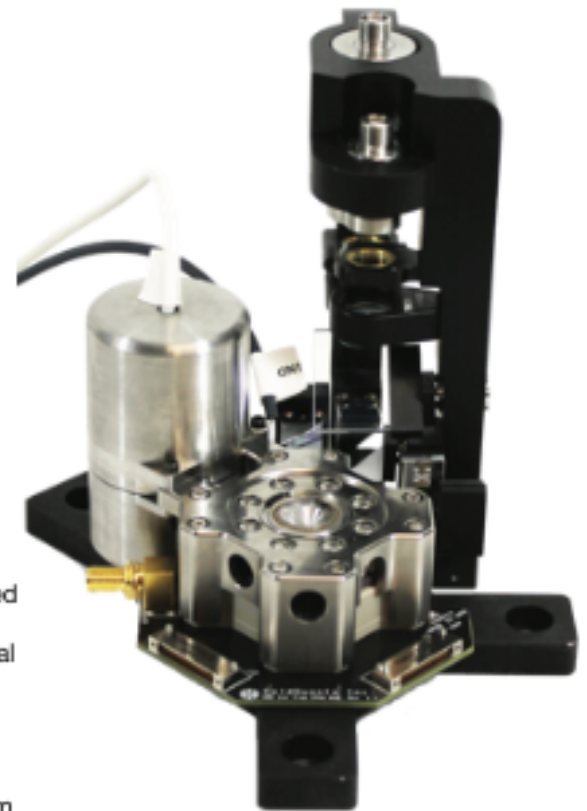
Product

- Compact vacuum cell
- UHV sealed package
- C-cut sapphire windows
- Ablation loaded ions
- Integrated ion pump

Product Description

ColdQuanta's compact ion trap housings give you a self-contained, high-optical access UHV environment for ion trapping with long trap lifetimes. The trap surface is ion milled before assembly into a UHV-baked chamber to provide an ultra-clean ion trap surface. The C-cut sapphire window material ensures a low birefringence and high UV transparency. The housing was initially designed to house a Sandia HOA trap.

The photo above shows the ion trap vacuum system with the breakout board for easy application of trap voltages and the physics package for delivery of photoionization, cooling, and repump lasers.



Product Specifications

Optical Access	2 through axes 45° 2 single-sided direction (see diagram on reverse)
Side Windows	0.12 NA
Top Window	0.7 NA
Single Sided Window	Opposite ablation target
Window Material	C-cut sapphire
Reflectance	8 % per surface without AR coating
Chip Connector	100 Pin CPGA
Dark Lifetime	25 min
Vacuum Pressure	2.5×10^{-11} Torr
Trap Type	HOA
Body Material	Titanium
Integrated Pump	Active and passive pumping
Vacuum volume	< 3 cm ³



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Options

Species	Ba (BaAl alloy) Yb (Metal) Inquire for other species
AR Coating	Inquire for options. Coating designs optimized for Ba, Yb, and Ba-Yb co-trapping available
Bottom Window	High NA optical access from the trap bottom
Ion Pump Driver	Power the ion pump
Optics Package	Beam delivery optics
Helical Resonator	Application of trap RF voltage
Resonator Driver	Helical resonator driver

Mechanical Drawing

