

Model #AOS-Cav- λ_R - λ_1 - λ_2 series: Dual-axis transfer cavity

Dual-axis transfer cavity data sheet

(Sample data for Model #AOS-Cav-780-369-493/650/935)

Device information and safe operating conditions

| Device information | | Safe operating conditions | |
|--------------------------------|-----------------------------|--|--------------|
| Model No. | AOS-Cav-780-369-493/650/935 | Heater power limit | <5 W |
| Serial No. | CAV-SAMPLE | Heater resistance | <2 Ω |
| Axis 1: λ_R, λ_1 | 369 nm/780 nm | Maximum operational temperature ^(a) | 45 °C |
| Axis 2: λ_R, λ_2 | 493 nm/650 nm/780 nm/935 nm | PZT voltage min/max | -20 V/+100 V |
| Assembly date | May 2017 | Ion pump polarity ^(b) | Positive |
| | | Ion pump bias voltage (typ.) ^(b) | 5 kV |

^(a)Recommended operation near room temperature to minimize thermo-mechanical effects and power dissipation.

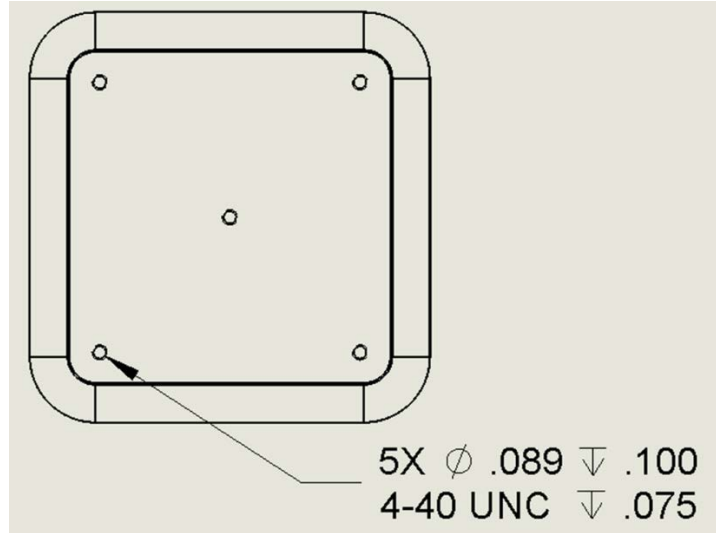
^(b)Recommended operation with Gamma SPC-1-P-S-1-US110-S-S-N ion pump or similar.

| Parameter | Value |
|-----------------------------------|---|
| Free spectral range (FSR) | ~ 5 GHz |
| Design finesse | 369/493 : ~ 1,000-3,000 650/780/935 : ~ 3,000-10,000 |
| Mirror curvature | M1: ROC 20 cm M2: Plano |
| Waist at M2 | 369 nm: 184 μ m 493 nm: 212 μ m 650 nm: 244 μ m 780 nm: 268 μ m 935 nm: 292 μ m |
| Temperature tuning ^(c) | ~0.2 FSR /K (est.) |
| Piezo tuning ^(c) | >3 FSR (full range, est.) |
| Temperature Sensing | 10 k Ω thermistor, Beta = 3669 |

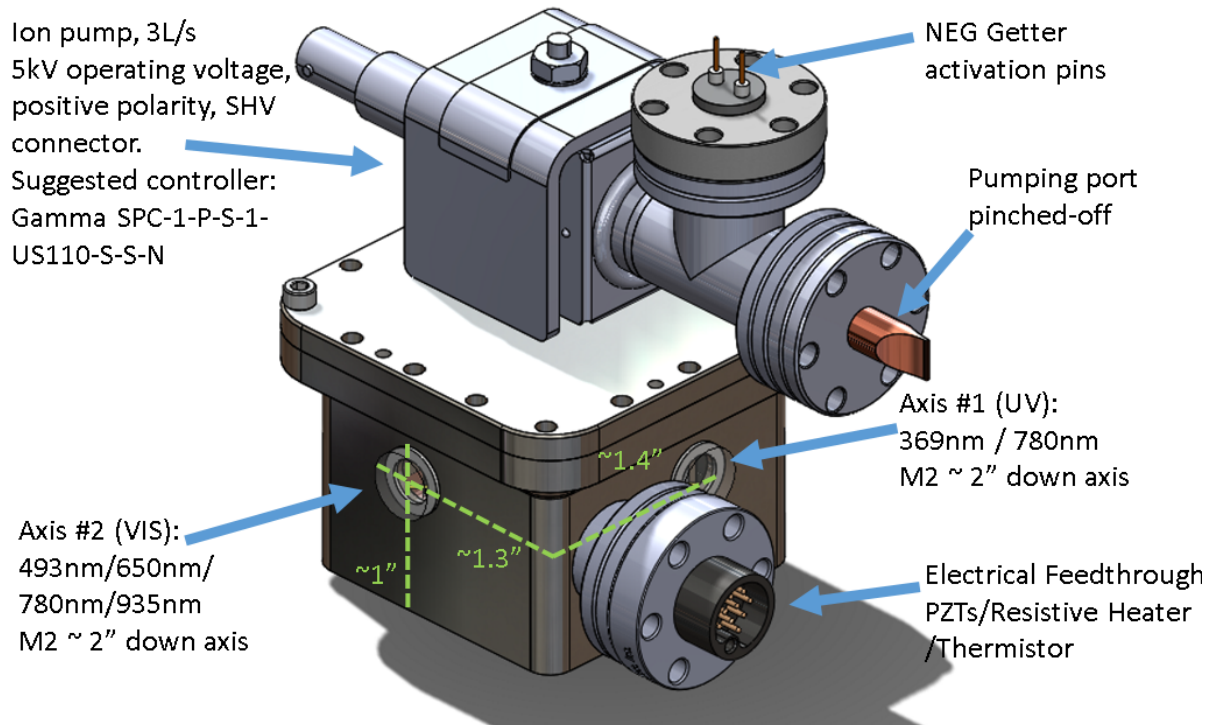
^(c)These parameters depend on wavelength. Number quoted is for 780 nm. Shorter wavelength is proportionally more sensitive.

| Factory calibration | Value (typ.) |
|---------------------|---|
| Finesse | Axis 1 (780 nm): >5,000 Axis 1 (369 nm): >1,000 Axis 2 (780 nm): >2,000 |
| Piezo tuning | Axis 1: ~20 V/FSR @ 780 nm Axis 2: ~20 V/FSR @ 780 nm |
| Vacuum level | ~10 ⁻⁹ Torr |

Mechanical Layout

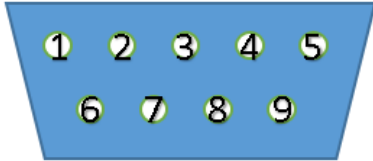


Bottom mounting surface and hole-pattern. Optical access through windows centered ~1" above mounting plane. Be wary of thread depths, avoid punching through vacuum enclosure with mounting screw!



Electrical Interface

A ~24" breakout cable will be provided with a D-Sub 9 male end with the following pinout:



View Into Cable
Assembly
(D-Sub9, Male)

| Pin | Function |
|-----|----------------------------|
| 1 | Heater + |
| 2 | Heater - |
| 3 | PZT1 + (UV) |
| 4 | No connection |
| 5 | PZT2+ (VIS) |
| 6 | PZT1 - (UV) |
| 7 | 10 k Ω thermistor + |
| 8 | PZT2 - (VIS) |
| 9 | 10 k Ω thermistor - |

NOTES

1. The information contained herein is subject to change without notice.
2. For questions about using, contact sales@aosense.com
3. Technical information specified is intended only to show the typical functions.
4. The product specified in this document is not designed to be radiation or shock tolerant.
5. AOSense shall have no responsibility for any damages or injury arising from non-compliance with the recommended usage conditions and specifications contained herein.