

Cryo-Free Bolometer

Uses No Liquid Cryogens

- Continuous Unattended Cold Operation.
- No unexpected warmups & no need for expensive Liquid Helium.
- Interfaces to major spectrometers
- Ultra Low Vibration - 10nm displacement
- Noise and Sensitivity on par with wet systems.
- Water or air cooled compressor



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SYSTEM CONFIGURATION:

- 4.2K General Purpose or Hi Res bolometer system
- Three-(3) positions filter wheel or single fixed filter option
- Standard 4.2K bolometer filter configuration
 - 13 μ m IR long pass filter
 - 103 μ m IR long pass filter
 - 285 μ m IR long pass filter
- Other filter options available upon request

SYSTEM PERFORMANCE:

- Cool down time: 6.5 hours*
- 15 μ m-2000 μ m spectral range w/ HDWP window
- Increase in noise over LHe system (6%)
- Drop in sensitivity over LHe system (2%)
- Temperature sensor installed on cold plate for accurate temperature read-out
- * under 60Hz operation

| | Thermal Conductance | Bolometer Resistance | Electrical Sensitivity | Noise Equivalent Power (NEP) | Noise |
|--|--------------------------|----------------------------------|--------------------------------|---|--|
| General Purpose 4.2K Bolometer System | G[μ W/K]: ~ 16 | Ro[M Ω]: ~ 10 to 20 | S[V/W]: $\sim 2.4 \times 10^5$ | NEP[W/Hz ^{1/2}]: $\sim 2.5 \times 10^{-13}$ | Vn[nV/Hz ^{1/2}] at 80 Hz ≤ 80 |
| Hi Res 4.2K Bolometer System | G[μ W/K]: ~ 4 | Ro[M Ω]: ~ 14 | S[V/W]: $\sim 6.1 \times 10^5$ | NEP[W/Hz ^{1/2}]: $\sim 9 \times 10^{-14}$ | Vn[nV/Hz ^{1/2}] at 80 Hz ≤ 40 |