



Passive RF components are used extensively in low temperature applications including quantum computing, aerospace, and scientific research. Eliminating thermal noise in quantum computing set-ups or supporting any cryogenic application requires exceptional performance and reliability.

Most thick film resistors become insulators and turn attenuators into opens. Common thin-film resistors become super-conductive and turn attenuators into shorts. Spectrum Control's in-house cryogenic thin-film technology maintains resistance down to near absolute zero.

Spectrum Control's expertise in designing and building components for demanding environments includes our line of attenuators and terminations that provide temperature-stable operation up to 40 GHz at temperatures down to 4°mK.

Coaxial Solutions

Cryo Attenuators

Provide stable attenuation at temperatures down to 4 mK with low thermal noise characteristics

- Stable attenuation over temperature
- Input power: 2 Watts avg. @ 25°C
- Low thermal noise characteristics
- Impedance: 50 Ohms
- Minimal self-heating achieves temperature faster
- Operating temperature range: 4°mK to +125°C
- Optimized non-magnetic material selection

Model 9102-CRYO



- Frequency range: DC to 18 GHz
- SMA connector type
- Standard dB values: 0, 3, 6, 10, & 20

Model 9104-CRYO



- Frequency range: DC to 40 GHz
- 2.9mm connector type
- Standard dB values: 0, 3, 6, 10, 20, & 30

Cryo Termination

Provide stable attenuation at temperatures down to 4 mK with low thermal noise characteristics



Model 3175-CRYO

- Stable Attenuation over temperature
- Low thermal noise characteristics
- Minimal self-heating achieves temperature faster
- Optimized non-magnetic material selection
- SMA connector type
- Frequency range: DC to 18 GHz
- Input power: 2 Watts avg. @ 25°C
- Impedance: 50 Ohms
- Operating temperature range: 4°mK to +125°C

Powerfilm™ Surface Mount Solutions

Cryo SMT Chip Attenuators

- Operating temperature range: 4°mK to +150°C
- Standard dB values: 0 to 20
- Impedance: 50 Ohms
- Gold, silver, tin-lead and lead-free solder finishes available
- Retain their electrical characteristics down to near absolute zero (0K) temperatures mounted circuit side up or down
- MIL-PRF-55342, MIL-PRF-55182, MIL-DTL-8833 testing available



Model CCAAF

- Frequency range: DC to 8 GHz
- Wrap around ground and terminal

Model CCAAW

- Frequency range: DC to 18 GHz
- Wrap around ground