

Linear Cryocooler Electronics for Tactical Space Missions

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Many future space science and military missions will utilize small spacecraft, and many of these missions will require cryocoolers for cooling electro-optical payloads. For Class C and D missions, the cryocooler technical requirements for performance, size, and mass, coupled with the programmatic requirements for minimal cost and development time, are extremely challenging. Flight ready cryocoolers and associated control electronics developed for traditional satellites do not meet these technical, cost, or schedule requirements for future small space platforms. Creare with our partners from West Coast Solutions have recently developed and qualified low cost cryocooler control electronics for linear cryocoolers. These electronics leverage technologies and capabilities that were demonstrated on prior programs. This paper provides an overview of the design, qualification results and initial performance testing with tactical cryocoolers.