Digital cooler drive electronics - status and developments

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ABSTRACT

Advanced HOT IR detectors aim to achieve best system performance with regard to Size, Weight, Power and Cost (SWaP,C). To meet these requirements, a family of high efficient and compact long life cryocoolers had been developed over the last year. High efficient, compact and flexible cooler drive electronics are needed to get the best out of the cryocooler.
AIM's new digital cooler control electronics series is build up based on state of the art technology to achieve best performance and highest reliability.
For coolers with up to 100W input power the high power electronics DCE100 is suitable. It includes a built-in EMI filter for best system compatibility and temperature stability.
The DCE025 is a high efficient, compact single board electronics for coolers with up to 25W input power. The DCE025 is an ideal choice to operate single piston coolers using a passive balancer as the integrated accelerometer allows easy adjustment of the cooler to achieve lowest exported vibration.
Even smaller size and less power consumption have been the goals for the development of the newest µDCE025. With an outline dimension of 35 x 40 x 5 mm the electronics can drive coolers with up to 25W with improved temperature stability. All electronics can be accessed thru a flexible and powerful GUI.

KEYWORD LIST

Cryocooler, long life, Pulse Tube, Stirling