

## LINEAR COOLER DRIVE

The high efficiency low noise Linear Cooler Drive Electronics (LCDE) sets a new performance standard for precise temperature control over a wide ambient temperature range. LCDE delivers high power efficiency and operational compatibility with MIL-STD-461E. Advanced on-board intelligence monitors cryocooler status and can be interrogated via a RS-422 serial communication interface aiding cooler prognosis and planned maintenance.



### OVERVIEW

- Programmable LCDE controller provides for customization within overall system design parameters.
- Electronics developed for multiple coolers with diode temperature sensor, 1ma source provided by controller.
- Precision temperature control within +/-0.5 K over wide temperature range.
- Onboard Diagnostics through RS-422 communication interface.
- DC power supply range 17 – 32 Vdc.
- 100 watt output capability (into 3 ohm load).
- Drive voltage is 0 to 17 Vrms sine wave with 28Vdc applied to controller.



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### System Parameters

#### ELECTRICAL AND MECHANICAL INTERFACE

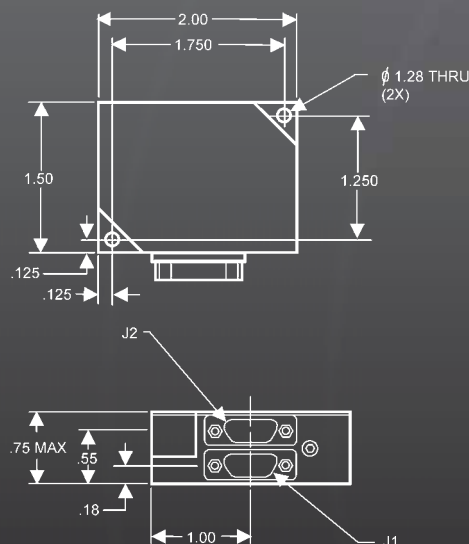
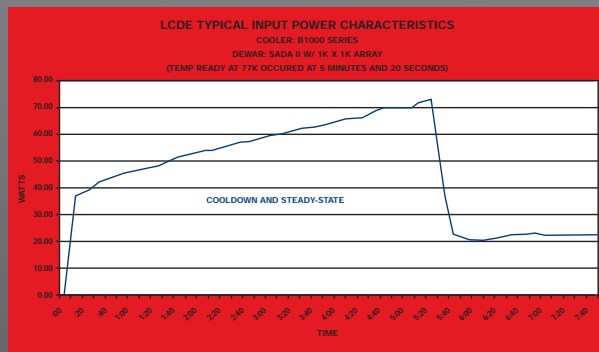
RS-422 communication  
 Onboard Diagnostics  
 Digital Warranty Timer  
 Counter for the number of completed cycles  
 Real Time VA (power)  
 Additional BIT and PHM options  
 Programmable Drive Frequency, Set Point & Drive  
 Dual Frequency Capability  
 Compressor Drive Voltage Wave Shaping  
 Compressor Drive Voltage vs. Amb. Temperature  
 0-17 Vrms Output Drive Voltage w/ 28Vdc Input  
 100W Output Capability (into 3 ohm load)  
 Operating Temperature Range -54°C to 85°C  
 Power Efficiency > 80% at all Throttle Positions  
 1mA Temp Diode Current Source  
 Set-Point Accuracy better than 1mV at 25C  
 Set-Point Drift over Amb. Temperature Range +/- 4mV  
 Weight 0.25 lbs.

#### J1 – POWER INTERFACE CONNECTOR

PIN	DESCRIPTION
1	+17 - +32 Vdc SUPPLY
2	+17 - +32 Vdc SUPPLY
3	17 - 32 Vdc RETURN
4	COOLER DRIVE OUTPUT (A)
5	COOLER DRIVE OUTPUT (A)
6	COOLER DRIVE OUTPUT (B)
7	UNUSED
8	UNUSED
9	+17 - +32 Vdc SUPPLY
10	17 - 32 Vdc RETURN
11	17 - 32 Vdc RETURN
12	COOLER DRIVE OUTPUT (A)
13	COOLER DRIVE OUTPUT (B)
14	COOLER DRIVE OUTPUT (B)
15	SHIELD (CHASSIS)

#### J2 – COMMAND & CONTROL INTERFACE CONNECTOR

PIN	DESCRIPTION
1	TEMP SENSE DIODE – CATHODE (TS-)
2	TEMP SENSE DIODE – ANODE (TS+)
3	TEMP RDY (EMTR)
4	TEMP RDY (CLTR)
5	SHIELD (CHASSIS)
6	COOLER ENABLE
7	STANDBY
8	BUFFERED TEMP OUT
9	TEMP RDY (PULL-UP)
10	COMMUNICATION GND
11	422 TX+
12	422 TX-
13	422 RX-
14	422 RX+
15	TEMP RDY (PULL-DOWN)



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