

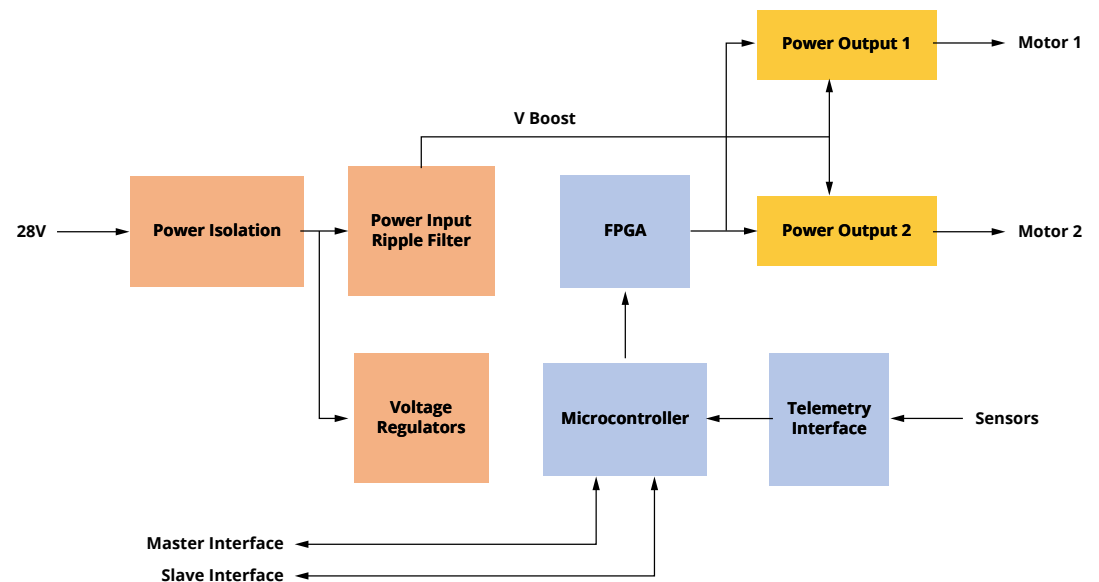


AEROSPACE CAPABILITIES OVERVIEW

Iris Technology develops and manufactures radiation hard control electronics for wide-ranging aerospace applications, including cryocooler drives, infrared imaging, battery recharging and payload thermal controls. Strong collaboration with government entities such as the US Air Force Research Laboratories and NASA, and prime contractors JPL, Raytheon, Northrop Grumman and Lockheed Martin are the foundation of our work in this area.

Iris Control Electronics (ICE) support an incredibly wide range of technologies and power levels with applicability spanning from CubeSats and microsattellites, all the way to deep space astronomy. These high efficiency control units are fully radiation hard, yet affordable for even the most cost-constrained missions.

- World leader in Cryocooler electronics designs
- Power levels from 25 to 800 Watts
- Fully Rad hard up to 300krad
- Selected on Multiple NASA / AFRL / Cubesat missions
- Thousands of hours operating in space
- TRL 9 design



CRYOCOOLER CONTROL ELECTRONICS

	LCCE	LCCE-2	SP-LCCE	HP-LCCE	HP-LCCE SwRI	mLCCE	μLCCE	μLCCE-IL	ηLCCE	ICE-G2-60	ICE-G2-200IL	DICE-G2/M2-130	ICE-M2-100IL	ICE-M2-240IL
SPECIFICATIONS														
# of Motors	2	2	2	2	2	2	1	1	1	2	2	4	2	2
Mass (g)	750	1700	~1700	2476	2476	< 400	310	520	270	540	similar to others; based on program requirements			
Volume (cm)	12.6 x 14.2 x 3.1	15.6 x 22.3 x 4.5	12.6 x 14.2 x 3.1	18.5 x 18.5 x 4.8	18.5 x 18.5 x 4.8	9.1 x 9.1 x 3.1	7.9 x 7.9 x 3.6	7.9 x 7.9 x 3.6	6.4 x 6.4 x 3.1	14.4 x 7.9 x 3.6	similar to others; based on program requirements			
Input Voltage (VDC)	22 - 37	22 - 37	22 - 37	22 - 37	22 - 37	9 to 35	22 - 37	22 - 37	22 - 37	24 - 32	24 - 37	24 - 34	24 - 37	24 - 37
Total Output Power (WAC)	100	100	180W + 10W Balancer	200	100	25	30	30	25	60	200	130	100	240
# of Temp. Sensors	2	2	2	2	2	2	1	1	2	1	2	2	2	2
Vibration Control	No	Yes	*Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Input Ripple Filter	No	Yes / Optional	Yes	Yes	No	No	No	No	No	No	Yes	IRF	Yes	Yes
TRL	9	6	9	9	7	9	4	4	3	9	4-5	7	7	7
Cooler Agnostic	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Radiation Tolerance (TID)	< 300 kRad	< 300 kRad	< 100 kRad	< 300 kRad	< 300 kRad	< 100 kRad	< 50 kRad	< 50 kRad	< 50 kRad	< 50 kRad	< 100 kRad	< 50 kRad	< 300 kRad	< 300 kRad
Circuit Type	FPGA	FPGA	FPGA	FPGA	FPGA	FPGA	Microcontroller	Microcontroller	Microcontroller	FPGA / Microcontroller	FPGA / Microcontroller	FPGA / Microcontroller	FPGA / Microcontroller	FPGA / Microcontroller
Efficiency (%)	90	85	85	85	85	94	90	90	90	80	>85	>85	85	>85
# of Coolers/ Controller	1	1	1	1	1	1	1 or 2	1 or 2	1	1	1	2	1	1
Vibration Control/ Controller	0	2	2	2	2	0	1	1	1	1	2	2	2	2

For More Information About Our Cryocooler Control Electronics and Other Aerospace Solutions, Email Us At: aerospace@iristechnology.com

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