

200kW Integrated Starter Generator Controller



GE's 1069000G1 is a Silicon Carbide (SiC) based high efficiency Integrated Starter/Generator Controller (ISGC) specifically designed for the next generation combat vehicles. The ISGC bi-directionally converts 600VDC vehicle power to and from three-phase (3Φ) AC power, produced by a starter/generator PM Synchronous Machine. The design utilizes latest generation of GE's 1200V SiC MOSFETs packaged in advanced liquid cooled power modules. The ISGC has three Solid State Power Controller (SSPC) channels.



Features:

- ◆ Input per MIL-PRF-GCS600A
- ◆ Maximum Power 200kW@105°C Coolant
- ◆ High Power Density (200 W/cu.in; 13 kW/L)
- ◆ Programmable switching frequency 20-50 kHz
- ◆ Best-in-Class SiC MOSFETs / Modules with Power Overlay
- ◆ Low Voltage Control Power +28VDC per MIL-STD-1275
- ◆ Digitally controlled torque, speed and DC power
- ◆ Two redundant CAN interfaces
- ◆ Continuous Built-In-Test (CBIT)
- ◆ Automatic Status Reporting
- ◆ Three SSPC channels: 350A, 2 x 75A
- ◆ High Voltage Interlock (HVIL) on all SSPC channels

Physical: (See ICD 1069001)

Weight: 22.7kg (50 lbs.)
 Dimensions: 305mm x 356mm x 140mm (12" x 14" x 5.5")
 Connector: Input, Control: MIL-C-38999; Output: ½"
 Mounting: 10-32 bolt Front tie down; Guide Pin Receivers

Environmental:

Operating Temperature: -45°C to +121°C ambient
 Coolant Temperature: -45C to 105°C; flow 12 l/min 60/40 EGW;
 Temperature Shock: MIL-STD-810E, Method 503.3
 Humidity: MIL-STD-810E, Method 507, Procedure III
 Shock: MIL-STD-810E, Method 516.4, Proc. I 25G, 25msec., half-sine 40G,9 msec., sawtooth
 Vibration: MIL-STD-810E Method 514.4, Procedure I for Combined Road March, Tactical & Plume Effects

Electrical I/O:

J1-A: PHASE A	J2 A +305VDC	J3 A FAN A +VDC	J4-A: 28Vdc Control	J4-E: HV Bus Reset	J4-J: CANBus High
J1-B: PHASE B	J2 B +305VDC	J3 B FAN A -VDC	J4-B: 28Vdc Control Return	J4-F: HV Bus Reset Return	J4-K: CANBus Low
J1-C: PHASE C	J2 C -305VDC	J3 C FAN B +VDC	J4-C: Output Enable	J4-G: HV Enable	
J1-D:	J2 D -305VDC	J3 D FAN B -VDC	J4-C: Output Enable Return	J4-H: HV Enable Return	

Part Number	Input Voltage (V)	Output Voltage (V)	Output Current (A)	Regulation (line, load, temp. (%))	Ripple Noise (V _{pk-pk} %)	Output Power (W)
1069000G1	475 - 725	610	350	3.0	1	200,000



GE Aviation

2705 Gateway Drive
Pompano Beach, Florida 33069 USA
954-984-7000

1000 MacArthur Highway
Bohemia, New York 11716 USA
631-467-5500