High Voltage Power Distribution Controller Unit

GE Aerospace

GE's 1065100G2 and 4V3-0000G1 are Silicon Carbide (SiC) based high voltage power distribution control units (HVPC) designed for U.S. Army's Vehicle Electrification Architecture (VEA). The HVPC is designed with collaboration of Global ET, our Small Business Innovation Research Program (SBIR) partner. It can provide control to twelve high voltage channels, designed to handle 210kW with 105° C liquid coolant. The HVPC is equipped with Controller Area Network (CAN) communication which is configurable to the customer's protocol.

Features:

- Input per MIL-PRF-GCS600A and MIL-STD-1275E
- Configurable CAN bus per SAE J1939 for channel control and operational information
- Controls 12 high voltage, high temperature SiC channels
  - 350 amps x 1 channel (210kW)
  - 200 amps x 1 channel (120kW)
  - 50 amps x 1 channel (30kW)
  - 30 amps x 5 channels (18kW per channel)
  - 10 amps x 4 channels (6kW per channel)
- Configurable for parallel operations
- High Voltage Interlock (HVIL) detection and protection

Physical: (see 1065001-1 ICD)

Weight:	20.71kg (45.65 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:	MIL-STD-810G, Method 501 & 502 Procedure I
Mobility Shock:	MIL-STD-810G, Method 516.6, Procedure I
Gunfire Shock:	MIL-STD-810G, Method 519, Procedure I
Vibration:	MIL-STD-810G Method 514, Procedure I for Random on Random 5-1000Hz
Humidity:	MIL-STD-810G Method 507, Procedure II 15 Cycles

Electrical I/O:

Connector	Current	Channel #	Positive	Negative	HVIL (+)	HVIL (-)
J1		1	E,G	A,C	B (Top)	F (Bottom)
J2		2	A,C	G,E	H (Top)	D (Bottom)
J3	50A Output	8	K	T	E	H
J3	30A In/Out	9	L	U	P	Q
J3	30A In/Out	4	C	D	A	G
J3	30A In/Out	5	J	S	B	F
J3	30A In/Out	6	A	Z	W	c
J3	30A In/Out	7	I	R	M	N
J5	10A Output	3	B,C	D,U	A	T
J5	10A Output	10	E,F	G,H	V	W
J5	10A Output	11	L,Y	J,K	d	X
J5	10A Output	12	P,N	M,Z	R	a

J4 Connector					
Pin	Description	Pin	Description	Pin	Description
A	28VDC (Battery)	E	Valve Control	I	CAN Select 0
B	Power Ground	F	Valve Position	J	CAN Select 1
C	CAN H	G	Valve Power		
D	CAN L	H	Valve Return		

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