

INLINE POWER GENERATION AND HYBRID PROPULSION CAPABILITIES

SILENT, EFFICIENT AND MISSION READY

Our Future Tactical Truck System (FTTS) Vehicle Hybrid Power System is a pre-built system that can be adapted or modified to meet your requirements. With this technology, Collins Aerospace will take you where you want to go.

The propulsion system consists of an integrated starter generator (ISG) and an ISG controller (ISGC). As a motor, it provides 85 kW shaft power for vehicle propulsion, torque assist and engine starts. As a generator, it provides up to 140 kW to the 300 VDC bus. Command, performance and health monitoring data are exchanged between the ISG and vehicle controller via CAN BUS. The associated power electronics such as high-voltage converters and bi-directional inverters assist and manage the system to be optimized for customer mission and requirement. Through the use of silicone carbide and high-efficiency thermal management systems, these components are densely packaged to optimize available space claims.

The export power inverter provides galvanically-isolated power conversion and conditioning from the vehicle high voltage DC bus to produce exportable three-phase AC power. Voltage and frequency is selectable via CAN BUS.

KEY FEATURES & BENEFITS

- Burst acceleration
- Improved fuel efficiency
- Electrification of ancillary items such as fans, motors, etc.
- Higher cargo/ammo capacity
- Silent operation
- Silent watch
- Extremely dense power electronics
- Temperature resilient (inlet coolant and ambient)
- Scalable up/down to meet any need/platform





ISG specific performance (with a 300Vdc Bus)	Motoring	Generating	
Cont. power (kW)	85	140	
Peak power (kW)	120 @ 2200 rpm	272	
Cont. torque (Nm)	340	-340	
Peak torque (Nm)	650 @ <1800 rpm	-650	
Cont. phase current (Amp rms)	300	300	
Intermittent phase current (Amp rms)	560	560	
Speed (RPM)	2400	4000	
End-to-end efficiency (Includes both ISGC and ISG efficiency)	88%	89%	
Electric machine coolant	4 gpm @ 40 psig, - 40° C to 80° C, ethylene glycol/ water 50% mix		
SGC specific serformance			
DC link voltage (Vdc)	260 to 600 Vdc		
Output power	150 kW (300 Vdc); 300 kW (600 Vdc)		
ISGC drive capability	1000 amp rms (300 Vdc); 640 amp rms (600 Vdc)		
ISGC coolant	12 gpm @ 20 psig, - 40° C to 80° C, ethylene glycol/ water 50% mix		
Common characteristics			
DC link GFI	Leakage current≤ 2ma		
Power quality	MIL-STD-704		
EMI	MIL-STD-461E		
Enclosure	Immersion IP - 67		
Operating temperature	-32° C to 105° C		
Storage temperature	-40° C to 80° C		
Communications	CAN - BUS, SAE - J1939		
Vechanical specifications ISG	Diameter 18", weight 162 lbs.		
Aechanical specifications ISGC	Height 10", length 23", depth 16"		

EXPORT POWER INVERTER PERFORMANCE SUMMARY

$\begin{tabular}{ c c c c c } \hline & & & & & & & & & & & & & & & & & & $	DC input	216 - 330 Vdc					
$\begin{tabular}{ c c c c c } \hline & 3 \ phase/4 \ wire (switched neutral) \\ \hline & L-N & L-L & Efficiency \\ \hline & 120 & 208 & 80.58\% \\ \hline & 220 & 380 & \\ \hline & 240 & 416 & \\ \hline & 277 & 480 & 86.72\% \\ \hline & Frequency & 50/60/400 \ Hz & \\ \hline & Loads & Linear load with +/- 0.8 \ PF & \\ \hline & Loads & Non-linear load & \\ \hline & EMI & MIL-STD-461E & \\ \hline & Power quality & MIL-STD-704, IEEE 519 & \\ \hline & See AC output voltage table (100\% load, 60 \ Hz) & \\ \hline & Cooling media & 50\% \ EG/water & \\ \hline & Cooling flow & 16 \ gpm min @ 20 \ psig & \\ \hline & Cooling inlet temp & 65° C \ max & \\ \hline & Operating temp & -40° C to 65° C & \\ \hline & Immersion & IP-67 & \\ \hline & Over temperature & \\ \hline & Over current & \\ \hline & Over dualt (leakage current \le 2 \ ma) & \\ \hline & Galvanic isolation (high voltage DC-in to AC-out) & \\ \hline \hline & Coommunications & CAN - BUS, SAE - J1939 & \\ \hline \end{array}$			75 kW				
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Mechanical specifications Height 6", length 42", depth 24"	Communications	CAN - BUS, SAE - J1939					
	Mechanical specifications	Height 6", length 42", depth 24"					

Specifications subject to change without notice.

150 kW

ISGC

This document does not contain any export controlled technical data. notice.

75 kW export power inverter

85 kW/140kW

ISG



COLLINS AEROSPACE

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