



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.

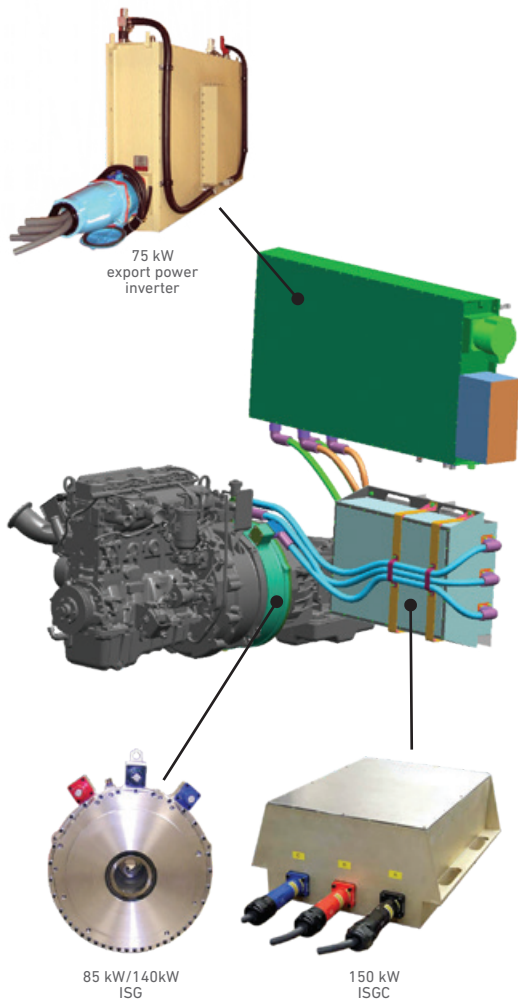
The associated power electronics such as high-voltage converters and bi-directional inverters assist and manage the system to be optimized for customer mission and requirement. Through the use of silicone carbide and high-efficiency thermal management systems, these components are densely packaged to 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 AND 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

PROPULSION SYSTEM PERFORMANCE SUMMARY



| 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 | |
| ISGC specific performance | | |
| 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 | |
| Mechanical specifications ISG | Diameter 18", weight 162 lbs. | |
| Mechanical specifications ISGC | Height 10", length 23", depth 16" | |

EXPORT POWER INVERTER PERFORMANCE SUMMARY

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

Specifications subject to change without notice.
This document does not contain any export controlled technical data.



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