



OBVP : On-Board Vehicle Power



Now Available Through the GSA Schedule

System consists of the following:

1. VPS-10K Power Electronics Box
2. Speed Controller System
3. System Interface Box
4. Wiring Harness

400 Ampere C.E. Niehoff Alternator Upgrade:

The upgraded alternator replaces the existing HMMWV alternator using an upgrade kit available in the Army inventory. Information on this kit is available in the HMMWV Electronic Technical Manual, section TM 9-2320-280-24P-2. The upgraded alternator adds 52 pounds to the HMMWV, but this is balanced by the fact that this system replaces a conventional diesel motor/generator set that weighs approximately 1000 lbs. The diameter of this alternator is 10.4" and its width is 15.63."

VPS-10K Power Electronics:

Modular design with separate phase enclosures for ease of maintenance while functioning either in single or 3 phase operation. Provides AC power on-the-go (for applications such as charging batteries) or in stationary mode. Operational with either a 200A or 400A alternator source. 50Hz, 60Hz and 400Hz operating frequency selectable from one power inverter (no additional hardware required, Frequency selectable through the output AC connector). Simple retrofit for vehicle integration. Environmentally sealed and designed per MIL-STD-810. Safeties within the system include input over voltage protection, input under voltage protection, over current protection as well as overall system monitoring. The system also monitors the vehicle's temperature and oil pressure. Supports multiple mounting options based on specific mission requirements. Reduces size and weight of payload requirements for 7KW power generation.



VPS-10K Power Electronics Box Outer Shell (Multiple Mounting Options)

The following data summarizes the features of the system:

Indicator

- Active Frequency LED
- System Status LED's

System Weight

- 206 lbs.

Inverter Size

- 29.75" x 21" x 15.25"

Construction

- Multiple Finned Heatsink Assemblies
- Enclosed, Waterproof Chassis
- Rugged construction designed per MIL-STD-810

Inputs

- 22 – 30 VDC

Max Input Current

- 400 Amps

Outputs

- 208 VAC 4 Wire at 50 Hz, 60 Hz, or 400 Hz
- 120 VAC at 50 Hz, 60 Hz, or 400 Hz

Efficiency

- > 85%

Power Range

- 7.0 kW Continuous
- 10 kW Maximum (for 1 minute)



C.E. Niehoff 400-A Alternator

Temperature Range

- -32° C to 50° C

Max temp of exposed parts subject to contact by operating personnel will not exceed 65° C under normal operating conditions

Cooling

- 3 Finned Sides with flat Bottom.
- Conduction Cooled.

Protection

- Over Current
- Over Voltage
- Under Voltage
- Over Temperature
- Short Circuit

THD

- < 5%



Speed Control System:

The system features an advanced adaptive speed controller. To optimally use the system, especially from the perspective of fuel economy, a speed control is necessary to match the most efficient speed of the engine to the load supplied by the power electronics. The speed controller increases the engine RPM to ensure enough DC power is available for the VPS-10K inverter. The speed controller electronics are mounted in a small box (multiple mounting options available). The speed controller interface and display box is placed on the dashboard. This interface allows the driver to turn the system on or off and monitor the system status with LED's. The speed controller provides for load sensing and adaptive control, so that the engine speed is continuously adjusted to optimally power the load during stationary operation. During mobile operation, the speed controller is de-activated. The interface box provides the operator feedback for adequate RPM for the loads applied to the system. Because the alternator provides DC current, it is NOT necessary to run the engine at a fixed RPM determined by the AC frequency required by the load. Thus wet stacking under light load conditions, a perennial maintenance problem with conventional diesel motor/generator sets, is eliminated.

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