ShorePower Solutions

PCTI manufactures solid-state shorepower frequency converters from 10KVA to 2MVA. Our equipment is an efficient solution for converting grid electricity to the appropriate load frequency. Our frequency converters provide highly reliable, clean and efficient power conversion.

WHY SHOREPOWER?
Our converters enable connection of ships to port grids regardless of their respective frequencies (50Hz or 60Hz). PCTI's shorepower frequency converters cut fuel costs, reduce fuel emissions and air pollution from generators, and eliminate unnecessary noise.

PCTI's shorepower frequency converters are a viable solution in replacing motor generator sets. We custom build our shorepower frequency converters to your specifications, up to 2MVA.

CLEAN & EFFICIENT POWER
Input power factor and harmonic distortion in the input current of a frequency converter can have detrimental effect on the utility grid supplying the converter, especially for higher power converters.

All PCTI frequency converters for shorepower application are designed to have very low input current distortion, THD < 5%, and almost unity power factor in the input.

DESIGNED & BUILT TO LAST
Our shorepower frequency converters are made for both indoor and outdoor applications. The outdoor units are rugged enough to withstand a harsh marine environment, including tropical locations.

Our shorepower supplies conform to at-berth regulations.

SUPERIOR DSP TECHNOLOGY
All PCTI frequency converters are equipped with a sophisticated control system utilizing digital signal processor (DSP) control based on IGBT PWM technology.

PCTI’s DSP technology provides several performance-increasing benefits, including:

- Real-time calculation, transformation, data collection, decision-making, and more
- Capability to anticipate changes in the system and adapt for performance optimization
- Increased reliability based on a single control board solution
- Ease of updating, changing, or modifying the equipment’s functionality or application (even after installation)
- Real-time data logging

Our equipment is able to be monitored, tested, and operated via state-of-the-art DSP-based embedded control systems for real-time performance.
Specifications

**Input**
- Voltage: +10% any 3Ø voltage
- Frequency: 50 or 60Hz
- Power factor: better than 0.98 lagging from 10% to full load

**Output**
- Voltage: 36V, 115/200V, or 208/120V
- Frequency: 50Hz or 60Hz ±0.03%
- Crystal controlled
- Power ratings: 10kVA to 2MVA
- Regulation: ±1% independent phase regulation from combined no load to full load at rated input voltage change
- Control technology: digitally synthesized pulse width modulation
- Transient response: 50ms for a 90% load change on any phase or combination of phases
- Wave shape: pure sinewave
- Crest factor: 1.41 + 0.1%
- THD: less than 2% THD, 1% on any single frequency, less than 4% for non-linear loads
- Current limit: ±10% of load
- Power factor: 0.9 lead to 0.7 lag
- Continuous zero load to zero lag at full-rated output without risk to unit
- Overload capacity: 125% for 10 minutes, 150% for 2 minutes, 200% for 20 seconds (optional), 300% for 6 seconds (optional)

**Protection**
- Input circuit breaker
- Output contactor
- Electrical door interlock with bypass
- Audible alarm
- Overcurrent/overload (will withstand output short circuit cleared by internal circuitry)
- Overvoltage
- Undervoltage
- Overtemperature
- Output underfrequency
- Input to output transformer isolation

**Optional Remote Capability**
- Computer interface: Modbus TCP, SNMP, CANbus, RS485
- Functions: start/stop, reset, fault, current adjust, voltage adjust, fault indication
- Analog signals: 4mA - 20mA, 0V - 5V, 0V - 10V

**Communications**
- Ethernet TCP/IP standard with all units
- Functionality included: start/stop, reset, fault, current adjust, voltage adjust, fault indication

**Standard Front Panel Devices**
- Power on indicator
- Run indicator
- Undervoltage indicator
- Overvoltage indicator
- Voltage trim adjust ±10%
- Start pushbutton
- Stop/reset pushbutton
- Fault indicator
- Digital meters

**Environmental/Mechanical**
- NEMA/IP enclosure ratings: NEMA 12 (IP20), NEMA 3R (IP54), NEMA 4 (IP55), NEMA 4X (IP56), other ratings available upon request
- Cooling: forced air
- Altitude: up to 10,000ft. without derating
- Operating temperature: -5°C - 40°C
- Storage temperature: -10°C - 65°C
- Humidity: up to 90% non-condensing

**Codes and Standards**
- MIL-STD-704F
- UL 1012
- CE compliant

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