

# Advancing the Future of Power Conversion.

# Frequency Converters

PCTI manufactures solid-state frequency converters from 3.5KVA to 2MVA. We offer a wide variety of configurations to meet any application, such as ground power, ship board, shore power, and more. Our state-of-the-art technology allows us to achieve the lowest total harmonic distortion available globally (1%).





# WHY PCTI?

PCTI strives to provide the most innovative and up-to-date equipment. We have been manufacturing highly reliable power electronics for diverse industrial and military applications for over 27 years.

Since our inception, PCTI has never had an equipment return for failure to operate.



# **SOLID-STATE VS. ROTARY**

Solid-state equipment is less expensive than rotary equipment and has a longer lifetime.

Rotary equipment and diesel engines present higher operating and capital costs. Solid-state equipment significantly reduces all costs, such as: capital, operating, and maintenance. Solid-state equipment also has less operating noise, zero emissions, and produces no pollutants. It is cheaper to run an electrical cable to a solid-state unit than to pay for the fuel and maintenance costs associated with diesel and rotary units.



# **DESIGNED & BUILT TO LAST**

Our products are at work in hundreds of industrial, commercial, research, transit, and military applications. Each unit is precision engineered to meet your specific application.

Ruggedization options can protect against even the most aggressive of environments, including harsh marine salt air and arid desert environments.

# **SUPERIOR DSP TECHNOLOGY**

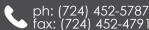
All of our frequency converters are equipped with a sophisticated control system utilizing digital signal processor (DSP) control based on IGBT PWM technology.

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%

1Ø: 110, 115, 120, 130, 200, 208,

230

3Ø: 208, 220, 230, 380, 415, 440,

460, 480, 575

Frequency: 50/60Hz

 Power factor: better than 0.98 lagging from 10% to full load

#### Output

Voltage: 36V, 115/200V, or 208/120V

 Frequency: 400Hz, 50Hz, or 60Hz ±0.05% crystal controlled

• Power ratings: 15 to 320KVA

 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: 40ms for 50/60Hz, 500ms for 400Hz, 90% load change on any phase or combination of phases

Wave shape: 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: 110% of load

 Power factor: 0.8 lead to 0.8 lag.
Continuous zero lead to zero lag at full-rated output without risk to unit

 Overload capacity: 110% for 1 hour, 125% for 10 minutes, 150% for 2 minutes, 200% for 20 seconds (optional), 300% for 6 seconds (optional)

#### **Standard Features**

Pure sinewave

Lightest weight in industry

 High efficiency for low operating costs (92% or better)

Automatic line drop compensation

#### **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: 0°C - 50°C

• Storage temperature: -40°C - 65°C

Humidity: up to 98% non-condensing

Acoustical noise: 65BA max at 1 meter

#### **Protection**

 Input short circuit via circuit breaker with enclosure door interlock

Input phase loss

Phase rotation

Overvoltage shutdown

Undervoltage shutdown

Overcurrent shutdown

Overtemperature shutdown

• Load imbalance (greater than 25%) shutdown

## Remote Capability / Computer Interface

 Analog signals: 4mA - 20mA, 0V - 5V, 0V - 10V

 Computer interface: Ethernet/IP, Modbus TCP, SNMP, CANbus, IEEE 488.2 / GPIB, RS232, RS485

 Functions: start/stop, reset, fault, current adjust, voltage adjust, fault indication

## **Standard Front Panel Devices**

• Power on indicator

Run indicator

Voltage trim adjust ±10%

• Start pushbutton

• Stop/reset pushbutton

Fault indicator

#### Smart Panel (HMI/digital control panel)

1Ø or 3Ø output voltage

• 1Ø or 3Ø output amperage

Undervoltage indicator

Overvoltage indicator

• TCP/IP/Ethernet interface

 Internal communication ports - USB, RJ45 (Ethernet)

 External communication ports - USB, RJ45 (Ethernet)

Elapsed time meter

• Summary fault indicators

Output current limit adjust

#### **Codes and Standards**

MIL-STD-704F

UI 1012

• CE compliant

#### **DSP Control Technology**

Increased performance

 One programmable chip with the functionality of conventional control components

 SCR preregulator to achieve high efficiency, low ripple, precise regulation, and low output noise

 Coarse and fine adjustments are available for both current and voltage

 Event and data logging to continuous monitor equipment operating status as well as internal control parameters

### **Options**

Input cables

• Output cables with plug

Parallel and load sharing

E&F interlock status indicator

• 28V bypass mode indicator

 12- or 18-pulse input rectification for low input current

Push to test indicators

 28.5VDC output (specify amps or power rating)

Elapsed time meter

Mobile options available









