

**PCTI**

*Power Conversion Solutions*



***Portable Inverter  
for  
Transportation Maintenance***

## **Portable Third Rail Inverter**

PCTI's portable third rail inverter is powered directly from the 600VDC third rail to provide clean power for track tools. The unique software capabilities of the digital signal processor (DSP) control allow for universal input. Thus, the inverter can take the typically dirty power within a wide range from 300V to 700VDC and convert it to clean sine wave power capable of powering the most sensitive electronic equipment. The power provided by PCTI's Third Rail inverter is better than that provided by many power companies.

The inverter can be used to run track tools for moving maintenance or permanent installations such as car signals. The inverter may also be used to power the same when local power goes down.



**PCTI's Lightweight Third Rail Inverter provides Transportation Maintenance Solutions**



**Red Positive and Black Negative Clamps for the Portable Third Rail Inverter**

Standard features include a number of protective features that protects maintenance personnel and also protects the inverter from damage caused by a variety of conditions including input polarity reversal. A complete dead front design with no metal parts on the exterior to provide maximum protection to maintenance personnel.

The light weight fiberglass enclosure allows for easy transportation of the inverter. The inverter is the lightest available on the market today: the 3.5KVA inverter weighs only 42 lbs and can power a 4 1/2HP compressor.

The clamps and cables for the third rail portable inverters are optional items sold separately from the inverter. The red clamp is for the positive 600VDC third rail. It connects on the base underneath the rail. The black is attached to the negative return rail.

## **Portable Inverter Specifications**

Inverter ratings range from 3 to 150KVA. The dimension and weights below pertain to the 3.5KVA inverter. All features indicated here are standard unless noted. Contact the factory for additional features or information on units of other ratings.

### **Input**

Voltage Range: 300-700VDC  
Current: 15ADC (for input voltage 300VDC)  
Nominal Voltage: 700VDC  
Transients: 50microseconds at 3000V  
50milliseconds at 2000V  
10 seconds at 1500V

### **Output**

Voltage : 120VAC + 0.5%  
Voltage Regulation: 0.5%  
(for any line and load combination)  
Frequency: 60Hz + 0.05%  
Current: 30A RMS continuous  
Peak Current: 100A (2 sec)  
Starting current: 75ARMS (5 sec)  
Response Time: 50mseconds  
(no load to full load)  
Sine Wave Generation: PWM  
THD - Linear Loads: 3%  
THD - Nonlinear Loads: 4%  
Efficiency: greater than 90% at 700VDC input

### **Front Panel Devices**

Output Circuit Breaker  
Start Pushbutton  
Stop Pushbutton  
Power On Indicating Light  
AC Power Available Indicating Light

### **Protection**

Overvoltage Shutdown with Auto Restart:  
750VDC  
Undervoltage Shutdown with Auto Restart:  
300VDC  
Input Reverse Polarity  
Overtemperature Shutdown (Auto Restart)  
Electronic current limiting (Auto Reset)  
Output Short Circuit via 40A Circuit Breaker  
Input to Output Transformer Isolation  
Isolation Voltage: 2500VAC min  
Input MOV  
Output MOV  
Output Overcurrent (fixed)

### **Mechanical/Environmental**

Enclosure: Fiberglass (reinforced polycarbonate)  
Nema 3R, totally isolated from any electrical surge.  
Weight: 45 lbs (3.5KVA)  
Inverter Dimensions: 21.25"H x 16"W x 9"D  
(3.5KVA)  
Temperature: Operating Ambient: -25°C to 50°C  
Storage Ambient: -25°C to 85°C  
Humidity: 0 to 90% no condensation  
Terminations: Input: Detachable 25 foot lead  
Output: Two NEMA 5-15 outlet

### **Optional Items**

A. Detachable 25 foot Input lead  
B. Rail Clamp (Positive - Red)  
C. Return Clamp (Negative - Black)  
D. Mobile Package (handle with rubber tires)

## **Other PCTI Power Electronic Solutions**

### ▶ **Power Supplies**

1 and 3 Phase, 50A to 120KA  
Linear  
Switched Mode  
DC or AC  
Custom - High precision, high frequency, high current

### ▶ **Inverters** AC/AC, DC/DC, DC/AC/DC

For Fuel Cells, Wind Power, Transportation

### ▶ **Battery Chargers to 1000V**

High Current  
Custom

### ▶ **400Hz Equipment for Aircraft Ground Support**

Frequency Converters  
Distribution Equipment  
Gateboxes  
Switchboards  
Line Drop Compensators

### ▶ **Control Products**

IGBT Driver Boards  
SCR Firing Circuit  
DSP Control

### ▶ **Universal DSP Power Controller for Any Power Electronic Application**

Power Supplies  
Inverters  
Battery Chargers  
Active Power Factor Correction  
Harmonic Cancellation  
UPS (Uninterruptible Power Supplies & Systems)

### ▶ **Other Products and Services**

Power Electronic Control System Retrofit with DSP Controller  
Prototyping  
Turn-key projects  
DSP Control Hardware Solutions  
DSP Control Software Solutions  
Power Electronic Subassemblies

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### **About PCTI**

PCTI is a regular manufacturer of innovative power electronic products including control components, sub-assemblies and power electronic apparatus. With products like our IGBT drivers and Universal DSP Controller, we are addressing a new era in power electronics as applied to industrial equipment. Our engineering staff has in-depth knowledge in the key areas of power conversion such as power semiconductor analysis and application, thermal exchange, magnetic design and packaging. Let our extensive industrial applications expertise in power conversion benefit your products products and markets.



# PCTI

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