

PowerCharge™

Battery Charger
TR Series

PRELIMINARY

The PowerCharge TR Series is a line of 480VAC three-phase telecom rectifiers that feature advanced power electronics technologies and microprocessor controls. The new 48V/200A rectifier features soft switching power conversion and advanced planar magnetics for high efficiency (>92%) and high power density. Other features include active power factor correction, digital interface to a control unit, passive and active current sharing, and fully and remotely programmable voltage and current limits.



Features:

- 480 VAC three phase input with no neutral
- Compact size: 4U high, 19" or 23" rack
- High efficiency: > 92%
- High power density: > 5W/in³
- Active power factor correction: > 0.95

Applications:

- Telecom rectifiers
- UPS and backup power systems

FEATURES & BENEFITS

❖ **High Efficiency Soft Switching Power Conversion Technology**

The PowerCharge TR series utilizes state-of-the-art power electronics technologies including soft switching power conversion, which greatly improves efficiency and reduces electromagnetic interference (EMI). With soft switching, the switching losses in the power semiconductor devices are eliminated allowing for higher switching frequencies and resulting in high efficiency (>92%) and high power density (>5W/in³).

❖ **Passive and Active Current Sharing**

The PowerCharge TR series integrates passive and active current share controls. With microprocessor controlled active current sharing, load sharing under parallel operation is maintained below $\pm 2.5\%$ through a current share bus or an RS-485 isolated communication bus.

❖ **Remote Control Capability**

Equipped with advanced microprocessor controls, the PowerCharge TR series provides a digital interface to a remote controller where all major parameters can be programmed. In addition, all measured parameters and fault indications can be reported to the remote controller.

For further information please visit our website at www.powerdesigners.com
or contact PowerDesigners, LLC at +1-608-231-0450.

PowerCharge TR Series Product Matrix

Specifications	PCTR-10kW-200A-48V
Nominal VA Ratings	48V / 200A
Input Specs.	
Voltage	480VAC, 3-Phase $\pm 10\%$
Input Frequency	47-63 Hz
Input Current	13.8 Arms / phase nominal
Power Factor	> 0.95
Inrush Current	< 25A peak per phase
Input Protection	Disconnect switch with 25A fuses
Output Specs.	
Voltage	48V Nominal, 40-62.5V Max.
Current	200A Max.
Power	10.0 kW Max.
Overload	110%
Output Voltage Ripple	< 200 mVpp (100kHz Bandwidth) < 2mV psophometric
Efficiency (typical)	92%
Control	
Control Mode	Voltage control with current limit
Output Voltage Regulation	$\pm 0.5\%$
Load Sharing	$\pm 5\%$ passive
Startup	Soft start, no overshoot
Protection	
Input	<ul style="list-style-type: none"> ➤ Under voltage ➤ Over Voltage
Output	<ul style="list-style-type: none"> ➤ Over Current ➤ Over Voltage ➤ Over temperature ➤ Reverse polarity protection (output fuses)
Operating Conditions	
Ambient Temperature	0 – 50°C
Humidity	10-90% RH non-condensing
Interface	
Communication	Isolated RS-232, RS-485
μ controller	<ul style="list-style-type: none"> ➤ Digital interface to a remote control unit ➤ Fully programmable voltage and current limits through the remote controller
Cooling	Forced air, fans
Mechanical	<ul style="list-style-type: none"> ➤ 4U high ➤ 19" & 23" Rack mounted, 20" deep ➤ ~ 65lb
Safety	DTM UL 1950
EMI	DTM EN55022