

# Designs Specifically for Rail Applications

The following pages represent some of the products APS designed and manufactures for rail applications. These designs run the gambit from designs for new car manufacturing to retrofitting new technology into existing equipment.

We have helped Municipal Rail systems to extend car life for many years by replacing old technology with the newest and most advanced technology available. We have also helped save millions of dollars for these municipalities by:

Lowering installation time	by insuring the product is form-fit-function identical to the equipment being replaced and is usually lighter than the equipment being replaced.
Lowering operating costs	our replacements are more efficient, run cooler and require less power than the equipment being replaced.
Lowering repair costs	our MTBFs are longer and MTTR are shorter than the equipment being replaced. In addition, our designs are usually more efficient and run cooler than the equipment being replaced.

Our plant is certified to ISO9001-2000.

We have supplied products to many Municipal Rail systems including New York City Transit Authority, MARTA, MBTA, BART, Metro North, LIRR and others. In addition, we have worked with several new car manufacturers.

**FULLY ENCAPSULATED MODULES**



**OVM**

**OVER-VOLTAGE SENSOR MODULE WITH CROWBAR**



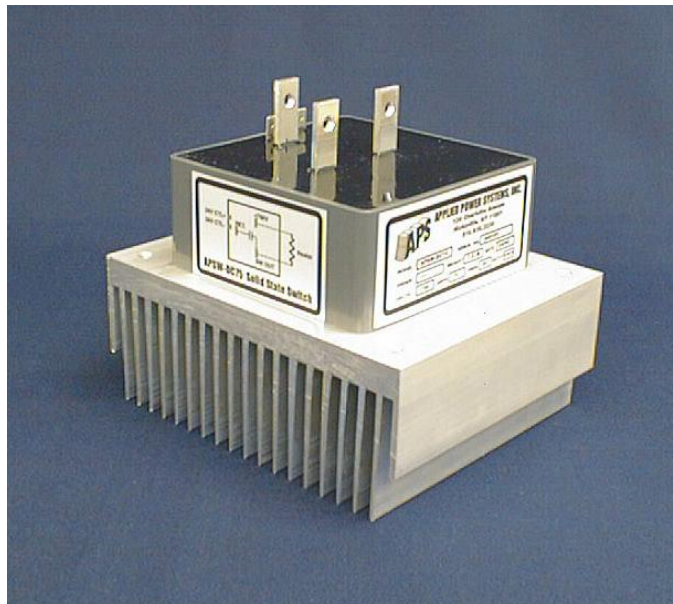
**DSNUB**

**3200PIV HV DIODE SNUBBER MODULE**



**VSENS**

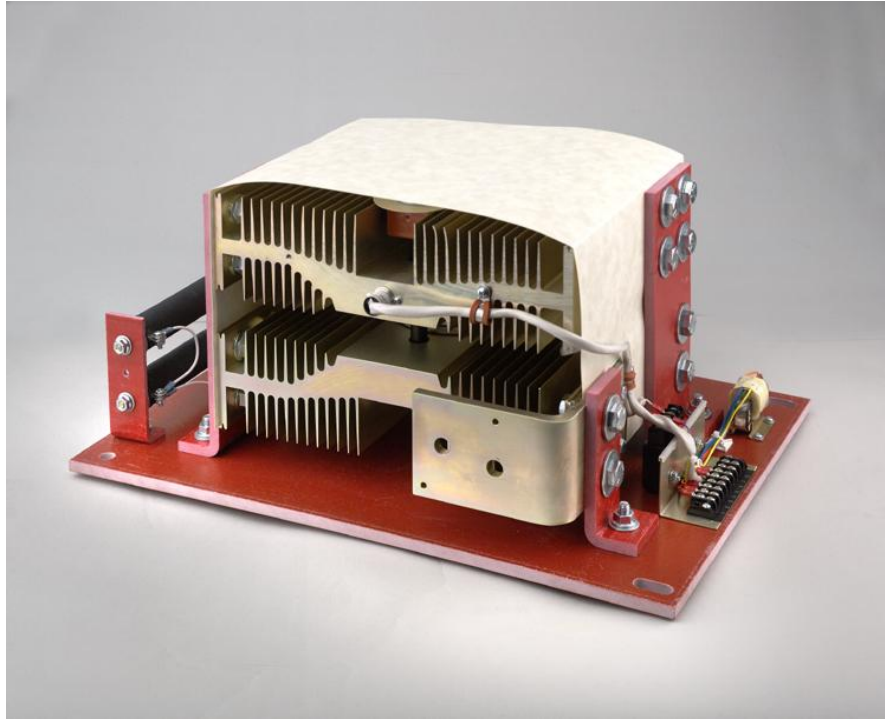
**HIGH VOLTAGE SENSOR MODULE**



**APSW75**

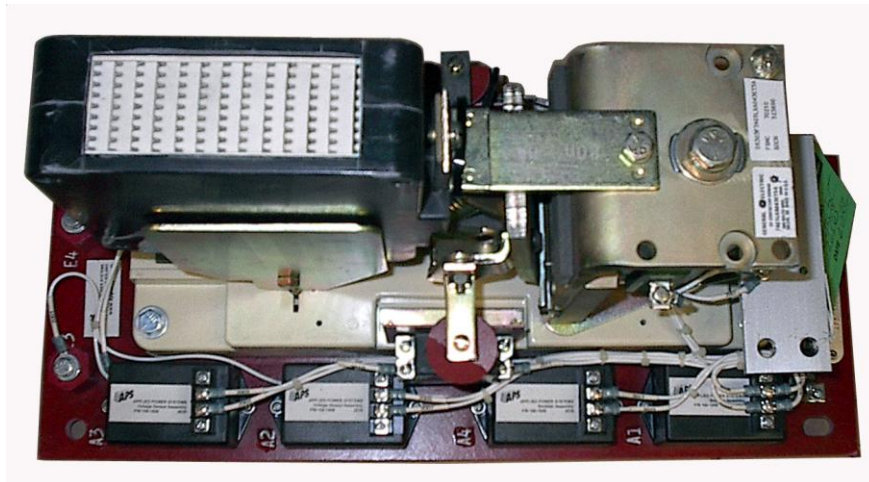
**THIRD RAIL RATED SOLID-STATE SWITCH  
750VDC / 75AMP OUTPUT WITH 10-24VDC CONTROL  
DC CONTACTOR REPLACEMENT FOR HEATER CONTROL**

**HIGH POWER RAIL MOUNTED ASSEMBLIES**



**PTAAM**

**SINGLE THYRISTOR ASSEMBLY  
WITH GATE DRIVE, SNUBBER & THERMAL SENSOR**



**KDREM**

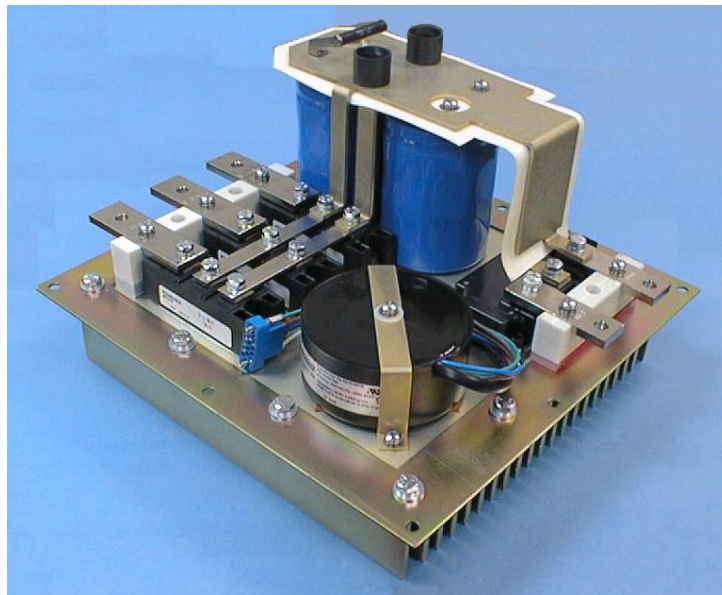
**KDR ELECTROMECHANICAL CONTACTOR ASSEMBLY  
WITH COIL SNUBBERS AND VOLTAGE SENSORS**

**HIGH POWER RAIL MOUNTED ASSEMBLIES**



**TR3PL**

**LOCOMOTIVE 1500 AMP THREE PHASE TRACTION RECTIFIER  
COMPLETELY ENCLOSED HIGH VOLTAGE ISOLATION ASSEMBLY**

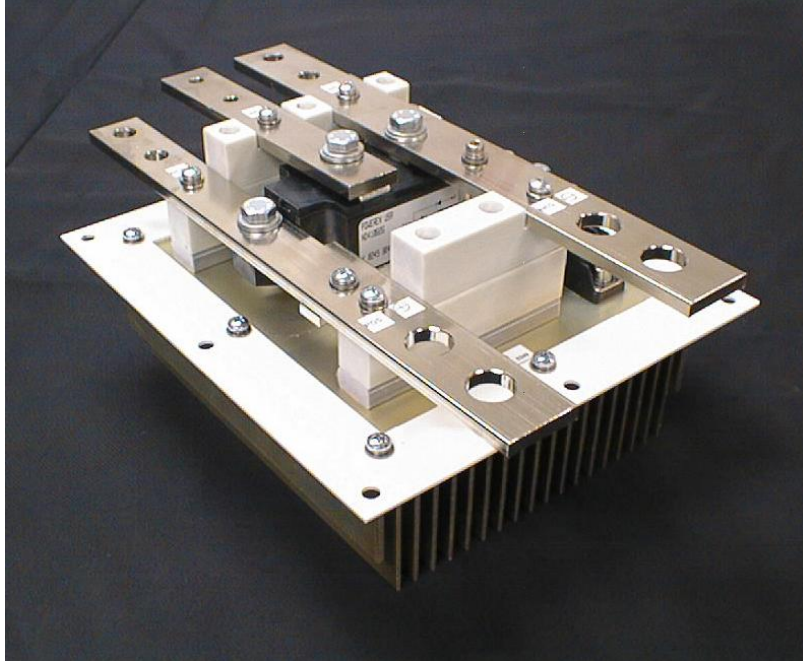


**CHP1L**

**LOCOMOTIVE CONVERTER, CROWBAR & IGBT CHOPPER ASSEMBLY**



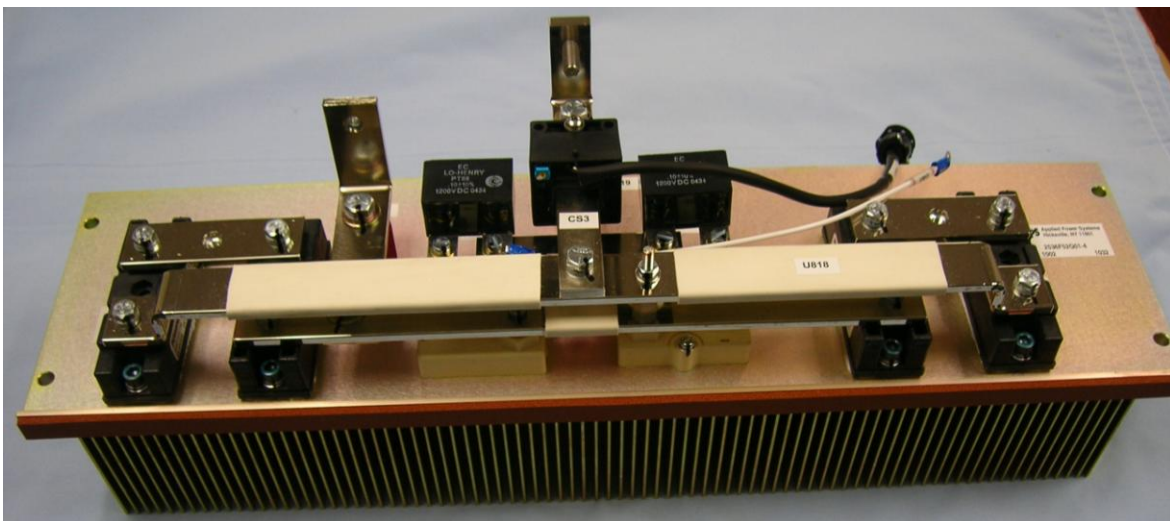
**HIGH POWER RAIL MOUNTED ASSEMBLIES**



APCD1

**LOCOMOTIVE 250 AMP DIODE ASSEMBLY**

**Rectifier assembly for Light Rail Car**

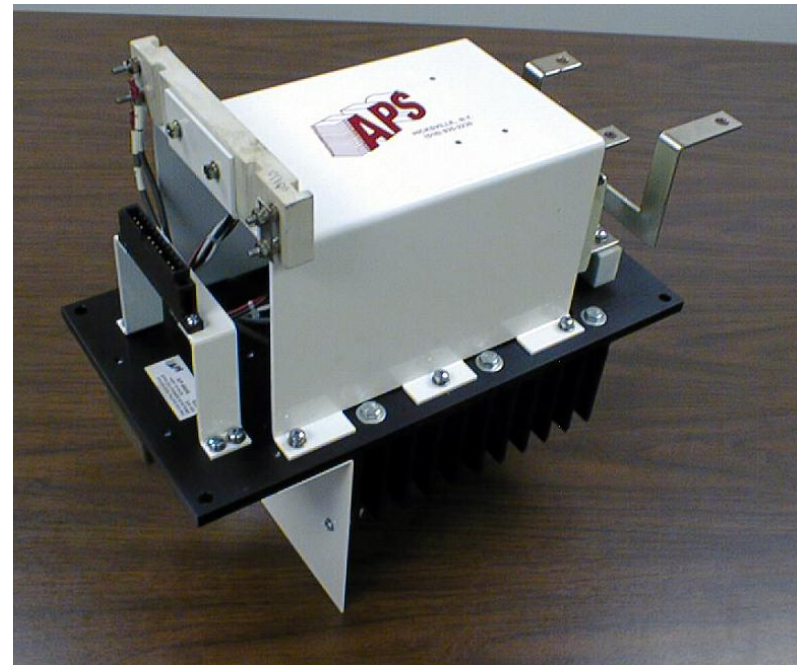


### SYSTEM RETROFIT 120KW GTO STACK TO IGBT STACK CONVERSION

BEFORE



AFTER



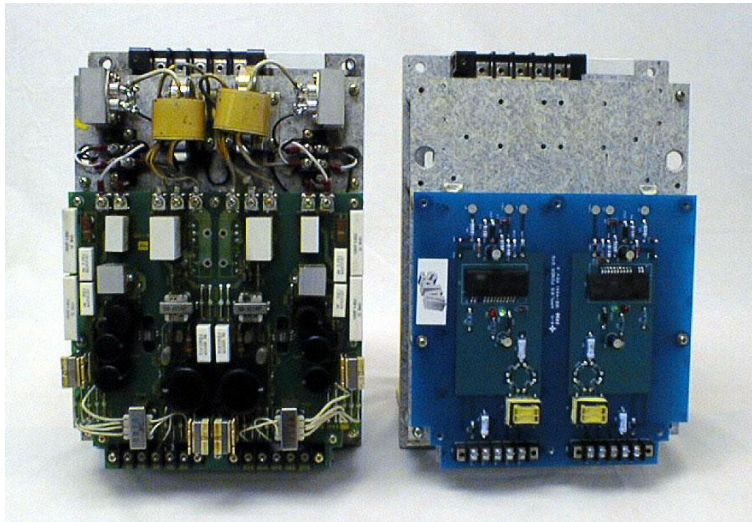
- FORM, FIT, FUNCTION REDESIGN PROVIDED DROP-IN REPLACEMENT FOR OBSOLETE GTO DESIGN
- IGBT DESIGN IMPROVED PERFORMANCE, REDUCED COMPONENT COUNT, IMPROVED RELIABILITY
- IMPROVED MECHANICAL DESIGN, REDUCED POWER CONSUMPTION, REDUCED WEIGHT
- ADDED DIAGNOSTIC FUNCTIONALITY, REDUCED COST



### SYSTEM RETROFIT 6KW GTO STACK TO IGBT STACK CONVERSION

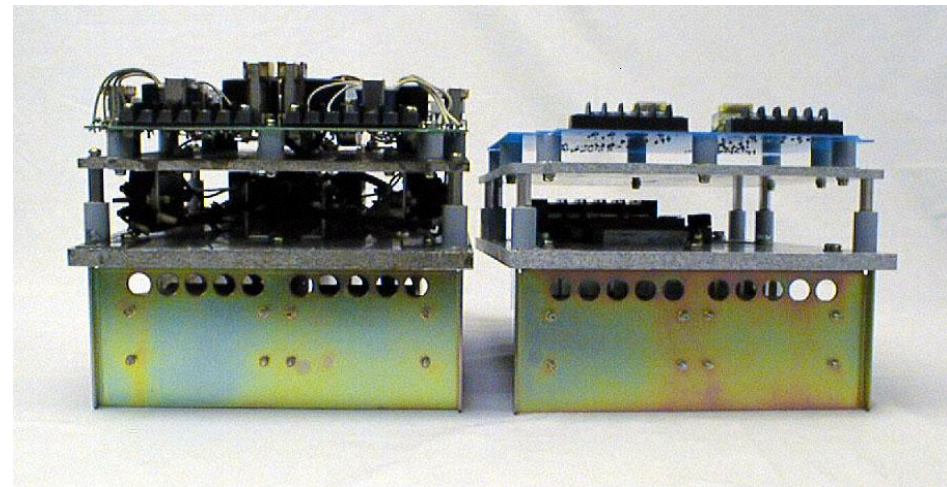
BEFORE

AFTER



BEFORE

AFTER



- FORM, FIT, FUNCTION REDESIGN PROVIDED DROP-IN REPLACEMENT FOR OBSOLETE GTO DESIGN.
- IGBT DESIGN IMPROVED PERFORMANCE, REDUCED COMPONENT COUNT, IMPROVED RELIABILITY,
- REDUCED POWER CONSUMPTION, REDUCED WEIGHT, REDUCED COST

**SYSTEM RETROFIT  
REDESIGN OF LOW VOLTAGE POWER SUPPLY / BATTERY CHARGER**



**LVPS**

- **FORM, FIT, FUNCTION REDESIGN PROVIDED DROP-IN REPLACEMENT FOR EXISTING DESIGN.**
- **IMPROVED PERFORMANCE, REDUCED COMPONENT COUNT, IMPROVED RELIABILITY, REDUCED WEIGHT**



### RIGHT OF WAY POWER SYSTEM 3KW UNINTERRUPTABLE POWER SUPPLY (UPS)



**UPS3KA**

- 120VAC Single-Phase Output
- 120VAC, 60Hz or 48VDC Inputs
- Internal Battery Charger
- Sinusoidal Output
- Unity Power Factor Correction on Input
- Digital Volts and Amperes Display
- Ruggedized Design

### RAIL POWER SYSTEMS PROVIDES THIRD RAIL POWER FOR LOCAL FACILITIES



**DC20KP**

- Programmable 1kV Power Supply, 20kW
- Remote Communication – RS232 & GPIB Interface
- Large, Bright VF Display for Volts, Amps & Status
  - Both Supplies Feature Variable Output, Precision Regulation, Low Noise and Ripple Output



**DC20KM**

- Manual 1kV Power Supply
- Simple Settability
- Analog metering of Volts and Amps.