

CASE STUDY:

POWERING CUTTING-EDGE NAVAL SONAR TECHNOLOGY

AT A GLANCE

Requirements

- ✓ Efficient and space-saving design with advanced thermal management
- ✓ Designed for three-phase, 4-wire operation to prevent damage from low input voltages
- ✓ With an efficiency of over 89%, the system delivers 200V DC at 60A DC for optimal performance
- ✓ Versatile output voltage range from 15V DC to 450V DC
- ✓ Programmable to 0V DC, adjustment is not possible within the range of 0 to 14.9V DC
- ✓ Designed to meet stringent MIL-STDs

Benefits

- ✓ 12kW AC-DC Rectifier Power Supply in a 6U chassis converts 3-Phase 480VAC to 0-200VDC
- ✓ Meets MIL-STD-810G for vibration and shock, ensuring operational reliability in challenging conditions
- ✓ Combines COTS power supply benefits with cost-effective superiority over custom systems



OVERVIEW

A world-class organization approached Astrodyne TDI partners to collaborate on the development of state-of-the-art naval sonar systems. These systems play a pivotal role in maritime defense and surveillance operations, requiring a dependable and efficient power source to function optimally in diverse marine environments. Leveraging advanced technology, the naval sonar systems are designed to detect underwater objects, track potential threats, and uphold the safety and security of naval fleets with precision and accuracy.

POWER CHALLENGES

Considering the specific requirements of the application, it was essential to find a solution that not only met stringent environmental certifications like VITA62 but also provided high power levels. Despite searching for an off-the-shelf solution to align with cost constraints and quick turnaround times, the organization faced challenges in finding the perfect fit. However, everything changed once they discovered Astrodyne TDI's revolutionary MercuryFlex 3-Phase High Voltage solution, also known as M3PHV.

ASTRODYNE TDI'S SOLUTION

Astrodyne TDI's innovative M3PHV solution not only meets military standards for EMI, shock, and vibration but also delivers exceptional power efficiency. This cutting-edge 12 kW AC-DC Rectifier Power Supply seamlessly converts 3-Phase 480VAC to 0-200VDC, maintaining voltage equilibrium and efficiently distributing output current among units for peak performance. Crafted with meticulous attention to detail, this system complies with stringent quality and performance benchmarks, aligning with MIL-STD-810G. Its ability to thrive in extreme vibrations and shocks ensures unwavering reliability and operational resilience in the most demanding of environments.