

Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

A Robust Modular IGBT Power Supply for Fusion Science Applications TIMOTHY ZIEMBA, EHT, KEN MILLER, Univ of Washington, JAMES PRAGER, EHT — A present challenge facing the fusion energy community and particularly the ICC community in its support of the main line tokamak program is the ability to generate increased power levels for pulsed magnets, arc plasma sources, radio frequency heating, and current drive schemes, at reasonable cost. Continuous wave (CW) tube based power supplies are typically large and expensive, making them prohibitive for smaller experimental facilities or not cost effective when only pulsed input power is required. Continued research and development of next generation solid state power supplies could allow for multiple applications with a single well developed, low cost module that could be configured in many ways. Eagle Harbor Technologies has developed, built, and tested a modular solid state power supply based on Insulate Gate Bi-polar Transistor (IGBT) technologies. The power supply utilized a modular, low cost, high power IGBT based system that can be assembled in multiple ways to address a wide range of applications. Testing results demonstrating the prototype abilities in both parallel and series configurations and for both high current and/or high voltage operation will be presented. The prototype cost was shown to be significantly lower than older generation power supplies for similar applications. Future work includes upgrading the prototype for increased power levels (> 10 MW).

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Date submitted: 20 Jul 2010

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