

OPERATION OF A VERSATILE MULTI-POWER SUPPLY SYSTEM DRIVING NON-AXISYMMETRIC COIL SETS ON THE DIII-D TOKAMAK

R. Stemprok, G.L. Jackson, W.P. Cary, G.L. Campbell
General Atomics, PO Box 85608, San Diego, California 9186-5608, USA
stemprok@fusion.gat.com

A. Nagy
Princeton Plasma Physics Laboratory, PO Box 451, Princeton, NJ 08543-0451

Description, development, and implementation of the DIII-D tokamak power supply system driving non-axisymmetric coil sets will be presented. The coil system operates in a broad range of 0–7 kA and up to 40 kHz. Three types of power supplies drive the tokamak's non-axisymmetric coil sets; variable unipolar dc SCR supplies, bi-polar switching power amplifiers (SPAs), and linear amplifiers. The coils are used primarily for error field correction, resistive wall mode studies, and edge localized mode suppression. A versatile computer program generates the power supply coil interconnections in the patch panel area for a specific experiment. Control during each shot of individual coils, or combinations of coils, is accomplished using the plasma control system (PCS). We will discuss the successful integration of these various components, an upgrade to the feedback control of the dc power supplies, routine operation, coil control using the PCS, and challenges in maintaining this complex system.

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