

Abstract Submitted  
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**High Gain and Frequency Ultra-Stable Integrators** K.E. MILLER, T.M. ZIEMBA, J.R. PRAGER, D.E. LOTZ, Eagle Harbor Technologies — Eagle Harbor Technologies has received DOE Phase I SBIR funding to continue the development of high gain and stability integrators that are capable of high bandwidth measurements over long pulse operation. The present design operates with a 10 us RC time, for pulse durations up to the second time scale, with a frequency response in excess of 10 MHz, and typical drift errors of under 10 mV. This integrator development effort consists of two primary tasks. The first is to demonstrate stable operation over the much longer time scales required by ITER. When a proper comparison between available integrator designs is made that normalizes for gain and operation time, the existing integrators are the best available and meet ITER requirements for stability. However, this stability needs to be demonstrated over the hour type time scales relevant to ITER, as opposed to the very high gain second type operation typically used within the ICC community. The second primary task is to incorporate the integrators into the National Instruments (NI) platform to allow for easy operation with modern DAQ systems.

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