

Using the Non-Intrusive Load Monitor for Shipboard Supervisory Control
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ABSTRACT

Field studies have demonstrated that it is possible to evaluate the state of many shipboard systems by analyzing the power drawn by electromechanical actuators [1], [2], [3], [4], [5]. One device that can perform such an analysis is the non-intrusive load monitor (NILM). This thesis investigates the use of the NILM as a supervisory control system in the engineering plant of gas-turbine-powered vessel. Field tests demonstrate that the NILM can potentially reduce overall sensor count if used in a supervisory control system.

To demonstrate the NILM's capabilities in supervisory control systems, experiments are being conducted at the U.S. Navy's Land-Based Engineering Site (LBES) in Philadelphia, Pennsylvania. Following a brief description of the LBES facility and the NILM itself, this thesis presents testing procedures and methodology with results obtained during the extensive field studies. This thesis also describes the on-going efforts to further demonstrate and develop the NILM's capabilities in supervisory control systems.

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