

High-speed de-excitation system for brushless synchronous machines

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Abstract-

This study presents a novel high-speed de-excitation system for brushless synchronous machines, where the de-excitation time constant can reach values of several seconds. In these conditions, despite the proper operation of the protection system, the slow de-excitation time constant may produce severe damage in the event of an internal short circuit. With the proposed system, a rapid de-excitation is achieved by inserting a resistance in the field circuit, obtaining a response similar to that in machines with static excitation. This system has been validated through computer simulations and experimental laboratory tests.

Index Terms-

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