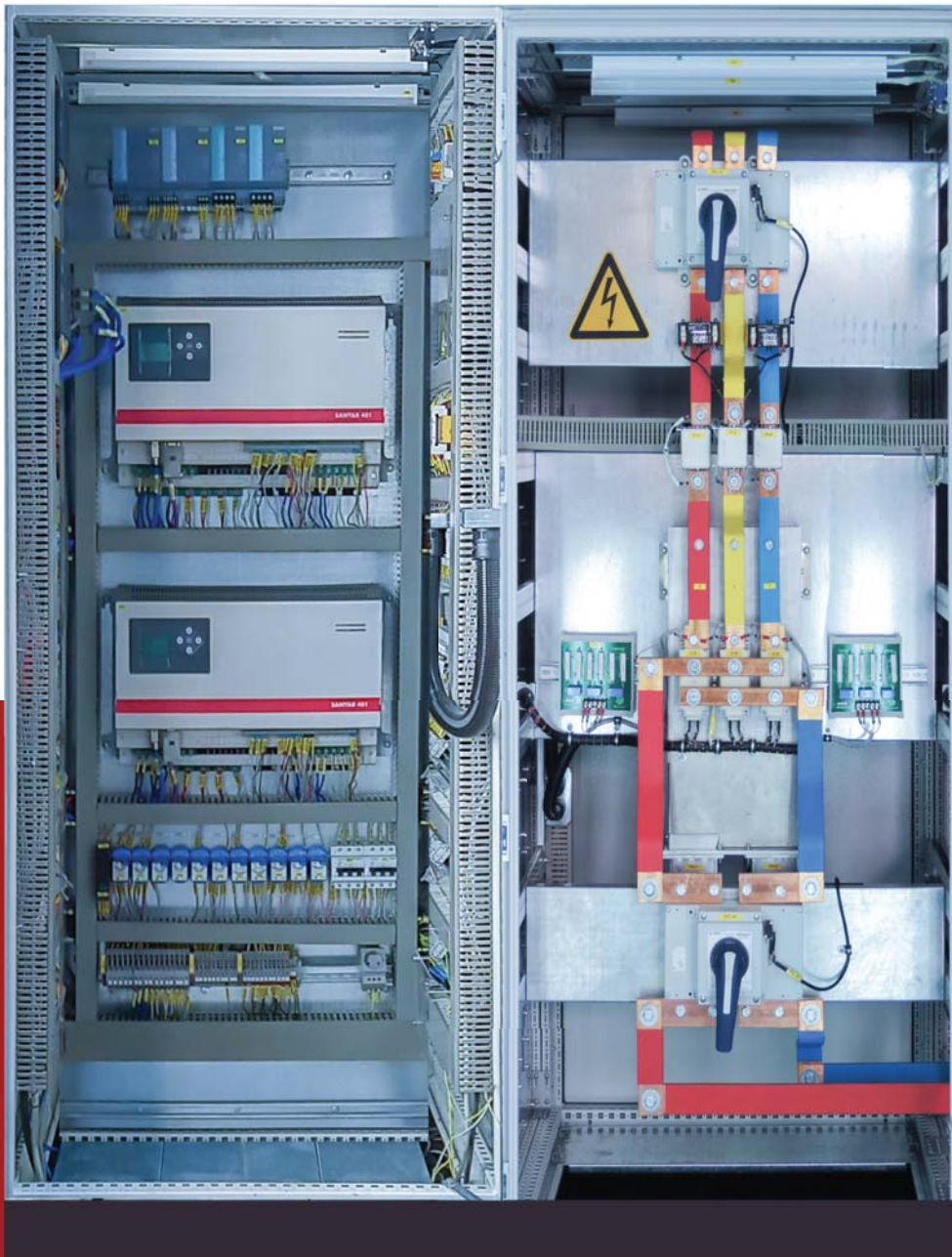




Generator Excitation System Catalog



Introduction

The HANI ENERGY excitation control system includes panel and equipment with modular design to control the excitation current of the generator and is capable to be customized for different kind of generators with 10 MW power production and higher values. This control system could be considered for operation of both static and dynamic generators and also installation of different types of generator protection relays is predicted in this system.


The excitation control system is designed in accordance with IEEE421 standard. This control system has different control modes such as automatic control mode (AVR), manual control mode (FCR), reactive power control mode (VAR) and power factor control mode (PF). The possibility of determining reactive power and line droop is also considered in this system (Load sharing ability is implemented by reactive power droop). In addition, over excitation limiter (OEL) and under excitation limiter (UEL) are implemented in all control modes that have essential roles in stabilizing the generator and the power grid.

This control system, despite having all the features and advantages of modern excitation systems which are available all around the world, is modularly designed. This would reduce the duration and expenditures of maintenance and repairs substantially. Moreover, expansion and development in the future is possible due to the modular design.

The controller of generator excitation system

The central processor of the mentioned excitation system could be selected from Siemens S7-300 or S7-400 class CPUs and it also could be implemented on the processor of the turbine control system. The processor executes all of the open control loops and the corresponding logics of the excitation system with high speed. This processor is capable of communicating with other sections through Profibus and Profinet networks. Some of the processor's merits and advantages are described in the following:

- ◆ High processing speed
- ◆ High level programming using CFC and LAD languages
- ◆ Online monitoring of different variables
- ◆ Ability to force memory bits and I/Os individually
- ◆ Equipped with backup battery to protect user information in case of power outages (on the power module)
- ◆ Equipped with status LEDs to facilitate troubleshooting
- ◆ Ability to labeling all of the events with high resolution
- ◆ Etc

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