Maximum reliability through innovative excitation systems

SPPA-E3000 Excitation Systems can be used with synchronous generators from any manufacturer. With their highly advanced technology, they cover all ratings for industrial, hydroelectric, steam and nuclear power plants and are characterized by unconditional reliability and maximum efficiency.

The Task
Sooner or later, the existing excitation system will reach the end of its service life. This may be because some of its modules have been discontinued, or simply because further operation is no longer cost-effective. This situation can arise, for example, if the prices of spare parts have become prohibitive, or if grid operators impose new requirements for control dynamics which the systems are unable to meet, or if for some other reason the calculated risk of failures exceeds the acceptable level. A solution is therefore required which fits the existing situation perfectly and ensures reliable continuous operation based on innovative technology.

Our Solution
Siemens SPPA-E3000 Excitation Systems have been specifically developed for reliable continuous operation in power plants. Their reliability and robustness are clearly demonstrated by over 4,000 units currently in operation.

Siemens has put its many years of experience as a power plant developer, constructor and operator into developing these innovative excitation systems. Their modular design coupled with the use of proven industrial components contribute significantly to reliability and to the reduction of maintenance costs.

No matter what the requirements, e.g. footprint, power supply or generator output, Siemens can offer the right excitation system for any application in any power plant based on its range of static excitation systems (SES) and rotating (brushless) excitation systems (RES).

Siemens SPPA-E3000 Excitation Systems are characterized by the highest quality standards.
SPPA-E3000 Excitation Systems

Static Excitation Systems:

SES110 (formerly: THYRIPART-RG)

is a load-dependent static excitation system for synchronous generators and emergency diesel generators. It is used in hydroelectric, steam and nuclear power plants.

Its functional design ("Harz circuit" with oscillating circuit and use of strictly passive components for basic excitation) makes it especially suitable for emergency diesel generators in nuclear power plants and ensures maximum reliability and availability.

SES220/520 (formerly: SEMIPOL)

are static excitation systems for synchronous generators. They are used in gas turbine, combined-cycle, hydroelectric and steam power plants for medium to high ratings. They can be used as stand-alone systems or as compact systems in combination with a startup converter.

Siemens provides a customer-oriented redundancy concept and its modernization projects are facilitated by identical connections. Replacement of your existing excitation system with SES220/520 will offer increased plant efficiency, outstanding dynamic behavior, processor self-monitoring, local visualization and remote diagnostic capabilities.

SES130/230/530 (formerly: THYRIPOL)

are static excitation systems for synchronous generators. They are used primarily in hydroelectric, steam and nuclear power plants for medium to high ratings. They can be used as stand-alone systems or as compact systems in combination with a startup converter.

Siemens provides a customer-oriented redundancy concept and its highly flexible technology offers individually tailored modernization solutions. Replacement of your existing excitation system with SES130/230 or SES530 will offer increased plant efficiency, outstanding dynamic behavior, processor self-monitoring, local visualization and remote diagnostic capabilities.

Rotating (brushless) Excitation Systems:

RES010 (formerly: THYRIPART-RG)

is a load-dependent brushless excitation system for synchronous generators and emergency diesel generators. It is used in hydroelectric, steam and nuclear power plants.

Its functional design ("Harz circuit" with oscillating circuit and use of strictly passive components for basic excitation) makes it especially suitable for emergency diesel generators in nuclear power plants and ensures maximum reliability and availability.

RES011/110/210 (formerly: RG3)

are brushless excitation systems for synchronous generators with exciters. Due to a high degree of flexibility coupled with modular hardware and software design, they are suitable for use in industrial, steam, nuclear and hydroelectric power plants.

Comprehensive redundancy concepts ensure maximum availability. Switching from the existing excitation system is no problem thanks to the simple plug-out/plug-in replacement method, which makes minimum changeout times possible.

RES230 (formerly: THYRISIEM)

is a brushless excitation system for synchronous generators with exciters. It is suitable for use in large steam power plants and in nuclear power plants.

State-of-the-art processor technology offers maximum user friendliness. The type-tested standardized RES230 can ensure maximum reliability and availability thanks to its redundancy concept and a design featuring no parts subject to mechanical wear.