



RTX POWER
Excitation System

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The RTX POWER excitation system can be used for all types of synchronous generators or motors and is compatible with any existing OEM equipment.

Available as a full static excitation replacement or as a front-end control upgrade for other exciter OEMs, such as, GE, Westinghouse, Siemens, ABB, Basler, Brush, Cutler-Hammer and others.

■ Communication Protocols

Modbus TCP
Modbus RTU
IEC 60870-5-101
IEC 60870-5-104
IEC 61850 – MMS
DNP3.0








■ Experience

REIVAX was founded in 1987 and has supplied over 1,900 systems controlling more than 145 GW of power generation. We are global leaders in excitation systems and speed governor systems.

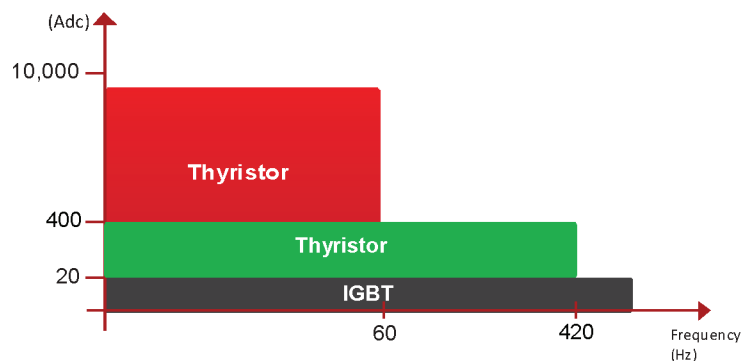
■ Interface Time Synchronization

IRIG - B
NTP

■ Applications

 Hydro Plants	 Nuclear
 Thermoelectric	 Biomass
 Oil & Gas	 Industrial Pulp & paper Chemical Cement & mining Fans & compressors
 Synchronous condensers	

■ System Capabilities



The RTX Power product uses a fully programmable high-speed controller that is capable of meeting the most demanding NERC regulatory requirements for the US and Canadian market in terms of voltage response.

Certified to meet the standards for electromagnetic compatibility and built for the most demanding applications in harsh environmental conditions.

The RTX Power has been tested by *Kestrel Power Engineering* and the closed-loop control, limiters and PSS function was confirmed to match IEEE421.5 standard models.

ARCHITECTURE

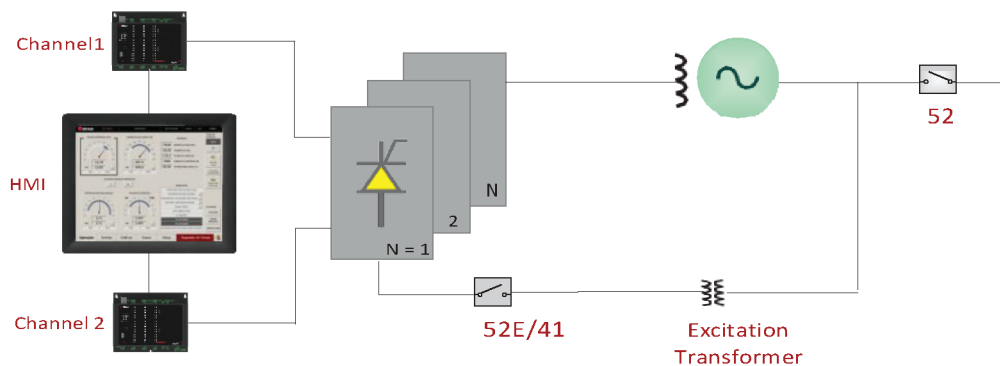
The RTX POWER platform supports single or fully redundant systems increasing the availability of the synchronous machine.

Moreover, the redundant regulators are bridge independent and the bridge redundancy is completely configurable allowing for 1+1 or N+1 configuration.

■ Redundancy Options

Redundancy provides maximum uptime of the synchronous machine and can facilitate the replacement of certain components even with the unit in full operation. Components that are available with redundancy include:

- Control power supply
- Excitation controller
- I/O module
- Bridge Driver Module
- Bridge Cooling Fans
- Other options on request



MAIN CONTROL FUNCTIONS

- IEEE 421.5 Standard compliant
- Three (3) sets AVR parameters
- Active / Reactive compensation
- Over excitation Limiter (OEL)
- Under excitation Limiter (UEL)
- Volts / Hertz Limiter (V/Hz)
- Stator current Limiter (SCL)
- Protection functions
(24,27,32,37F,40/32Q,50/51,59,59F,76F,81O/U)
- Built-in soft start function
- Automatic tuning helper
- Frequency response tool
- PSS tuning tool
- Follower function for "bumpless" transfer
- Current sharing between parallel bridges
- Open loop firing control testing
- Integrated step response function built into the HMI

OPTIONAL FEATURES

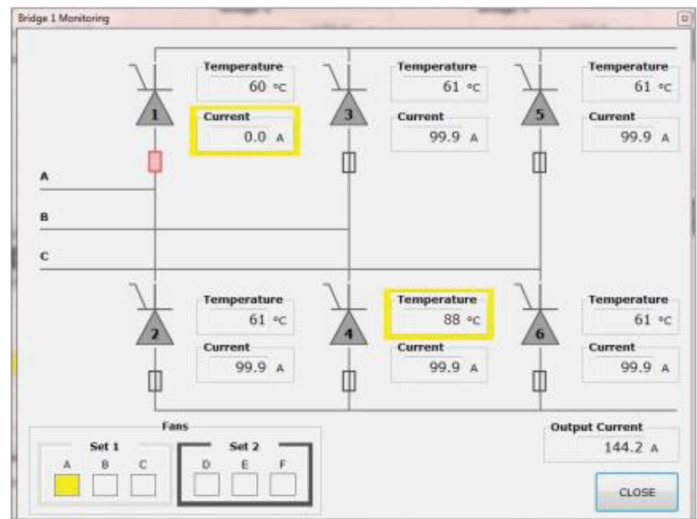
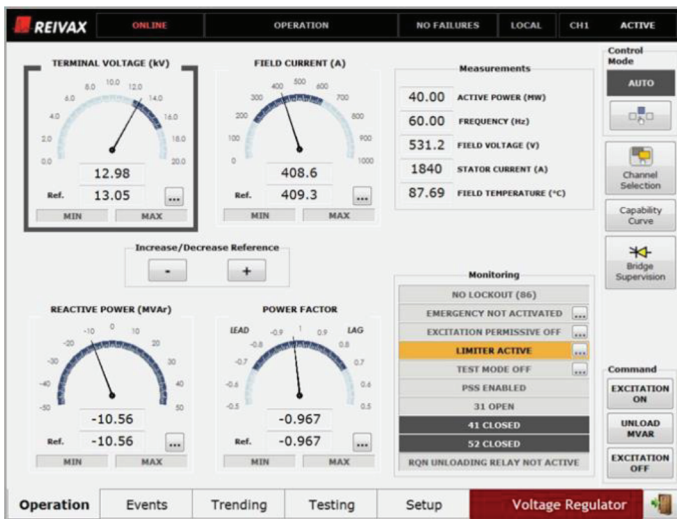
- Power System Stabilizer PSS2B / PSS4B
- Minimum field current Limiter
- Field temperature calculation (IEEE 1 15-2009)
- Voltage Matching
- Rotating Diode supervision (Brushless Systems)
- ANSI 64F function (Ground Fault)

BASIC HARDWARE

- The regulator is fully programmable
- I/O module (48 digital inputs / 32 digital outputs / 16 analog inputs / 16 outputs analog / 3 specific inputs for PTs / 3 specific inputs for CTs)
- Dedicated module for the supervision, control and protection of the bridges.

HUMAN-MACHINE INTERFACE

Provides advanced monitoring, operation and troubleshooting of the system including a real-time generator capability curve, voltage regulator tuning, programming of the limiters and a dedicated bridge monitoring screen.



SUPPORT AND MAINTENANCE TOOLS

The RTX POWER excitation system has intuitive support tools for maintenance and analysis:

- Facilitates modification of existing functions and/or the addition of new features. Intuitive graphical environment IEC 61131-3
- Real time display of logic block diagram
- Step response function for regulator tuning
- Sequence of Events (SOE) for monitoring alarms
- Test function for inputs and outputs.
- Generation of parameter list
- Verification and validation of remote communication protocols
- Datalogger recorder with selectable triggers and a large recording window.

Technical Assistance

Technical support is available 24 hours per day, 365 days of the year
Spare part stock in Houston, TX and Montreal, Canada

Turn-key services

Plant interface engineering
Removal & Installation
Training
Installation Supervision & Commissioning
Seismic calculations
NERC modeling



EXCITATION SYSTEMS,
SPEED GOVERNORS AND
COMBINED SYSTEMS

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