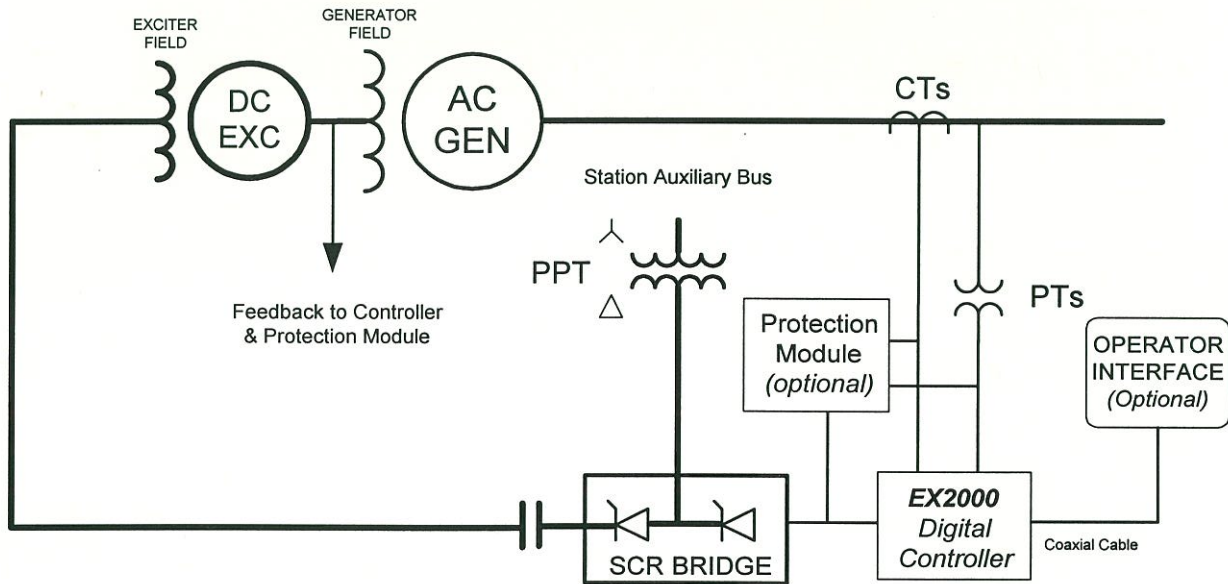




EX2000DR DC EXCITER VOLTAGE REGULATOR

Fact Sheet for Retrofit Applications



EX2000DR Simplified One-Line Diagram

The EX2000DR is a digital, static, voltage regulator for DC exciters, utilizing the latest hardware and software technology. To meet customer and operational requirements, a full range of control and protection functions are available for the product.

Benefits of EX2000DR

- 99.98% Availability
- Replaces Old and Failing Components
- Full Digital Design
- Improved Performance
- Meets IEEE 421 Guidelines
- Built-in Diagnostic System
- Built-in Control Simulator
- Faster System Checkout
- Reduced Maintenance
- High Degree of Accuracy, $\pm 0.25\%$
- Configurable with a PC

The EX2000DR system comes equipped with a full-wave, inverting, thyristor bridge which supplies excitation power to the field winding of the DC exciter. In addition, all control and protective functions are implemented in the system software. There are no moving parts, such as motor operated setpoint adjusters, as are found in the older excitation systems. Digital technology coupled with over 35 years of GE static exciter design experience allows the EX2000DR to maintain 99.98% availability.

Standard Features & Functions

- Three-Phase, full wave inverting SCR bridge
- Thyristor bridge circuit filtering
- Thyristor bridge conduction monitor
- Diagnostic display panel
- Operator control simulator
- AC Input Circuit Disconnect Switch
- Over Excitation Limiter (OEL)
- Automatic Voltage Regulator (AVR)
- AVR Software Reference Adjusters
- Manual Voltage Regulator (FVR)
- FVR Software Reference Adjusters
- Bi-directional AutoTracking Function
- High Speed Exciter Control Loop
- Volts per Hertz Limiter (V/Hz LIM)
- Reactive Current Compensation (RCC/ARCC)
- Dual source internal bulk power supply
- Three Phase Voltage Sensing
- Two Phase Current Sensing
- Output DC Field Contactor
- 100 millivolt shunt for exciter field
- Field Forcing Module
- 4-20 mA Programmable Analog Outputs
- Strip Heaters
- Input Power Potential Transformer (PPT)
- NEMA-I Enclosure

Product History

The first EX2000 exciter was shipped in April 1993. Since that time an average of over 120 units per year have been shipped between retrofit and new unit applications. This unprecedented volume is a strong indicator of the products' market acceptance and dominance.

Applications

- Steam Turbine Generators
- Gas Turbine Generators
- Hydro Turbine Generators
- Synchronous Condensers
- GE and Non-GE Units

Optional Features & Functions

- Power System Stabilizer (PSS)
- Volts per Hertz Protection (24G)
- Over Excitation Protection (OLOT/OET)
- Under Excitation Limiter (UEL)
- Sensing PT Failure Detector (PTFD)
- Field Ground Detector (64F)
- VAR/PF Controller
- Voltage Matching
- Field Temperature Calculation
- Data Link with GE's MARK V Turbine Control
- Independent Protection Module with:
 - a. Volts/Hertz (24G)
 - b. Generator Overvoltage (59G)
 - c. Off-Line Overexcitation (OLOT)
 - d. On-Line Overexcitation (OET)
 - e. Loss of Excitation (40)
 - f. Exciter Phase Unbalance (EUT)
- Digital Operator Interface
- Monitoring and Trending Software
- PLC-based Digital Interface
- Installation Design Engineering Package
- PSS Tuning Study

EX2000DR Retrofits

- Replaces Existing Regulators
- Eliminates Amplidyne
- Eliminates 70P and 90P MOVAs
- Improved Protection Functions

EX2000DR Enclosure Information*

Configuration	Width	Weight
Simplex	24"	1,500 lbs
Simplex with Protection Module	48" - 60"	2,000 lbs

* All enclosures are 90"H x 20"D

