



**TURBINE
DIAGNOSTIC
SERVICES INC.**

"The Turbine Doctor"®

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Generator Excitation Control System Upgrades

Are you....

- ☐ **Experiencing Lost Generation With:**
 - **Your Original Analog Excitation Systems**
 - Or,
 - **Your Original Digital Excitation Systems**
- ☐ **Having Problems Troubleshooting**
- ☐ **Cannot Find Replacement Parts**
- ☐ **Having OEM Service Support Issues**
- ☐ **Getting Unexplained Transients**
- ☐ **Having System Stability Issues**

**There is a Simple Engineered
Solution.**

That is:

- ✓ **Cost Effective**
- ✓ **Easy To Schedule**
- ✓ **Readily Available**

An Excitation System Upgrade.

Come talk to us about :

- ☐ **An Upgrade to Meet Your System Needs**
- ☐ **Integrated Options and Enhancements that can Add to Your Bottom Line**
- ☐ **Our Installation Experience which provides the Owners Best Project Cost and Schedule**

Owners and operators need to know that there is a solution available to them. Generator excitation system support and upgrade is an important part of what Turbine Diagnostic Services, Inc. (TDS) does. We maintain the hands-on, experienced engineering and installation teams that can resolve your concerns with your current generator excitation systems.

Overview

With older Generator Excitation Control Systems, it is not uncommon for power generating equipment operators to experience start-up problems and have inconsistent availability and capacity issues. Most have observed unexplained transients associated with operating their older analog or digital excitation systems. To this end, reality in fixing these situations within their current control system is becoming a concern. These concerns will continue to elevate as most owners are discovering that it is becoming more and more difficult to find parts and OEM support services for these older systems. Usually the cost of troubleshooting (and lost generation) of either an analog or digital excitation system can quickly become greater than the cost of an upgrade. In most of these systems our engineers have found that the original power conversion equipment is in good working order and only the controls are experiencing operating problems.

Typically, with older analog excitation systems, these systems use small voltage signals to convey set points, feed backs, limiter settings, etc. through wiring between circuit cards, transducers, and gate pulse amplifiers.

Degrading wire terminations and transient noise (which is inherent in power electronics) can reduce the quality and stability of these small voltage signals. Problems caused by intermittent fluctuations in these small voltage signals can be very difficult, if not impossible, to troubleshoot

There is a simple solution to these control problems that is both cost effective and easy to schedule within a short outage duration. That is, to perform an upgrade to your older, existing Excitation Controls with a Basler Series 200 or 400 systems.

If you are experiencing problems with your Small, Medium or Large Steam Turbine Generator; or, with your Heavy Duty or Aero-derivative Combustion Turbine Generators that has one of the Generator Excitation Systems identified below, please Contact Us for your best Engineered Solution.

GE AMPLIDYNE Voltage
GE SCPT
GE BUS FED
GE ALTERREX
GE GENERREX
GE Shunt SCR
GE Analog Voltage Regulators
GE PPT/Excitation Transformer Static Exciter Systems
GE SCT/PPT Exciter System
Driven DC Generator
GE Digital EX2000 w/LCI Gas Turbine Static Start (7FA)

EMD Vickers
EM Rotating Exciters
Westinghouse
Hitachi HIGEX
Siemens
GEC-Alstom
Allis Chalmers
ABB (Old BBC Static Exciters)
All OEMs Regulators with Shaft
GE Digital EX2000 Exciter System
Basler Static Exciters

Generator Excitation Control System Upgrades

Turbine Diagnostic Services, Inc. (TDS) is a recognized national service organization specializing in turbine generator maintenance, controls, and diagnostic services and whose headquarters is located in the Tampa, FL, area. Turbine Diagnostic Services has provided a full range of turbine generator services to the Power Generation Industry since 1998 and has responded to countless emergency service calls from our customers. We are established and known in the industry, by many, as **"The Turbine Doctor"**.

TDS can provide upgrades for any type of excitation system. With specific hands-on experience, our engineers will design and install your upgrade using existing interconnecting cables connected to the new terminal boards, thus providing the Owner with an upgrade that enhances their best project cost and schedule.

There are two (2) different Series Upgrades which encompass most excitation systems found in the power generation industry. Here are some pictures of what their control faceplate looks like and a brief summary of each.

200 Series Upgrade



The 200 Series is an excellent replacement for smaller brushless (with rotating diode wheel) or older rotating DC exciters – both analog and digital.

400 Series Upgrade



The **400 Series Digital Excitation Control System** is a microprocessor based controller that provides excitation control, flexible logic control and optional power plant system stabilization for synchronous machines in an integrated package. These are most often incorporated in upgrades for SCT/PPT, potential source SCR bridges, Amplidyne, ALTERREX, GENERREX and the larger brushless and rotating DC exciters.

Turbine Diagnostic Services, Inc. (TDS) is a full service turbine generator field service organization based in Odessa, Florida. **TDS** specializes in conducting steam & gas turbine generator planned & emergency maintenance controls troubleshooting, and vibration analysis & balancing services.



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