

# Power and Grounding Integrity Service

- Improves process availability
- Reduces time and costs of rectifying power and grounding issues
- Better decision making



*Our experts are trained and skilled in resolving difficult Power and Grounding issues.*

## Introduction

Issues related to Power and Grounding system integrity can occur at any time. These problems don't always manifest themselves in predictable ways. Troubleshooting these elusive types of issues can be difficult and time consuming.

Our experts have a wealth of experience resolving tough electrical and environmental issues surrounding the control system. Expertise is required for DeltaV™ distributed control system (DCS) and Emerson products on conventional I/O, digital field communications and wireless. These experts have extensive experience in plant instrumentation, installation and control system guidelines and practices, and solid experience handling grounding and power problems in the field; experience needed to quickly troubleshoot plant electrical integrity issues.

Power and Grounding Integrity Service modules are specifically designed to address all aspects of system inspection and maintenance throughout the system lifecycle. All services are performed by certified specialists.

## Benefits

**Improves process availability.** Spurious unexplained failures on the system can be systemic of a power and grounding problem. If left unchecked, these failures can ultimately

impact the availability of the system in your plant. Before these failures begin to manifest themselves, it is best to perform a Power and Grounding health check of the system. If preventive measures have not been employed, and issues are occurring, troubleshooting and recommended mitigation are the course of action. Power and Grounding Integrity Service is the answer for preventing or rectifying Power and Grounding issues for your plant.

**Reduces time and costs of rectifying power and grounding issues.** Power and Grounding Services bring two elements to bear: tools and knowledge. Specialized tools are often necessary to troubleshoot any electrical issue on any bus. Each specialist is trained on the use of each tool and that means getting to the bottom of issues fast.

The specialists' experience with diagnosing, troubleshooting, and rectifying electrical issues combined with the extensive tools available to them leads to the most rapid and cost effective outcome for your issues.

**Better decision making.** Information from trained and experienced experts is critical to determining the best course of action in rectifying Power and Grounding anomalies. The findings and recommendations from this investigation and assessment will guide you in better decision making to improving system health and availability in addition to guiding the plant to make modifications.

## Scope of Service

Each situation and plant is different and our methodology involves listening to the customer as a starting point. This starting point of listening to our customer allows the service to be flexible by providing coverage to a wide variety of requests. Typically, the scope of the Power and Grounding Integrity Service will include the following phases:

**Investigation Preparation** - A front end identification of the Power and Ground anomalies through research and discussions with the customer is undertaken in order to assess the nature of the issue. This work includes a review of the site data, documentation, facility configuration and other items available to develop a plan for additional investigation. This preliminary work will result in a plan for further investigation into the identified issues and areas.

### **Power and Grounding Investigation and Assessment** -

Using the information and plan developed in researching the problem, our experts will begin probing the system to test and identify the power and grounding anomalies through on-site inspections and troubleshooting. In probing and testing the system, our experts will follow a comprehensive and established set of procedures and steps that may include:

- Measuring Grounding Quality (impedance of the actual grounding).
- Measuring Quality of Enclosure Grounds, i.e., connections, Ground Bars.
- Checking build drawings for new projects for possible issues before installation.
- Checking as-built drawings for possible issues after installation.
- Visually checking the as-built grounding system and compare to known grounding standards.
- Measuring and verifying noise and power levels of several different types of power and communications leading in and out of a DeltaV DCS System.
- Validating that the DeltaV DCS system installation is within the specifications of Emerson Process Management.
- Checking for known problematic areas based on experience in the industry.
- Monitoring/checking FF segments for problems with noise, power, installation, and termination on request.

- Monitoring/checking other Protocols including HART, ASI, Profibus DP, and DeviceNet on request.
- Verifying that the environmental conditions of the DeltaV DCS system meet Emerson Process Management Specifications.

**Data Analysis, Report and Recommendations** - Upon completion of the investigation, the team will provide an analysis of the findings in a detailed report. This comprehensive report will prioritize actionable items to mitigate the identified risks into the following categories:

- **Advised action** - advisory actions, can wait until next scheduled plant-shutdown, actions to improve the overall health of the system. System will also function correctly without these actions.
- **Required action** - required actions, can wait until next scheduled plant-shutdown, actions to prevent errors/warnings on the system. System might mal-function without these corrective actions.
- **Direct action** - direct actions required, can NOT wait until next scheduled plant-shutdown, actions to prevent errors/warnings on the system. System might mal-function without these corrective actions.

The report also provides recommendations to correct discovered issues. These recommendations are based on our experiences in abating noise and power problems in the field, and our post site study consultation and research.

Our specialists are available for additional consultation as needed or can work with local service entities to implement recommended solutions.

## Service Notes

Spares or consumable material necessary to replace worn, unserviceable, or faulty items will be provided by the customer or by Emerson Process Management at additional cost. Fast, dependable access to spares for your system is available through our Component Coverage service.

On-site service visits will be scheduled by mutual agreement. After-hours availability of a specialist for on-site support can be purchased with Emergency On-Site Service.

The frequency and duration of service visits, specific services to be performed, and equipment to be serviced will be established in advance.

## Service Delivery

### Emerson Responsibilities

- Provide an experienced specialist who possess specific control system power and grounding expertise and are knowledgeable on industry recognized best practices to deliver the agreed-upon service scope of delivery.
- Conduct a meeting between Emerson and the customer stakeholders to review the power and grounding report and recommendations.
- Keep the customer informed of project progress.

### Customer Responsibilities

- Provide a project point of contact and access to personnel who are knowledgeable of the site’s process control system installation.
- Provide wiring diagrams, blueprints and any necessary information to conduct the investigation, if available.
- Work with the specialist to gain permission and access to connect the required tools for investigating or analyzing system network/power activity.

## Ordering Information

Description	Model Number
Power and Grounding Integrity Services	FSTECHSUPPORT-1 (Please consult your local Emerson Process Management office for availability)

To learn how comprehensive Lifecycle Services solutions address your process management needs, contact your local Emerson sales office or representative, or visit [www.emersonprocess.com](http://www.emersonprocess.com).

**Emerson Process Management**  
 Asia Pacific: 65.777.8211  
 Europe, Middle East: 41.41.768.6111  
 North America, Latin America:  
 T 1 (800) 833-8314 or  
 1 (512) 832-3774  
[www.emersonprocess.com](http://www.emersonprocess.com)

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