



*Training Course:
F&G Systems: Inspection, Testing, and Problem
Resolution Techniques*

*26 January - 6 February 2026
Madrid (Spain)
Pestana CR7 Gran Vía*

Training Course: F&G Systems: Inspection, Testing, and Problem Resolution Techniques

Training Course code: SC236191 From: 26 January - 6 February 2026 Venue: Madrid (Spain) - Pestana CR7 Gran Vía
Training Course Fees: 9600 € Euro

Introduction:

This training program, designed by Global Horizon Training Center, is structured to build strong technical capabilities in the inspection, testing, and resolution of operational issues in Fire and Gas F&G systems used across industrial facilities. F&G systems are critical layers of protection in high-risk environments like oil & gas, petrochemicals, energy plants, and manufacturing facilities. Their proper operation ensures the early detection of hazardous conditions, triggering alarms or safety shutdowns.

This course focuses on equipping engineers and technicians with field-tested practices, tools, and procedures to inspect, test, evaluate, and resolve faults in F&G systems while complying with international safety standards such as NFPA, IEC, and ISA.

Objectives:

By the end of this training program, participants will be able to:

- Identify and classify the components and functions of F&G detection and suppression systems.
- Perform routine and advanced inspections aligned with manufacturer and regulatory requirements.
- Apply testing procedures for functionality, calibration, and safety assurance.
- Use tools and checklists to detect faults and system failures accurately.
- Execute structured problem-solving methods to restore system integrity.
- Interpret system logs, sensor signals, and fault codes for diagnosis.
- Prepare inspection and testing reports to meet compliance requirements.

Course Methodology:

- Interactive classroom sessions and technical presentations
- Real-world case study analysis and industry scenarios
- Hands-on sessions with fire panels, detectors, and gas monitors where feasible
- Group activities and guided troubleshooting exercises
- Live demonstrations of testing and calibration techniques
- Visual inspection protocols and structured fault analysis

- Review quizzes and applied exercises after each section

Organizational Impact:

- Ensure safety-critical systems are functional and reliable at all times
- Reduce the risk of fire/gas incidents through structured inspection and timely issue resolution
- Strengthen compliance with global standards and internal HSE policies
- Reduce downtime through predictive maintenance and early fault detection
- Improve technical documentation and reporting processes for audits
- Enhance the skill level and autonomy of in-house maintenance teams

Target Audience:

- Fire & Safety Engineers
- Instrumentation and Control Technicians
- Electrical and Automation Maintenance Staff
- Facility Inspection Teams
- HSE and Risk Management Officers
- Operation Supervisors and Industrial Safety Professionals
- Anyone responsible for maintaining or auditing F&G systems in critical infrastructure

Course Outline

Day 1: Overview of Fire and Gas F&G Systems

- Introduction to F&G system architecture
- Types of F&G systems: Conventional, Addressable, Intelligent
- Detection technologies: smoke, heat, flame, gas
- Standards and regulatory frameworks NFPA, ISA, IEC, API

Day 2: Functional Components and Signal Flow

- F&G control panels and wiring architectures

- Detectors: IR, UV/IR, catalytic, electrochemical
- Input/output modules and loop devices
- Signal transmission: wired, wireless, hybrid models

Day 3: Inspection Principles and Planning

- Visual inspection of devices and infrastructure
- Common signs of system degradation or tampering
- Inspection intervals and documentation practices
- Creating and using checklists and audit templates

Day 4: Fire Detection System Testing

- Functional testing of fire detectors and control panels
- Manual call point testing procedures
- Alarm circuit verification
- Sounder and beacon performance tests

Day 5: Gas Detection System Testing

- Calibration and bump testing of gas detectors
- Testing for sensor accuracy and environmental response
- Alarm setpoints and threshold confirmation
- Zeroing and span calibration procedures

Day 6: Tools and Equipment for Testing & Diagnostics

- Multimeters, loop testers, simulators
- Calibration kits and gas cylinders
- Diagnostic software tools
- Personal safety equipment for inspectors

Day 7: Fault Detection and Root Cause Analysis

- Fault classification: sensor fault, power fault, communication error
- Interpreting control panel logs and diagnostic codes
- Root Cause Analysis RCA: 5 Whys, Fishbone diagram
- Decision trees for issue resolution

Day 8: Troubleshooting Techniques and Issue Resolution

- Troubleshooting loops, circuits, and isolated zones
- Replacing and reprogramming defective components
- Restoring system integrity after failure
- Testing post-resolution performance

Day 9: Compliance, Documentation, and Reporting

- Compliance documentation requirements
- Creating test reports and inspection logs
- Regulatory vs internal reporting formats
- Preparing for third-party audits

Day 10: Case Studies, Field Applications, and Wrap-up

- Real case studies from industrial sectors
- Mock inspection and testing simulation
- Group-based resolution of a system fault scenario
- Final discussion, review, and Q&A
- Optional knowledge check or assessment

Registration form on the Training Course: F&G Systems: Inspection, Testing, and Problem Resolution Techniques

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Complete & Mail or fax to Global Horizon Training Center (GHTC) at the address given below

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