



## **Electrical and Power Systems Inspection**

### **Ensuring Safe, Compliant, and Reliable Power Systems Across Industrial Environments**

Innovio e.U. offers expert inspection services for electrical systems, ranging from control panels and switchgear to generators and low-voltage installations. Our inspections focus on safety, compliance with technical standards, and operational readiness for both standalone and integrated electrical systems.

With hands-on experience in mechanical and electrotechnical projects, our team inspects installations at every stage — from factory assembly to on-site commissioning — helping clients detect issues early, verify documentation, and maintain safe, uninterrupted operations.



#### **1. Control Panels and MCCs (Motor Control Centers)**

- Visual inspection of control panel construction, door seals, and mounting
- Internal component arrangement review based on GA drawings
- Terminal labeling, wire routing, and segregation checks
- Verification of connection torque values and termination types
- Cable gland and entry method validation
- Conformity check with applicable standards (IEC 61439, VDE, UL)
- Redundancy and dual-supply power routing review
- Functional checks for manual switches, selector switches, and indicators
- FAT witnessing for control logic, I/O simulation, and HMI functions



#### **2. Switchgear, Distribution Boards, and Breakers**

- Inspection of breaker configuration, trip settings, and mechanical condition
- Verification of phase balance and neutral arrangements
- Cable termination quality and bar tightening torque confirmation
- Functional testing of main breakers, residual current devices (RCDs), and surge arresters



- Busbar system inspection for correct sizing, support, and spacing
  - Verification of interlocking mechanisms and safety systems
  - Ground fault protection system checks and continuity validation
  - Arc-flash labelling and fault current withstand confirmation (as per spec)
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### **3. Power Supply, UPS, and Backup Systems**

- Inspection of UPS installation, inverter alignment, and battery pack layout
  - Verification of automatic and manual bypass system operation
  - Battery voltage, connector integrity, and capacity label checks
  - Generator wiring inspection and fuel/power interface validation
  - ATS (automatic transfer switch) functionality and switchover timing check
  - Load simulation testing and performance observation under fault conditions
  - Ambient temperature and ventilation adequacy for power equipment
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### **4. Cable Systems and Routing**

- Visual inspection of cable trays, ladders, ducts, and mounting supports
  - Verification of cable identification, routing discipline, and spacing
  - Conformity of cable size and insulation to design and power load
  - Fire barrier sealing and penetrations review
  - Inspection of gland terminations, earthing connections, and EMC shielding
  - Bending radius checks for power and signal cables as per standard
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### **5. Earthing and Lightning Protection Systems**

- Inspection of earthing mesh, grounding rods, and bonding straps
- Continuity testing of grounding conductors across electrical enclosures



- Verification of grounding for generators, switchgear, and telecom cabinets
- Lightning arrestor system inspection on rooftops or telecom towers
- Testing of equipotential bonding for panels, cabinets, and structures
- Ground resistance measurement check (in collaboration with certified teams, if needed)



## **6. Documentation and Standard Compliance Review**

- Cross-check of panel layout with wiring diagrams and cable schedules
- Verification of load list vs installed protection devices
- FAT document and test report validation
- Review of test certificates for insulation resistance, earth fault, and continuity
- Compliance check against IEC, DIN, VDE, or client-specific electrical standards
- Marking, tag verification, and punch list generation