

Here's a **comprehensive job description** tailored for an **Instrument & Control Engineer** specializing in **Gas, Oil, and Dual-Fuel Burners** for industrial applications. I've structured it so you can use it directly for recruitment, supplier outreach, or internal role definition.

## **Position Overview**

The Instrument & Control Engineer will be responsible for the design, installation, commissioning, and maintenance of instrumentation and control systems for industrial combustion equipment, including gas, oil, and dual-fuel burners. The role ensures safe, efficient, and compliant operation of burner systems across diverse industrial applications.

## **Key Responsibilities**

- **System Design & Engineering**
  - Develop control philosophies for burner management systems (BMS) and combustion control.
  - Select, size, and integrate instruments (pressure, temperature, flow, level) for combustion processes.
  - Design P&IDs, wiring diagrams, and control logic for burner systems.
- **Electrical & Electronics**
  - Design and supervise installation of electrical panels, MCCs, and control cabinets.
  - Troubleshoot electrical circuits, relays, contactors, and motor drives for combustion fans/pumps.
  - Integrate electronic controllers, PLCs, and SCADA systems with burner controls.
  - Ensure proper grounding, shielding, and EMC compliance for instrumentation wiring.
- **Installation & Commissioning**
  - Supervise installation of instrumentation and control panels.
  - Configure PLCs, DCS, and SCADA systems for burner operation and safety interlocks.
  - Conduct loop checks, calibration, and functional testing of instruments.
- **Operation & Maintenance**
  - Monitor and tune combustion parameters for efficiency and emissions compliance.
  - Troubleshoot instrumentation faults and control logic issues.
  - Maintain preventive and predictive maintenance schedules for sensors, actuators, and controllers.
- **Compliance & Safety**
  - Ensure adherence to PESO, ATEX, IECEx, and NFPA standards for combustion safety.
  - Implement flame safeguard systems, purge sequences, and interlocks.
  - Prepare documentation for audits, certifications, and regulatory approvals.
- **Collaboration**
  - Work closely with mechanical, electrical, and process engineers to optimize burner performance.

- Liaise with suppliers and OEMs for procurement and technical support.
- Train operators and maintenance staff on instrumentation and control systems.

### **Required Skills & Competencies**

- Strong knowledge of combustion principles, burner tuning, and dual-fuel systems.
- Expertise in PLC/DCS programming (Siemens, Allen Bradley, Schneider, etc.).
- Familiarity with instrumentation (pressure transmitters, thermocouples, flow meters, actuators).
- Experience with industrial communication protocols (Modbus, Profibus, Ethernet/IP).
- Understanding of safety standards (PESO, ATEX, IECEx, NFPA, SIL).
- Ability to read and develop P&IDs, electrical schematics, and control logic diagrams.
- Analytical troubleshooting and problem-solving skills.

### **Qualifications**

- Diploma / Bachelor's degree in Instrumentation, Control, Electrical, or related engineering discipline.
- 3 or more years of experience in burner systems or industrial combustion equipment.
- Hands-on experience with commissioning and maintenance of industrial burners.

### **Work Environment**

- Industrial plants (steel, textiles, chemicals, food processing, power generation).
- Field-based role with frequent interaction at installation sites.
- Requires adherence to strict safety protocols and compliance standards.