

## City of Fort Worth, Texas

### Job Description

<b>Classification Title</b>	Process Control Systems Specialist		
<b>Job Code:</b>	PR2990	<b>Job Family:</b>	Professional
<b>Pay Grade</b>	611	<b>Date Created:</b>	02/16/2018
<b>FLSA Status</b>	Exempt	<b>Date Revised:</b>	

#### GENERAL SUMMARY

Under general supervision, programs, configures, maintain, designs, and integrates Programmable Logic Controllers (PLC) and Distributive Control Systems (DCS) for municipal water and wastewater treatment facilities. Acts as lead in the planning and design of projects that require integration to existing PLC/DCS control system architectures. Provides insight and resolution for operations and instrument/electrical process control issues. Provides engineering of instrumentation and electrical process control systems within water and wastewater.

#### ESSENTIAL DUTIES & RESPONSIBILITIES

*The intent of this job description is to provide a representative summary of the major duties and responsibilities performed by incumbents of this job. Incumbents may be requested to perform job-related tasks other than those specifically presented in this description.*

1. Performs complex maintenance, troubleshooting, calibration, programming, and system administration of Process Control Systems, Supervisory Control and Data Acquisition Systems (SCADA), DCS, and PLCs. Maintains a secure, standardized, and reliable SCADA environment.
2. Creates and implements electrical wiring diagrams and layout designs for installation of new process control equipment within the water and wastewater facilities. Participates in system control design, review, and construction processes. Reviews prints for conformity and accepted industry standards.
3. Assists in establishing technical strategy and solutions related to control systems, instrumentation and telemetry needs. Acts as lead expert to acquire, store, and deliver operational data to the enterprise system. Procures PLC/DCS parts, repairs, and services to maintain consistent system reliability.
4. Participates in the development, design, and construction of control systems architecture for multiple projects to include component selection, control panel design, detailing schematic diagrams, and instrument drawings. Ensures seamless integration with existing control systems.
5. Troubleshoots, repairs, and debugs the communication framework for various communication protocols over different wireless or wired architectures and topologies.
6. Prepares plans, specifications, and contracts for implementation, repair or maintenance of new and current computer control system equipment.
7. Analyzes, documents, and maintains system databases providing graphical viewing and reporting interfaces, utilizes appropriate modeling and reporting tools and

techniques. Produces technical documentation (control narratives) for guidance in programming the PLC for plant operations.

8. Maintains computer networking systems that control processes of the water and wastewater treatment facilities and ensures continuous network performance.
9. Confers, assists, and advises personnel on complex technical problems with the automated control systems. Leads and supervises tasks and personnel on special projects. Travels to site locations, as needed.
10. Establishes and maintains effective and professional relationships with work colleagues, supervisors and managers.
11. Available for twenty-four/seven (24/7) emergency call-out (especially in inclement weather conditions).
12. Performs other job duties as assigned.
13. Adheres to assigned work schedule as outlined in the Department and City attendance policies and procedures; ensures all behaviors comply with the City's Personnel Rules and Regulations.

## **KNOWLEDGE, SKILLS & ABILITIES**

- **Knowledge of:**

- Industrial control processes for water/wastewater industry.
- Control system designs for PLC, DCS, RTU, SCADA and HMI.
- PLC and network protocols (Modbus, Profibus, Genius Bus, ControlNet, DNP3, TCP/IP, SMTP, SNMP, etc.).
- Network infrastructure such as routers, switches, firewalls and VPN technology.
- Programming languages such as Ladder Diagram, Function Block Diagram, Sequential Function Chart, Structured Text, & Boolean Logic.
- Control system software applications such as Emerson Ovation DCS, Modicon Concept, ProWorx32, Unity, Allen-Bradley's RXLogix500 and 5000, GE Machine Edition, DirectSoft, Horner Cscape, and others.
- Adobe Writer, CAD, MS Visio, Word, Excel, and other documentation editors.
- Records management of software licenses, stock equipment, PLC and DCS hardware, and spare parts inventory.

- **Skill in:**

- Installing and configuring computer hardware, software, ancillary systems, and networks that interface with PLCs, DCS, and HMIs.
- Diagnosing problems and configuring network switches and routers related to Controls/Instrumentations and Electronics.
- Employing Secure Technical Implementation Guidance (STIG); managing and securing Industrial Control System (ICS) network infrastructure; and, Wonderware Human Machine Interface (HMI).
- Performing installation of instrumentation/hardware and troubleshooting systems while in operation.
- Detecting computer program and equipment malfunctions.
- Industrial communication networks, Ethernet IP, Mdbus Industrial PLC/HMI/VFD products and programming software.
- Troubleshooting automation and control systems.

- **Ability to:**

- Use electronic test equipment to perform troubleshooting on both electrical and instrumentation devices.
- Establish operational goals and priorities.
- Communicate clearly and concisely both orally and in writing.
- Establish and maintain effective and professional relationships with work colleagues, supervisors, managers and the public.
- Work independently and effectively with minimal supervision and direction.
- Demonstrate a high standard of quality with attention to details.
- Verify existing instrumentation and controls in the field.
- Read complex schematics and troubleshoot electrical wiring to and from PLCs and field instrumentation.

### **MINIMUM JOB REQUIREMENTS**

Bachelor's degree from an accredited college or university with major course work in Electrical Engineering, Control and Instrumentation Engineering Technology, or a related field and five (5) years of experience in PLC/DCS programming, operation and maintenance of plant electronic and computerized process control or SCADA systems in the water and wastewater treatment plant industry.

Or, an equivalent combination of education and experience sufficient to successfully perform the essential duties of the job.

### **OTHER REQUIREMENTS**

Must have experience working with Control Systems/SCADA integration projects. Municipal water/wastewater experience, a plus. Valid Texas Driver's License.

### **WORKING CONDITIONS**

*The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.*

Depending on assignment, positions in this class typically require touching, talking, hearing, seeing, grasping, standing, walking and repetitive motions.

### **PHYSICAL DEMANDS**

*The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.*

Sedentary Work – Depending on assignment, positions in this class typically exert up to 10 pounds of force occasionally, a negligible amount of force frequently, and/or constantly having to lift, carry, push, pull or otherwise move objects. Sedentary work involves sitting most of the time. Jobs are sedentary if walking and standing are required only occasionally and all other sedentary criteria are met.