Controls Engineer I

Farris Automation is a supplier of custom automated assembly equipment for the automotive, heavy industrial, and general manufacturing industries. We offer complete turnkey systems from concept to installation. Farris Automation employs engineers, machinists and assemblers in Mukwonago, WI. See our website at www.farrisautomation.com for more details.

Job Description:

Entry-level Controls Engineering position. You will be designing control panels for custom automated equipment, this requires basic knowledge of industrial electronics, control circuits, motion control, sensors, pneumatic cylinders and valves, mechanical linkages, electrical motors, and Allen Bradley PLC programming knowledge.

The job will be non-repetitive in nature with 10-15 unique machines designed per year. The estimated task ratios are:

70% BOM generation, creating schematics, programming
20% Hands-on assembly, building, debugging
10% Documentation, communication, project management

Requirements:

- Experience (2+ years) with AutoCAD Electrical
- Knowledge of industrial components used in electrical panels and auxiliary equipment
  - Circuit breakers and fuses
  - Power supplies and transformers
  - AC and servo motors, drives
  - Pneumatic valves and solenoids
  - PLCs and IO components
- Familiarity with Allen Bradley PLC and HMI programming
  - Ability to modify existing code and troubleshoot
- Basic knowledge of Ethernet networking and communication protocols
- Must be able to manage 2-3 projects at the same time (multi-tasking)

Ideal candidate would have 3 or more of these skills:

- Knowledge of basic PLC programming and HMIs
- Previous hands-on panel building experience
- Fewer than 2 jobs in the last 5 years (unless contract positions)

- Experience with robotics, vision systems, barcode reading, and safety components

Benefits:

- 3 weeks of vacation, + holidays, + Flex Hours, comp time
- Job training in new technologies for current applications
- 401k, Health insurance, Life Insurance, Dental and Vision
- Relocation package available
- Flexible work hours to fit family needs
- Some jobs can be work from office/home
- Positive work environment in a small company (25-30 employees)
  Being part of a growing company & industry

Standard work week:

- BOM generation
    - Working with customers, FAS Engineers, and vendors to specify the correct sensors, motors, and panels needed for each custom machine
    - Finding products to meet the timeline, specifications, and budget
    - Proper sizing of all transformers, power supplies, circuit breakers, and drives
- Schematic Generation
    - Using AutoCAD electrical to generate a schematic set of 10-80 pages
    - All drawings and components must be automatically associated and dynamic
- Communication
    - Working with all parties involved in the project
    - Ensuring that the auxiliary items are used correctly in the machine and meet the customer's needs.
- PLC and HMI programming
    - Troubleshooting machine issues during start up and installation
    - Programming standard procedures to handle IO mapping, populating the component tree, setting up Ethernet communications

Interview Questions:

1. A device uses 240 Watts at 120 volts, how many amps does it use? (2 Amps)
2. What are two common types of Analog signals (0-10 Volts or 4-20 Mil Amps)
3. What does 'CR40121' mean? (Control Relay, found on page 40, Line 121 of the schematics.)
4. What does a 'Safe off' circuit do? (Disables a motor or device when an E-stop is pressed)
5. How do you modify all the line reference numbers on a drawing to match or make new ladder numbers? (A: Either type AEREVISELADDER or click the "Revise Ladder" Icon in the Main Ribbon and enter the correct Reference Start number.)
6. If you copy Block A from Drawing 1 and insert it into Drawing 2 and it looks or has different attributes from where you copied it from, what would the reason be and how would you fix it? (There already is a Block, whether visible or not, in Drawing 2's properties with the same name. You would have to Delete and "Purge" Block A from Drawing 2 before inserting it again.)