

Senior/Lead Electrical Engineer – Power Distribution & Control Products (MV)

Position Summary

The Senior/Lead Medium Voltage Electrical Engineer provides technical leadership, advanced engineering expertise, and product application guidance for medium voltage power distribution, protection, and control systems throughout the project lifecycle.

The position requires advanced product and application knowledge across medium voltage power distribution systems, including:

○ Medium Voltage Metal-Clad Switchgear	○ Protection and Control Systems
○ Medium Voltage Metal-Enclosed Switchgear	○ Protective Relays
○ Medium Voltage Circuit Breakers	○ Metering and Power Monitoring Systems
○ Medium Voltage Load-Break and Disconnect Switches	○ Medium Voltage Motor Control Centers (MV MCCs)
○ Medium Voltage VFD and Soft Starter Systems	○ Integrated Power Racks/Skids
○ Automatic and Manual Transfer Schemes	○ Grounding Systems and Grounding Equipment
○ E-Houses and Power Distribution Centers (PDCs)	○ Capacitor Banks and Power Factor Correction Equipment

This position provides technical leadership for the design, application, analysis, testing, commissioning, and troubleshooting of medium voltage power distribution systems. Responsibilities include system architecture development, equipment selection, power system studies assessment, protection and control system design, proposal development, procurement support, vendor evaluation, technical risk management, and project execution.

The Senior/Lead Electrical Engineer collaborates with customers, consulting engineers, sales teams, project managers, manufacturing personnel, suppliers, and field service organizations to develop safe, reliable, code compliant, and cost-effective medium voltage solutions. The position serves as a technical resource for complex applications while providing mentorship and technical guidance to engineering personnel.

Key Engineering Responsibilities

Product & Application Engineering

Serve as a subject matter expert for medium voltage electrical power distribution, protection, and control products and systems.

- Lead the development of medium voltage power distribution solutions based on customer requirements, specifications, and project objectives.
- Provide technical oversight for the selection and application of medium voltage equipment, including switchgear, transformers, motor control equipment, protective relays, and associated systems.
- Establish equipment ratings, protection requirements, and system configurations in accordance with project requirements and applicable standards.
- Review and approve electrical drawings, technical documentation, equipment layouts, and engineering deliverables.
- Evaluate complex applications, technical risks, and design alternatives to optimize reliability, maintainability, safety, and cost.
- Provide technical mentorship and application guidance to engineering personnel.

Technical Support

- Provide technical leadership for medium voltage power distribution, protection, control, and packaged electrical systems.
- Review and approve system voltage, load requirements, available fault current, equipment ratings, protection requirements, grounding methods, and coordination strategies.

- Lead power system analyses, protection schemes, and equipment application reviews to ensure system reliability and compliance.
- Establish electrical distribution architectures and integration strategies for medium voltage systems.
- Provide technical oversight for the integration of switchgear, transformers, MV MCCs, drives, protection systems, PLCs, SCADA systems, metering, and communication networks.
- Lead technical support activities related to installation, startup, energization, testing, commissioning, and troubleshooting.
- Define system interfaces, grounding philosophies, control architectures, and customer connection requirements.
- Coordinate complex technical requirements across electrical, controls, mechanical, structural, HVAC, manufacturing, and project engineering disciplines.
- Review equipment layouts and packaged system designs for manufacturability, installation, maintainability, serviceability, and lifecycle performance.
- Review and approve third party engineering drawings, studies, calculations, and design packages.

Protection, Control & Automation

- Lead the development and implementation of medium voltage protection and control philosophies.
- Establish protective relay applications, protection strategies, and coordination requirements for feeder, transformer, motor, bus, and generator systems.
- Review and approve breaker control, interlocking, synchronization, transfer, permissive, and trip schemes.
- Provide technical oversight for DC control power systems, batteries, UPS systems, and associated distribution systems.
- Lead integration of protective relays, intelligent electronic devices (IEDs), PLCs, SCADA systems, DCS platforms, and power management systems.
- Review and approve communication architectures utilizing IEC 61850, DNP3, Modbus, Ethernet/IP, and other project specific protocols.
- Review and approve control narratives, sequence-of-operation documentation, cause-and-effect matrices, and interlocking logic.
- Provide technical leadership for testing, commissioning, and troubleshooting of protection, communication, and automation systems.

Codes, Standards & Compliance

- Serve as a technical resource for interpretation and application of NEC, NFPA 70E, IEEE, ANSI, NEMA, UL, and related industry standards.
- Establish compliance strategies for medium voltage switchgear, transformers, protection systems, grounding systems, and packaged electrical assemblies.
- Provide technical oversight for IEEE C37 series equipment applications and protection systems.
- Review equipment ratings, BIL levels, insulation systems, interrupting ratings, short time withstand ratings, environmental requirements, and electrical clearances.
- Evaluate arc resistant equipment requirements and accessibility classifications.
- Support utility interconnection, customer specific compliance, and project specific technical requirements.
- Identify, communicate, and mitigate technical, application, and compliance risks.
- Support development and implementation of engineering standards, design practices, and technical procedures.

Power System Engineering Studies

- Lead or review power system studies, including short circuit, coordination, load flow, arc flash, motor starting, and voltage drop analyses.
- Validate study assumptions, methodologies, and engineering conclusions.
- Review study results to ensure proper equipment application, protection operation, and system performance.
- Provide technical recommendations and direct design modifications resulting from study findings.
- Support development and implementation of study standards, methodologies, and engineering best practices.

Project & Manufacturing Support

- Provide technical leadership throughout the project lifecycle from proposal development through commissioning and field support.
- Review and approve engineering deliverables, protection schemes, relay settings, technical submittals, and equipment configurations.
- Coordinate technical requirements with equipment suppliers, consulting engineers, customers, and project stakeholders.
- Support manufacturing and quality teams in resolving complex technical and production issues.
- Lead design reviews, FATs, customer inspections, relay testing, system testing, and technical review meetings.
- Establish testing philosophies and review FAT procedures for protection systems, switchgear, controls, and packaged electrical assemblies.
- Investigate equipment failures, protection issues, non-conformances, and field events and recommend corrective actions.
- Lead root cause investigations and continuous improvement initiatives.
- Mentor junior and intermediate engineers and support technical development activities.

Customer & Commercial Support

- Lead technical discussions with customers, consulting engineers, and project stakeholders to define project requirements and develop technical solutions.
- Provide technical leadership for proposal development, equipment selection, scope definition, value engineering, and risk assessments.
- Review customer specifications, one-line diagrams, utility requirements, and project documentation to establish project execution strategies.
- Participate in customer presentations, technical reviews, and design workshops.
- Evaluate supplier proposals and support sourcing decisions for major electrical equipment and systems.
- Develop alternative solutions to optimize cost, schedule, reliability, maintainability, and system performance.

Required Qualifications

- Bachelor's degree in electrical engineering or a closely related engineering discipline.
- Significant experience with medium voltage power distribution systems, including switchgear, substations, motor control, protection, or engineered electrical equipment.
- Advanced knowledge of medium voltage power distribution, protection, and control systems.
- Demonstrated ability to lead engineering activities involving one-line diagrams, AC/DC schematics, protection systems, and technical specifications.
- Strong understanding of power system studies, protection coordination, grounding, transformer applications, equipment ratings, and electrical protection principles.
- Thorough knowledge of medium voltage switchgear, circuit breakers, protective relays, instrument transformers, transformers, and associated control systems.
- Strong knowledge of NEC, NFPA 70E, IEEE, ANSI, NEMA, UL, and related standards.
- Strong technical problem solving, troubleshooting, and engineering decision making skills.
- Ability to manage multiple projects, priorities, and engineering resources.
- Strong written and verbal communication skills with customers, suppliers, utilities, consultants, manufacturing personnel, and multidisciplinary engineering teams.

Preferred Qualifications

- Experience with medium voltage power distribution systems from 2.4 kV through 38 kV.
- Experience leading the design and application of medium voltage switchgear, protection systems, and electrical distribution equipment.
- Advanced knowledge of protection, control, SCADA, communication systems, and power system studies.
- Experience with E-Houses, PDCs, modular substations, integrated power skids, or similar engineered electrical systems.

- Experience performing and reviewing short circuits, coordination, load flow, arc flash, and motor starting studies.
- Proficiency with ETAP, SKM Power*Tools, EasyPower, or equivalent power system analysis software.
- Experience leading FAT, commissioning, troubleshooting, and field support activities.
- Professional Engineer (PE) license is preferred but not required.

Core Competencies

The successful candidate will demonstrate:

- Medium voltage power distribution expertise
- Protection, control, and automation expertise
- Advanced product and application engineering capability
- Power system analysis and protection coordination expertise
- System architecture and integrated solution development
- Technical leadership and mentoring capability
- Design review and technical risk assessment
- Customer focused problem solving
- Cross functional engineering leadership
- Manufacturing, commissioning, and field support expertise
- Strong ownership of technical quality, safety, schedule, and cost

Key Performance Expectations

Success in this position will be measured by the engineer's ability to deliver technically compliant, safe, reliable, selective, maintainable, and cost-effective medium voltage electrical solutions.

The engineer will be expected to ensure appropriate equipment ratings and protection schemes, reduce engineering and manufacturing errors, identify technical risks early, resolve technical and field issues efficiently, support project schedule commitments, and serve as a trusted technical authority for medium-voltage power distribution, protection, control, and packaged electrical systems.