



ENGINEERING & AUTOMATION EXPERTISE



 manganinc.com

 (310) 835 - 8080



Mangan is a nationally recognized power, control systems, and automation engineering firm that provides a range of services across multiple industries and clients to include:

Front-End Consultation & Engineering

- Front-End Engineering & Design
- Engineering Consultation
- Owner's Engineer Representation
- Safety Engineering Consultation
- Power Engineering Consultation

Automation & Control Systems Engineering & Design

- Front End Engineering & Documentation
- Controls System Communication Design
- Instrumentation & Control System (PLC, DCS SCADA, HMI, Historian, SIS) Engineering
- Multi-platform integration services into comprehensive facility system
- System Programming, Configuration, and FAT
- Advance Regulatory Control (ARC) and Advanced Process Control (APC)
- Installation Support and SAT
- Cutover Planning and Execution
- Startup/Commissioning
- Ongoing Support
- System Documentation

SIS Engineering

- PHA, LOPA and HAZOP Consultation
- IPL Assessments
- SIL Calculations and verifications
- SRS development
- Proof test procedures development and execution
- Safety Functional Assessments (FSA)
- Operations & Maintenance Test Schedule Optimization

Electrical & Power Engineering

- Power Engineering & Design
- HV and EHV Substation Design
- Interconnection Study
- Generator Controls and Protection
- E-House Design and Vendor Coordination
- Power System Analysis using in PSCAD,
- PSLF, ETAP, EasyPower
- Transmission Line Design
- Electrical equipment specification
- Power System Analyses
- Arc Flash Mitigation
- Substation Automation
- Procurement services for equipment and materials
- Total installed cost (TIC) estimates
- Full construction support services

Civil & Structural Engineering

- Engineering and design of electrical supports and foundations, including substations, MCCs, transformers, PDC, and custom switch racks
- Transmission Line Analysis and Design PLS-CADD
- Modular design, pipeways, and skid-mounted equipment
- Advanced structural analysis including FEA, RSA, time history and soil structure interaction
- 2D and 3D design, modeling, and visualization:
- P.E. stamping and building permit facilitation
- Bill of materials development
- Detailed feasibility, conceptual, and structural studies
- Seismic evaluation, damage assessment, and remediation
- Construction documentation and planning
- Full construction support services

I/C/E Design & Engineering

- P&IDs & I/O Definition
- Engineering and Construction Work Package development
- Remote Instrument Enclosure (RIE) Design
- Control Panel Layout & Design
- Control Systems Design
- Field Wiring & Loop Drawings
- Conduit & Cable Schedules
- Complete Design Development in SI (SPI)
- Instrumentation Engineering & Design
- Piping and Mechanical Design for Instrument Installations
- Procurement services for equipment and materials
- Total installed cost (TIC) estimates
- Full construction support services

Analyzer Engineering

- Analyzer / CEMS engineering
- Process, environmental, liquid, and flare analyzers
- Analyzer shelters, skids, and grid entry unit solutions
- Sample conditioning systems
- Foundation & cable tray racks for analyzer shelters
- Piping modifications for analyzer shelters
- Analyzer integration solutions and services
- Analyzer maintenance services

Start-up, Commissioning, & Support

- Construction Management & Support
- Comprehensive Start-up Support
- Life Sciences Commissioning, Qualification, and Validation Services
- Operations and Maintenance support
24x7x365

OT Network & Cybersecurity

- Threat and Risk Analysis
- Profiles Development
- Gap Analyses
- Business Alignment
- Vulnerability Assessments
- Mean Time to Recovery
- Resiliency Testing
- Readiness Training
- Documentation and Compliance
- Systems Remediation

Smart® Instrumentation (SI)/(SPI) Engineering

- Administration - Database setup, Claims & Merges
- Data Migration - Excel, Access, DCS/PLC/SIS, SAP, other to SI
- As-Built - P&IDs, Wiring & Loop drawings, Spec Data, Installation details to SI
- Project - DCS/PLC/SIS Upgrades into SI
- Data Assessments - Field walks and implementation strategy development
- Audits
- Upgrade Services to the latest SI version
- Interface development
- Custom Reports
- Training

Operational Management Systems & Applications

- Truck, Rail, Marine, Terminal Pipeline, Transloading and Transfer Operations
- Automated and Manual Reporting
- Contracts and Invoicing
- Scheduling and Forecasting
- Inventory Management
- Measurement, Control Systems, and Business Systems Integration
- Process consultation, assessment, and options analysis
- 3rd Party platforms/applications
- Current system consultation, assessment, troubleshooting, and support
- Deployments delivered as an integrated solution with control system(s)

Mangan Software Solutions Safety Lifecycle Manager (SLM™)

- HAZOP/LOPA/Bowtie Risk Assessment
- Risk Graph SIL Determination
- Instrumented Systems
- SIL Calculations
- Safety Requirements Specifications
- Cause and Effects Matrix
- Operations & Maintenance
- Functional Safety Assessments
- MOC/Action Item Tracking
- Personnel Competency Tracking
- Safety Planning
- Safety Project Management
- Document Management

Training

- Training technical documentation and manuals
- Pre-commissioning operator, technician, and engineering training execution
- Simulation for advanced testing



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