



**Electrical and
Automation Design
Programming**

SOLUTIONS. PROJECTS. EXPERTS.



BRAIN POWER FOR ENGINEERING

Electrical Design

For Comatec, electrical design always means comprehensive solutions for electrical systems, electricity production or electricity distribution. We are in our element with mobile machinery and special vehicles, material handling systems, industrial production systems, and boilers and power plants. We possess special expertise in machine safety projects, in the mining and glass processing industries, in control cabin design, and in container handling. Our work comprises the design and implementation of electrical and control systems. We also participate in project and installation supervision and in component and equipment selection, tender evaluation and procurement.

Applications

- Electrical drawings, calculations, part lists
- Design and layout of switchboards and main electric boards
- Starters and starter centres
- Frequency converter drives
- Wire harness design
- Dimensioning of electricity distribution systems (cables, circuit breakers, etc.)
- Routing of cables and cable tray design
- Electrical rooms
- Equipment selections and procurement preparation
- Machine safety
- Commissioning assistance
- Usability

Design software

- AutoCAD
- CADS
- Eplan
- SVertex
- elMaster
- E3

Comatec Group offers the following services to suppliers of industrial electrical equipment and systems:

- Consulting
- Engineering design
- Product development
- Project management
- Documentation
- Testing/Commissioning

Design services include:

- Electrical and automation design
- Instrumentation design
- Programming services (PLC/DCS/HMI/embedded systems)

We can provide design services at Comatec's offices in Finland and Estonia

Automation Design

Automation design is Comatec competence at its best. We have been involved in all sorts of projects. In the marine industry, for example, we can electrify an entire ship. We offer solutions for mobile machinery and special vehicles, material handling systems, industrial production systems, and boilers and power plants.

We can design field instrumentation, connected to programmable logic or process automation systems. If required, we can provide programming services or risk analyses of machine safety in addition to the design work.

A good starting point for the design is a process flow chart defining the instrumentation and actuators. We plan the functions required in the automation system and the cabling between the field equipment and the automation system. Systems vary in size from just a few signals to several thousand signals.

Wealth of experience

We have numerous satisfied clients. Through them we have participated in a wide range of projects, and over the years we have become familiar with:

Applications

- Control cabinet layouts
- Control rooms and control desk layouts
- Field and control room buses
- Instrumentation design
- Valve control centres
- Temperature measurement
- Pressure measurement
- Level measurement
- Control circuits
- Actuator controls
- Function descriptions, programme descriptions
- Equipment selections and procurement preparation, part lists
- Machine safety
- Commissioning and testing
- Usability

Field bus solutions

- Ethernet control room buses
- Profibus
- Profinet
- ControlNet
- DeviceNet
- ASI
- Modbus
- CAN / CAN Open
- SAE1939
- RS 232/485
- WLAN

Mobile Machinery and Special Vehicles

- Mining and Construction Equipment
- Agricultural Machinery
- Forest Machinery
- Special Vehicles
- Rolling Stock

Material Handling Systems

- Conveyor Systems
- Cranes
- Load Handling Equipment
- Elevators

Industrial Production Systems

- Electromechanical Systems and Components
- Processing Machinery
- Plant and Maintenance Engineering

Boilers and Power Plants

Programming

Comatec offers comprehensive design knowhow in logic systems for industry. We participate in the preliminary design, actual design or commissioning phase of a product, everything from field equipment to control room solutions. Many years' experience has given us in-depth knowledge of mobile machinery and industrial production equipment and production lines.

Applications

- Logic programming
- Safety logics
- User interface programming (HMI)
- Field and control room buses
- Control room solutions
- Electrical drawings
- Web remote control
- Commissioning and testing

Logic families

- Siemens S5, S7
- Siemens PCS 7
- Siemens Teleperm
- Omron
- Allen-Bradley (ControlLogix, CompactLogic)
- GE Fanuc
- ifm
- Inter Control
- Epec

PLC programming languages

- Siemens Step 5 & 7 Basic, SCL, CFC
- Omron CX-One
- Codesys
- RSLogix

Programming

- C
- C#
- Visual Basic
- web browser applications
- Assembler
- Java
- Sauer Danfoss Plus 1

User interface programming

- Siemens WinCC
- Wonderware Intouch (Factorylink)
- Labview
- RSViewStudio, RSView32

Experience

Comatec has a wealth of experience in industrial design, whether in the commonest logic environments, in browser based applications or in process automation systems (DCS).

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Comatec's personnel are experts and a pleasure to work with”

Customer satisfaction survey, 2012