

SPECIFICATION FOR REQUIREMENTS OF ELECTRICAL CAD SOFTWARE

1. This specification covers the supply and licenses of Electrical CAD software.
2. The software licenses shall be compatible with Window-10 64 bit operating systems or higher with 16GB RAM. The exiting CAD platform available at RCF i.e. Siemens NX version 10.0.
3. The Electrical design CAD software shall comprising of the features for preparation of the following:

General features:

- i. Intelligent copy & paste circuit to reuse design across projects.
- ii. Direct import of existing DWF, DWG and DXF symbols etc. with existing attributes and connection from external data files/catalogs.
- iii. Symbols and wire list on a database with addition of new symbols/manufacturer parts to existing library through OEM portals.
- iv. Synchronization of electrical diagram with physical wiring harness drawings using database information.
- v. Ability to support project management and report documentation.
- vi. Flexible assemblies and sub assembly linkages i.e. parent /child siblings/Variant / modules.
- vii. Design/re-use through creation for similar applications through design bookshelf library.
- viii. Configuration support for industrial standards (IEC, ANSI, ISO, DIN, JB, UL, AS/NZ).
- ix. Intelligent PDF conversion/drawing printing-Navigation to project symbols while maintaining links between designs.
- x. No limitations of no. of connections, design/database size.
- xi. Advanced (RDBMS) database structure.
- xii. XML/PLMXML Export.
- xiii. Integrated project management/documentation and component management.
- xiv. Ability to create/replicate project templates.
- xv. Project Release and Revision management.
- xvi. Design Compare between revisions of drawings and schematics.
- xvii. Auto drawing/sheet properties/views and BOM generation.

Electrical Schematic Design:

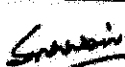


- i. Creation of electrical schematic drawings.
- ii. In-tool Analysis and simulation of schematic design. like voltage drop, fuse blow, short circuits etc.

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- iii. Easy and flexible wizard based symbol building process with ability to import/export DXF/DWG/DWF etc.
- iv. USER/symbol /cable/MFR library creation.
- v. Reusability of complete or partial schematics and symbols across projects.
- vi. Filtering options to locate and select component in less time like configurable search and sort option etc.
- vii. Automatic and configurable numbering of wires and objects in electrical schematics.
- viii. In built Electrical symbols library (2D/3D) of various OEMs parts.
- ix. Smart search and filter capabilities, simplifying design elements searching within and across projects.
- x. Extensive Inbuilt library of various OEMs symbols.
- xi. Design rule check for design validation.
- xii. Easy to assign Terminal nos./PIN list to symbols/components inserted in schematics.
- xiii. Able to assign standard macros from PLC based of PLC IO configuration.
- xiv. Automatic input/output connections (ex. Field sensors, switches, start/stop push buttons etc.).
- xv. Library manager-symbols, cables, 2D connector footprints, Supplier parts, Title blocks and USER library customization.
- xvi. Multi part association of symbols.
- xvii. User interface additional enhancements with API support.
- xviii. Automatic updates of cross references throughout the designs in the project.
- xix. Support multiple objective-related display level and layers.
- xx. Support preview window for viewing the components before use in project.
- xxi. Support user-defined grid sizes, fonts and line styles.
- xxii. Support context-sensitive online help.
- xxiii. Allow to save, load, copy, rotate, flip and mirror drawings and areas.
- xxiv. Support logical creation of zones in the project by assigning locations & high level assignments.
- xxv. Access the project/data created by the schematic engineer using unique Project manager.
- xxvi. Auto drawing/sheet properties/views/BOM and Report generation.

Wire/Cable Harness Design:

- i. Electrical harness designing with integration to 3D CAD platform with live data exchange.
- ii. Synchronizing of Electrical harness design with Schematic design such that the changes are synchronized from schematic to harness.
- iii. Auto-routing feature of electrical wiring between components in 3D CAD platform.
- iv. Design rule check for harness validation.

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- v. Automatic part no. selection for terminals, wire etc.
- vi. Automated BOM and wire chart generation with cutting tolerances.
- vii. Integration with 3D CAD/ existing system for routing wires & harness.
- viii. Ability to define cable harness in schematic drawing.
- ix. Collaboration with 3D CAD model and electrical schematic in real time. Able to insert electrical 3D parts & access to schematic in real-time.
- x. Able to export electrical wiring data to 3D CAD for routing.
- xi. Harness definition in 2D.
- xii. Allow object and hyperlinks within projects.
- xiii. Project level update-Reports, symbol designations, Device IDs, BOM etc.
- xiv. Support graphic visualization for split connections & blocks.
- xv. Flatten Cable Harness (Nailboard Representation).

Electrical Panel Design:

- i. Electrical Panel designing in 3D CAD platform.
 - ii. Synchronizing of Electrical Panel design with Schematic design.
 - iii. Electrical component library (symbols, 2D/3D models of electrical component) of OEMs parts easily customizable.
 - iv. Wire/Cable Auto-routing feature of electrical wiring between components of Panel in 3D CAD platform.
 - v. Electrified component 3D model creation.
 - vi. Update RAIL/DUCT Length in the cabinet.
 - vii. Calculation of Error Reports and Duct fill ratios.
 - viii. Should have cabinet module to design both 2D & 3D views.
 - ix. Auto routing- Harness/Wires/Cables and calculate lengths automatically.
 - x. Unique electrical & combined electro-mechanical BOM.
 - xi. Associate/Link External 3D assemblies – Collaboration with Electrical 2D.
 - xii. Align component in 3D, as per user requirements.
 - xiii. Automatic 2D cabinet layout creation with/without wires from electrical 3D.
 - xiv. Access control to designs, projects and library through username and passwords for controlled data access.
4. Vendor must ensure the integration of the electrical software with existing design management system of RCF i.e. IDIOMS.
 5. Software Licenses shall be perpetual (permanent) floating in nature and not node-locked and shall not be dependable continuity of AMC.
 6. The vendor shall also provide Proprietary/Authorization certificate of OEM.
 7. The vendor will install & commission the Electrical CAD software at RCF/Kapurthala through its engineer and will prove out the performance of the software to the entire

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satisfaction of the consignee.

8. The vendor shall supply the latest version Electrical CAD software to RCF. The vendor shall also provide at least one original CD of the Electrical CAD Software and its Documentation.
9. Vendor has to provide technical literature in the form of soft copy as well as hard copy related to applications provided in Electrical CAD software package. It should cover latest training tutorial commands.
10. The software shall be compatible with latest PLM software version, preferably Siemens Teamcenter.
11. The Electrical CAD solution should be natively including interoperable with other simulation and analysis software.
12. Firm has to provide minimum 15 working days training at RCF/Kapurthala on every purchase of licenses. This training shall contain every latest command explanation related to every individual application. Firm has to provide training related to electrical schematics design/drawing, electrical harness design, 3D panel design modeling in batch to 2-5 engineers.
13. Firm has to ensure IRS and other conditions of tender.
14. During the warranty period, the vendor shall provide proper technical support and software updates and higher versions of software whenever released by the OEM to enable RCF to utilize this software effectively.
15. During the warranty period, if software is down for more than two days, penalty will be charged @ 0.1% per day of the P.O. cost from 3rd to 15th day and @ 0.3% per day of the software cost (P.O. cost) from 16th day onwards.
16. Firm shall submit clause by clause compliance for each point/part of this specification. While submitting clause by clause compliance the firm shall compulsorily mention compatible software module applicable at the time of tendering/submission of the offer, failing which the offer shall be considered incomplete and liable to be rejected.

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