

Solid Edge Electrical Routing

Digitally integrating wire harness design

Benefits

- Provide seamless integration between 2D ECAD and 3D MCAD domains
- Diminish product costs with improved communication
- Reduce need for costly physical prototypes
- Realize faster and more informed design decisions
- Improve service and maintenance documentation
- Decrease overall time-to-market

Features

- Connected mode with interactive cross-probing
- Wire routing along irregular geometric bodies
- Bundle creation over splices
- Design violation monitoring
- Wire harness output to manufacturing
- Automated, structured workflow

Summary

The Siemens Solid Edge® software module for electrical routing is a dedicated, process-driven environment for the efficient creation, routing and organization of wires, cables and bundles in a mechanical assembly. Using Solid Edge Electrical Routing enables you to transfer harness topology data between electrical computer-aided design (ECAD) and mechanical computer-aided design (MCAD) environments. Easier harness topology exchange reduces design time and manufacturing readiness.

The software provides seamless collaboration between design teams as they create complete and accurate digital mock-ups that contain components from both environments, eliminating the need for expensive physical prototypes. Design violations are constantly monitored as the harness is being created. Correct cutting length information is easily accessible for manufacturing.

A structured workflow

Solid Edge Electrical Routing provides a structured workflow that enables you to quickly define a 3D path between parts and defines wire, cable and bundle properties. When using the harness

wizard with a predefined net-list file, electrical components and connection information can be easily assigned to preconfigured Solid Edge parts. All wires remain connected to their original components, and wire length is updated to manufacturing reports. Wires, cables or bundles present in an assembly may be routed along any irregular surfaces tangential to the surface, a useful functionality for cabinet panel design.

Terminals may be assigned to various geometric structures, including square or rectangular cavities, and bundles may be created even over splices. For electrical components that have not had terminals assigned or connection information attributed, users can assign this information on-the-fly while the harness is created, allowing customers to capture knowledge while building component libraries. Once electrical components have been assigned, the information is stored for future designs, and the software exports ready-to-use net list files to ECAD so wires can be annotated with lengths and used for electrical analysis, such as voltage drops.

Live feedback of design violations

Built-in design-error checkers provide persistent live feedback, warning of design violations, such as minimum bend radius violations or instances in which the bundle size of cables and wires exceed the maximum. Violations are relayed to the user by graphical symbols next to the wire. A tool tip offers advice on how to fix problems.

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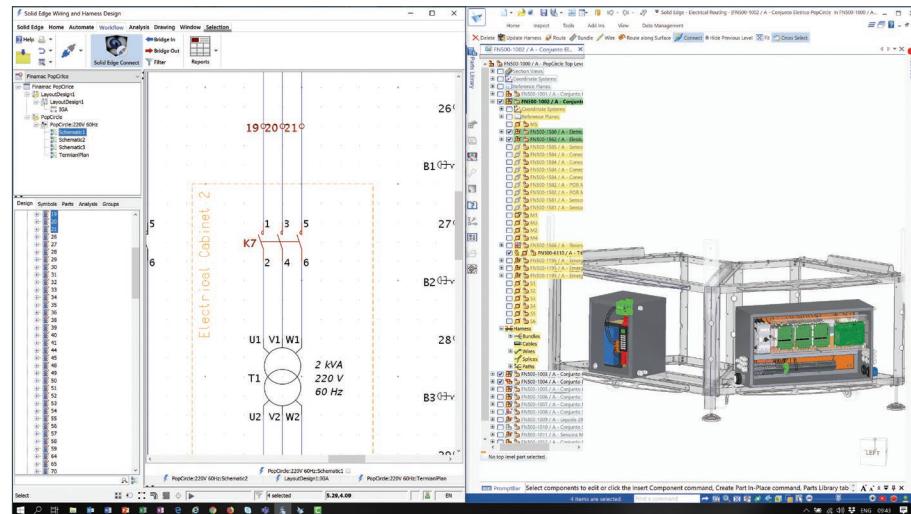
Realistic wire representation for complete digital mockups

Wires created with Solid Edge Electrical Routing contain all the information required for manufacturing and don't require a 3D representation of the wiring design. This speeds the initial design and editing of the wire harness. For a more realistic 3D mechanical view, or if a detailed drawing is required, designers can generate an associative 3D model of the wires, including individual wires, cables and bundles with colors. The automatic tangency of wire paths from terminals through wire clips enables wires to look natural as they are routed.

Connected mode

Solid Edge Electrical Routing directly interfaces between Solid Edge Wiring and Harness Design software modules using a feature called connected mode, which allows the user to bridge environments and update harness information. After the environments are connected, if the user changes a design aspect in one environment, it is highlighted in the other through cross-probing. Design violations are constantly monitored as the harness is designed; live feedback immediately displays potential challenges, enabling electrical and mechanical engineers to collaborate effectively whether they are in the same office or in remote locations.

Connected mode may only be used with Siemens products: Solid Edge Wiring and Harness Design, Capital Logic and Harness XC software. However, data transfer is possible in disconnected



mode, providing companies without a dedicated ECAD system to still enjoy the benefits of Solid Edge Electrical Routing.

Solid Edge Electrical Routing can be used to collaborate with industry-standard ECAD tools using standard exchange file formats for component and connection data. Files using the design system interface (DSI) file format, the universal format for creating wiring harnesses, may be imported into any ECAD software, with components and wiring data carried over.

Extending value

Solid Edge is a portfolio of affordable, easy-to-deploy, maintain and use software tools that advance all aspects of the product development process – mechanical and electrical design, simulation, manufacturing, technical documentation, data management and cloud-based collaboration.

Minimum system configuration

- Windows 10 Enterprise or Professional (64 bit only) version 1809 or later
- 16 GB RAM for commercial users and 8 GB RAM for academic users
- 65K colors
- Screen resolution: 1920 x 1080 or higher
- 8.5 GB of disk space required for installation

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