

## DIGITAL INDUSTRIES SOFTWARE

# Solid Edge Wiring and Harness Design

Electromechanical design as it's meant to be

### Benefits

- Achieve first-pass success in the design of complete electromechanical systems
- Realize greater wire harness manufacturing efficiencies by automating the complete design-to-production flow
- Reduce manual tasks and improve efficiency by automating design processes
- Model in 3D and collaborate on electrical details to increase electromechanical design productivity
- Eliminate the need for costly prototypes by using digital mockups

### Summary

Bridge the electromechanical complexity divide with industry-proven electrical design tools built by engineers for engineers. Siemens Digital Industries Software's Solid Edge® Wiring and Harness Design software enables the creation of fully functional and manufacturable electromechanical designs in a seamless electrical computer-aided design (ECAD) and mechanical computer-aided design (MCAD) environment. Based on industry-proven technology, these software modules enable you to design electrical systems while simultaneously collaborating with mechanical design to optimize product design. This facilitates the accommodation of space reservation, clash detection and hazard avoidance in the mechanical domain.

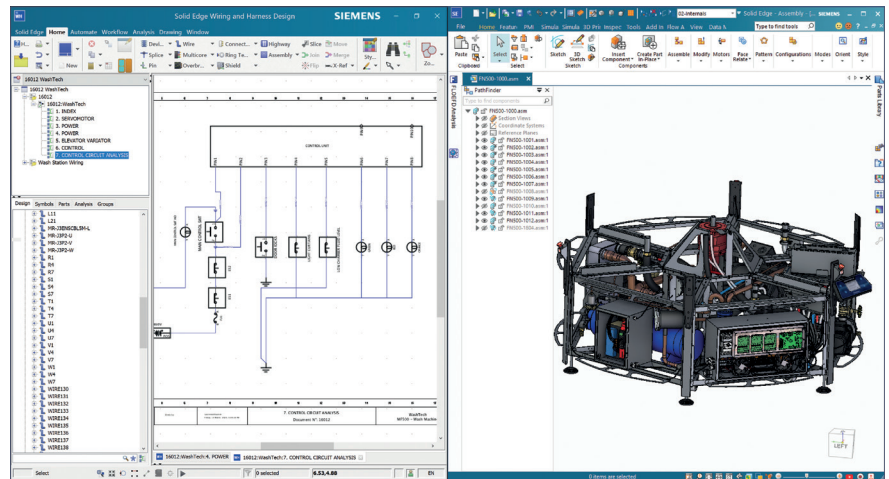
Solid Edge Wiring and Harness Design tools may be used individually or deployed together. When used as a total solution, wiring design data flows seamlessly into the associated harness designs, reducing effort and minimizing the risk of errors. When used with Solid Edge Electrical Routing, this unique

**Benefits** *continued*

- Validate designs using integrated electrical behavior and design automation with part selection

**Features**

- Design of complete electrical systems and wiring harnesses
- Seamless data exchange between domains with connected mode
- Automated parts selection, report generation and cross-referencing
- Built-in libraries for components, symbols and simulation models
- Production-ready drawings, BOMs, costings and manufacturing reports
- Extended publishing capabilities and BOM exchange for Teamcenter synchronization



solution provides interactive, highlighted cross-probing and updating between the ECAD and MCAD domains.

Both products offer the ability to configure and build reports with either an application programming interface (API) or an easy user interface. Reports can be based on any number of objects, attributes, properties or even calculations, and saved and viewed in a web browser.

The software supports the International Electrotechnical Commission (IEC) and American National Standards Institute (ANSI) symbol and parts libraries. ANSI ladder schematics adhere to ANSI drawing standards, which is especially useful when designing machinery.

Solid Edge Wiring and Harness Design comes with flexible libraries, giving companies the option of determining the necessary data for their own database of symbols to use in design. Libraries are also useful for documentation purposes. You can create a library of conditional images that will be automatically displayed on diagrams and produce documentation that strictly meets the requirements and standards of the company. Thus, Solid Edge Wiring and Harness Design covers almost the entire spectrum of working design: from the creation of schematics to preparation for production.

With intuitive interfaces, both Solid Edge Wiring and Harness Design solutions come with video tutorials, how-to documents, support from an active user community and an online training course. Each contains robust part and model repositories, with thousands of popular industrial parts supporting the automated selection of parts, terminal plugs and seals for each connector. Solid Edge Wiring and Harness Design modules are available individually or as a bundled solution.

**Teamcenter integration**

Solid Edge Wiring and Harness Design tools provide full data compatibility for customers using the Siemens' Teamcenter® software solution. Synchronization increases productivity by reducing the time involved in making design decisions. Bi-directional linking of requirements to design objects within Teamcenter enables tracing and cross-viewing of linked data. Users can easily assess the impact of requirement changes.

Using a single sign-on provides an out-of-the-box integration environment. Multi-domain part synchronization via the embedded Active Workspace ensures part identities match in both environments, ensuring digital continuity. The bill-of-materials (BOM) created using Solid Edge electrical design software transfers directly to the Teamcenter BOM structure, with subsequent runs updating the structure.

**Solid Edge Wiring Design**

Solid Edge Wiring Design is a graphical design environment for creating wiring diagrams. With built-in intelligence that automates many design tasks, the software makes full electrical schematic development easy via an intuitive user interface, electrically intelligent symbols and automated part selection. The software features built-in verification and design rule checks to validate design, eliminating errors earlier in the flow. It shows voltages and currents as the design proceeds, highlighting problem areas, such as short circuits and validating wire and fuse sizes.

As part of an integrated platform, Solid Edge Wiring Design connects mechanical and electrical domains in a single environment. Users can share data without importing or exporting data and then trying to maintain traceability.

Using Solid Edge Wiring Design with Solid Edge 3D CAD allows electrical and mechanical engineers to evaluate required changes collaboratively, with proposals highlighted in both environments. Designers can quickly assess whether wires can be shortened or whether they can pass in a zone of elevated temperature or vibration. This allows you to correctly reserve space for electrical systems to be defined in the early stages of design.

With Solid Edge Wiring Design, changes are visible to both domains. When the color of a wire changes in the electrical part of the design, the colors in the mechanical model are updated. It is easy to make changes: all elements are adapted and correspond to each other. Both engineers can work in parallel, exchanging information as required.

Streamlined graphical rendering and manipulation produce high-quality diagrams and make it easier to locate and interact with objects. To enable locating and resizing objects on busy diagrams, glowing, semi-transparent highlighting makes objects more noticeable. Resizing handles are prominent and clicking areas adapt to different zoom levels.

The tool automatically generates reports for wires, connectors and devices used in the design. Diagram, device and wire index tables with full sheet and zone referencing can be added to the drawings. These automatically update as changes are made.

**Use in the development of industrial control panels**

Successful cabinet panel design relies on accurate physical layout and schematic drawings. Solid Edge Wiring Design includes a configurable and re-usable layout design capability, which can be used in the preparation of 2D industrial control panels.

Solid Edge Wiring Design offers insertion and dynamic adjustment of DIN rails and wire ducts, supports automatic snapping of devices and displays E22 and other snap lines for device adjustment. Horizontal, vertical and diagonal dimensioning is available to prepare the panel layout assembly drawings.

Customizable table-based views of terminal strips automate the creation of terminal drawings. The terminal plan exists as a diagram table, which allows print sequences to be controlled by numbering. The table content, including connectivity, is re-used from the design. A configuration file controls the table style. Both single and multi-level terminals blocks can be modeled to include orientation specification and assembly sequence definition for the strip. Terminal plans are easily accessible at any point in the design process.

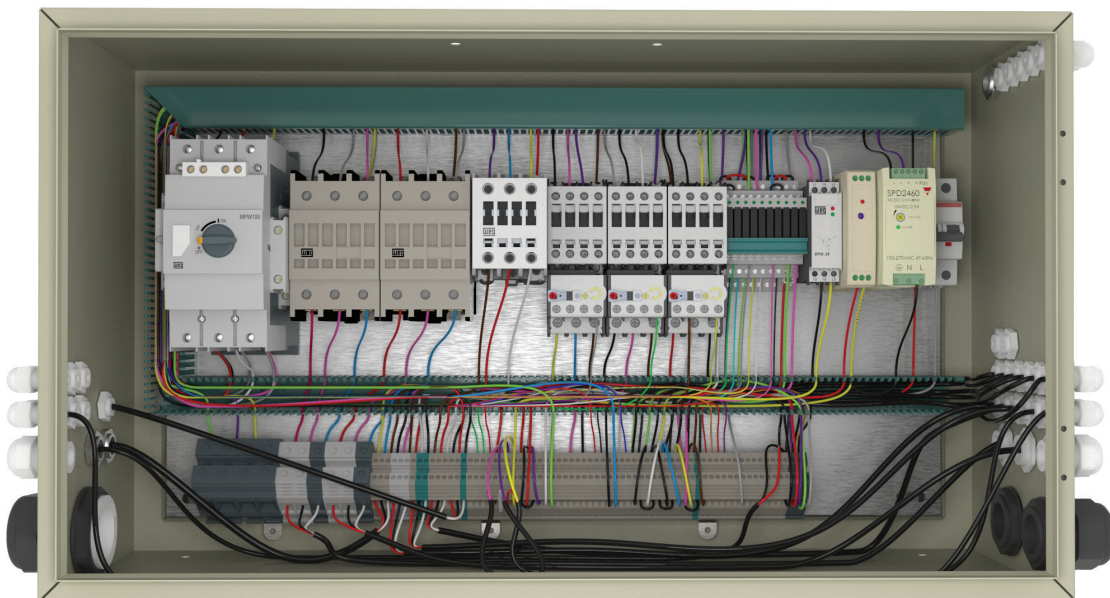
Autoroute capabilities take into account a user's defined value for diagram flow, minimum wire lengths and wire spacing during interactive edits, then automate routing for a full signal path, including junctions. When a

reference node component is placed, a symbol is automatically displayed with the component. When a reference component is added to a bundle, internode dimensions are displayed automatically, specifying the distance between the component and the existing objects.

### Solid Edge Harness Design

A graphical design environment for creating harness and formboard drawings, Solid Edge Harness Design automates the complete design-to-production flow to achieve greater wire harness manufacturing efficiencies. It uses a controlled and streamlined, correct-by-design process to provide digital continuity across domains and can be used for in-house production or build-to-print purposes.

The software automates many design tasks using an intuitive user interface that makes harness design authoring easy. For example, connector tables are automatically populated as wires are added, terminals selected and wire tables generated. A powerful parts selector automatically configures and selects



terminals, seals and wires for each connector, including allowances for add-ons and knock-offs. This speeds harness design, eliminates the major source of problems found in the traditional design process and enables manufacturers to more quickly reach the zone of profitability.

Once a harness is complete, powerful reporting capabilities can be used to generate the documentation required for manufacturing. The reports are generated directly from the design drawing, ensuring fast and accurate information. This can significantly reduce production lead times and prevent manufacturing errors.

### Single-vendor solution

A single-vendor solution enables an intimate integration, which is not possible with third-party and add-on products. By enabling data to flow seamlessly between the 2D wiring, 2D harness and 3D MCAD domains, teams can understand and trace the impact of design decisions across domains. Data derived from Solid Edge Wiring and Harness Design modules can be used with Siemens Capital™ software enterprise solutions.

### 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 requirements

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

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