ZUKEN®

E³.WiringSystemLab
Wire harness design and optimization (for minimum weight and cost) in 3D

### SPECIAL FUNCTIONALITY IN E³.WiringSystemLab

- E³.WiringSystemLab enables comprehensive wire harness analysis and optimization within a true 3D topology.

- Ease-of-use through the familiar MS Office® user interface

- Support of standard formats such as KBL, VEC, PLMXML or Excel® ensures easy integration into CATIA® or Siemens NX® environments

- Seamless integration into E³.series with direct integration into E³.schematics and E³.cable

- Knowledge-based determination of weight and cost using AI-methodologies

- Representation of different variants and configurations within a single project enables evaluation of different implementation approaches

- Powerful analysis and compare functionality to quickly determine the most suitable solution

- Results can be transferred directly into production development environments

Introduction

Optimizing wire harness designs to meet targeted weight and cost objectives is a complex and challenging task. One of the most time consuming aspects is the consolidation of different data sources and inputs into one consistent representation. Topology data, in particular, have been known to require an intense effort for consolidation, as different segments have to be combined to a single representation and then routed manually in a 3D environment (e.g. CATIA® or Siemens NX®). Zuken's innovative E³.WiringSystemLab simplifies this complex task with direct 3D data modelling capabilities and automated wire harness assembly functionality supporting the compilation of comprehensive harness designs from heterogeneous fragments. The result is a substantial reduction of ramp-up and optimization cycles.
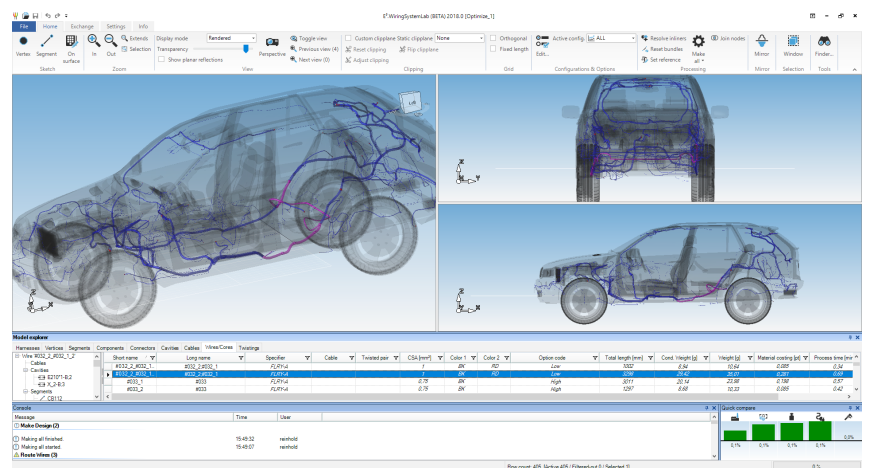
Areas of application

E³.WiringSystemLab enables the optimization of wire harnesses with an unprecedented degree of speed and accuracy. With these capabilities, it generates substantial benefits across a wide spectrum of applications in the automotive and transportation industry.
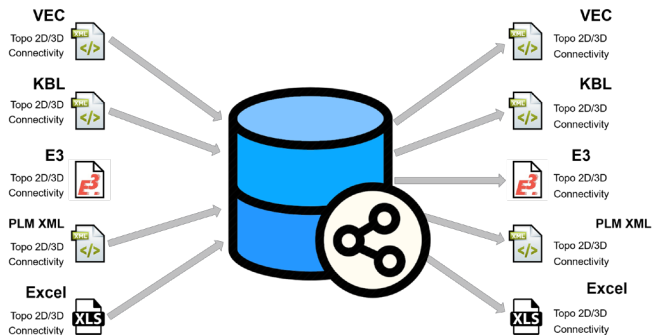
E³.WiringSystemLab integrates seamlessly into existing E³.series environments, reading in schematics data directly from the E³.cable data model. In addition, standard interfaces such as KBL, VEC, PLMXML, as well as generic Excel files, are supported. With these capabilities, the product also lends itself to system optimization tasks that are embedded into third party environments.

AI-Method for Development of Knowledge Model
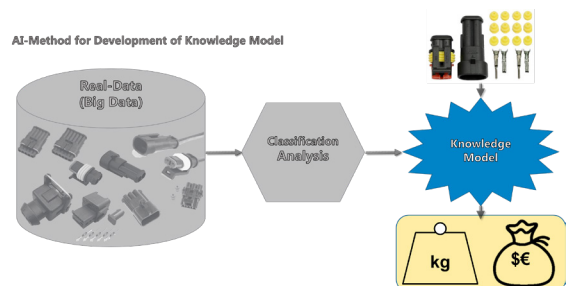
Supported Formats

E³.WiringSystemLab is committed to supporting all relevant industry standard formats.

With its support of the VEC format, E³.WiringSystemLab leads the industry by anticipating the next generation industry standard for wire harness designs. For the customer this means substantial benefits in terms of easy integration into existing environments as well as a protection of investments in legacy data.


E³.WiringSystemLab seamlessly integrates into E³.cable. Information between the toolsets is provided by a process-to-process coupling. No file transfer is required to read in schematic information into E³.WiringSystemLab. A highlighting functionality enables cross-probing between E³.WiringSystemLab and E³.cable. This cross reference is also maintained through the technology repartitioning process and ultimately becomes available in E³.HarnessAnalyzer in combination with the related 3D structure.

Direct modification of 3D data

Topology structures can be accessed and manipulated directly in a 3D environment. An intuitive user interface enables casual users to access and modify 3D structures without requiring specialist training.

Powerful, yet easy-to-use functionality is also available to support typical topology modification tasks, such as inserting connectors, packaging components by drag and drop or 3D mirroring.
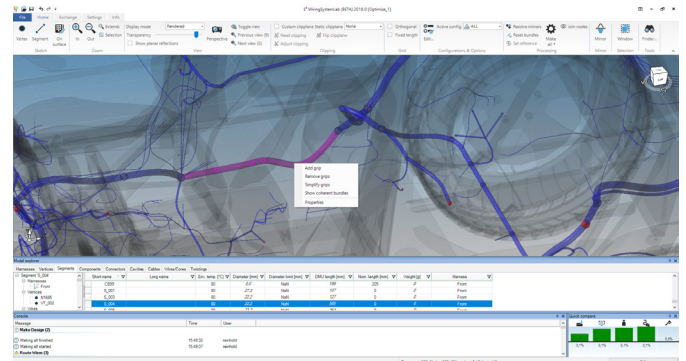
Concept Compare

E³.WiringSystemLab provides powerful concept evaluation capabilities to compare different implementation approaches.

An online-indicator is available directly in the user interface, with which trends for key values can be indicated. Details can be accessed with just one additional click. In addition a dedicated comparison tool is available that visualizes differences between versions on a detailed level down to single wires or connectors.
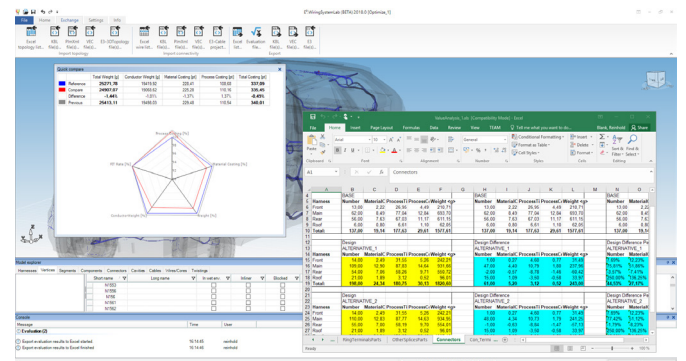
E³.series options for automotive applications

E³.cable

Enables the design of cable assemblies and wiring harnesses. Its multi-view functionality allows alternate documentation of devices such as single-line diagrams, wiring diagram and cable plans to be created for production and service.

E³.topology

Supports the architecture design by portioning off complex vehicle wiring systems into harnesses, and allocating devices and connectors to installation spaces.

E³.formboard

Enables creation of rich harness drawings that can be used as contract documents, as well as production drawings.

E³.3DRoutingBridge

Used when collaborating with 3D MCAD systems. Transfers electrological data to 3D, then after routing, transfers length information back into E³.series.