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Siemens Digital Industries Software

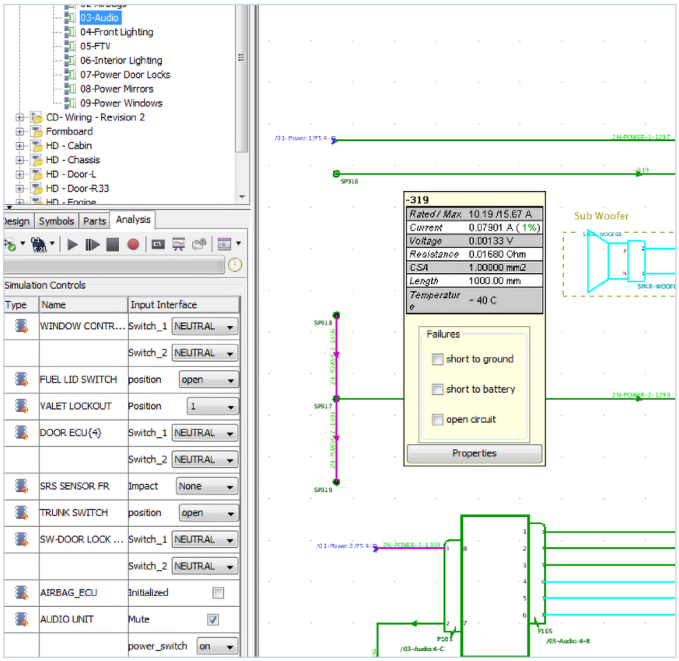
Twelve ways that VeSys makes wiring and harness design faster and better

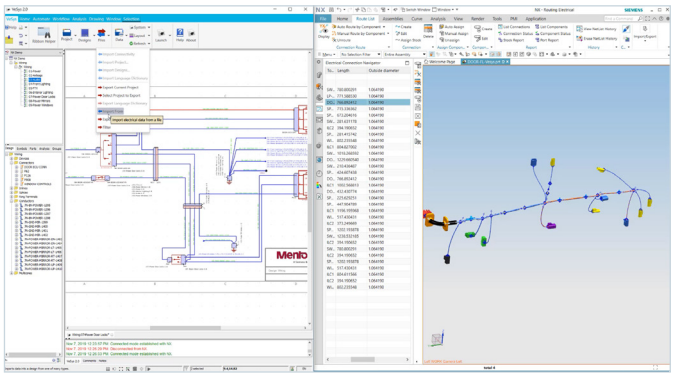
Executive summary

Electrical design is getting more complicated - the electrical systems on even the “simplest” products are sometimes beyond what 25 years ago was cutting edge for more advanced industries such as automotive. They often have big engineering teams and the best CAD tools available. Today’s electrical engineers need more than basic electrical drawing software; they need tools that take the complexity out of the task – helping them work smarter and faster.

VeSys is used by OEMs and harness manufacturing companies worldwide, from small, 10 employee companies up to the biggest companies in the industry. With automation capabilities that eliminate many of the most labor-intensive and error-prone tasks, these companies reduced design-cycle times, reduced rework costs and improved margins.

Wiring design





Advanced analysis and verification – test before you build

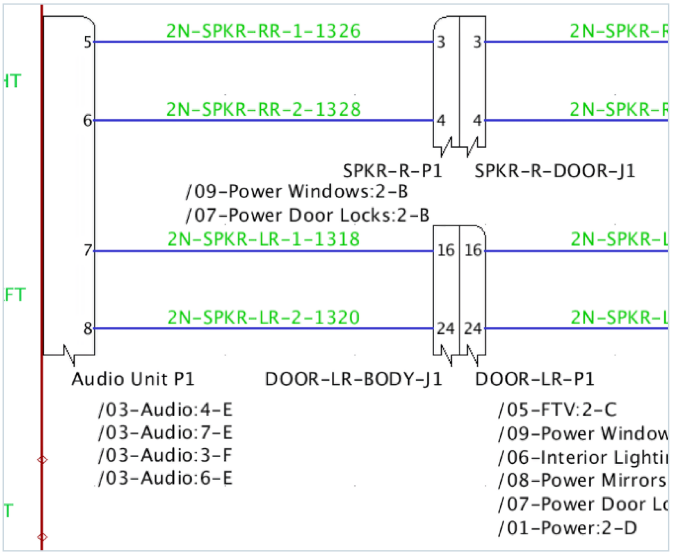
Does your first prototype always work first time with no electrical glitches? VeSys parts and wires are intelligent objects that "know" how to interact with each other - providing a virtual simulation and test facility for checking wire and fuse ratings and correct behaviour. VeSys also provides functionality to assess and rank the impact of failing components on systems, detect unintended or failing system activity, and validate operation under stress. This can save valuable prototype testing time and eliminate costly errors.

Import wire lengths – analysis enhanced by MCAD integration

Why manually enter or calculate wire lengths if the data already exists in the mechanical domain? VeSys integrates with industry leading MCAD solutions such as NX to enable the import of wire lengths from a 3D harness into your wiring design. This allows for additional analysis to be performed such as voltage drop calculations. In addition to connectivity and wire diameter, information can be passed back to the 3D harness to conduct interference studies within the MCAD tool. This also helps reduce errors and enhances collaboration across design domains.

Integrated parts library – no mistakes on part selection

Have you ever made a part number change and discovered your connectors have the wrong number of pins when you get to prototype? The VeSys parts library provides a structured library of intelligent parts that know how to interact with each other eliminating the need for the designer to repetitively look-up and transcribe the same definitions and parts for each new wiring design. Pin count, pin-names, and electrical specifications are handled by the system – no more bad surprises.



Property	Description	Value
_Class	_ Class	W
_Conforming_Spec	_ Conforming Spec	-
_Connector_Thread	_ Connector Thread	M28x1-6g
_Contact_Size	_ Contact Size	22
_Contact_Style	_ The Style Of Contact	Crimp
_EMI_Shielding	_ EMI Shielding	50 dB at 10GHz
_Fixing_Hole_Diam...	_ Fixing Hole Diameter	0.0
_Insert	_ Insert	19-35
_Max_Temperature	_ Max Temperature	200.0
_Min_Temperature	_ Minimum Temperature	-75.0
_No._of_Matings	_ No. of Matings	1500.0
_Nominal_Diameter	_ Nominal Diameter	38.5
_Panel_Thickness	_ Panel Thickness	0.0
_Polarization	_ Polarization	N
_Series	_ The Component Series	D38999
_Shell_Size	_ Shell Size	19
_Shell_Style	_ Shell Style	Straight Plug

Part naming validation – no more checking for accidental duplicates

Have you ever created a wiring design with two connectors having the same name? Or wires with the same name? How much time do you spend avoiding these problems? These problems don't occur with VeSys because its auto-numbering / naming facility and a variety of design checks prevent problems right from the start.

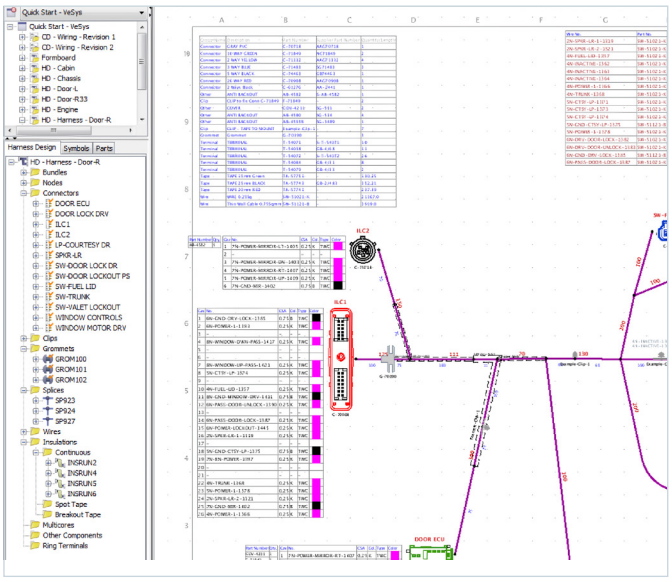
Intelligent cross-referencing – faster design, no errors

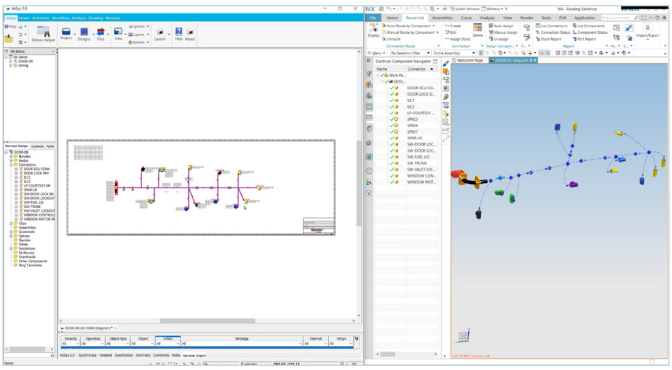
How much time do you spend checking cross-references on multi-sheet wiring designs? Have you ever had a nasty surprise at the prototype build stage? Or worse still, when testing? VeSys generates cross-referencing automatically – saving you time. And VeSys virtual simulation adds further re-assurance as it tests current flow along the wires between each sheet to perform complete system validation.

Automated document generation – better quality with less effort

How much time do you spend creating design documents such as BOMs, wire lists and parts lists? Do you need a wider variety of documents but don't have the resources to create them? VeSys can generate a wide variety of documentation at the touch of a button – providing accurate documentation specifically optimized for each end-user. This reduces the load on users in understanding the documentation, leading to less risk of downstream errors.

Harness design





Wire import from spreadsheet - faster quotation turnaround and design creation

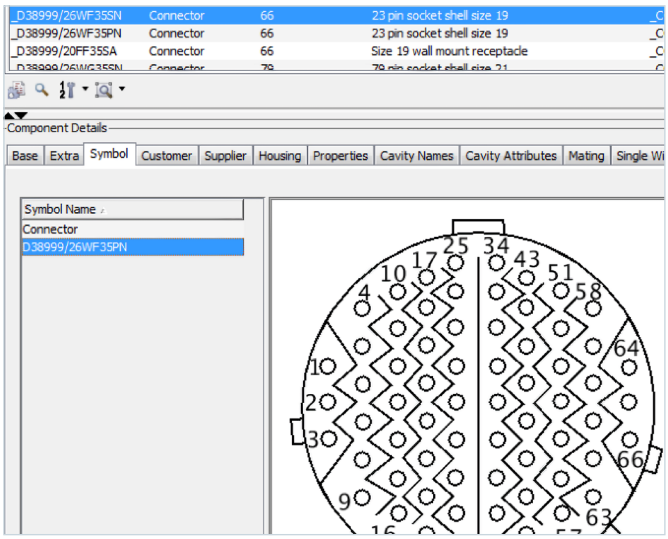
What's your quotation turn-around time? Ever make a mistake? Wire import from other electrical design tools, customer-supplied spreadsheet data or an existing VeSys wiring design data can reduce quotation time to less than 1 hour. Create the "stick" layout, import the wiring data, add protections, fixings and connectors and press the "go" button to generate the cost report.

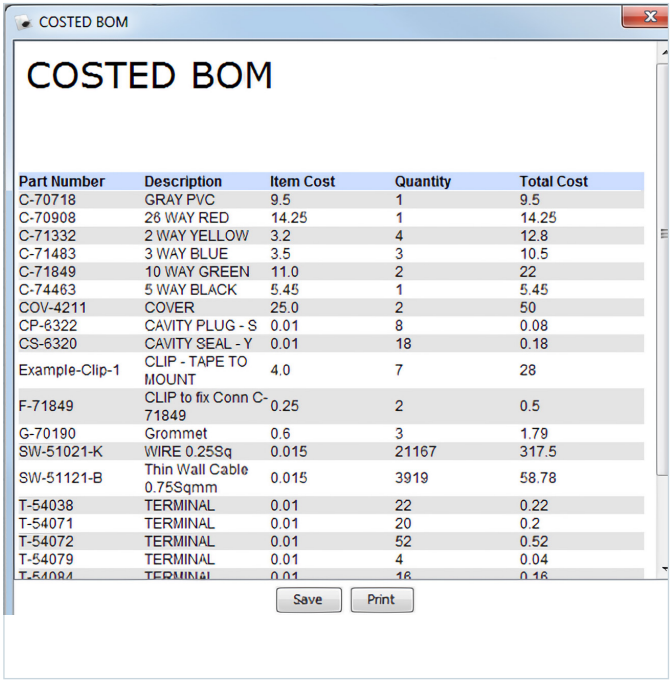
Import harness topology – re-use MCAD data to save time

Why recreate the harness topology when it has already been defined in an MCAD tool? Building upon VeSys' MCAD integration, a 3D harness can be imported and flattened to be used in the 2D space. Upon import, all of the bundle, connector, and part information can be translated from the MCAD tool for use in VeSys. This can save an immense amount of time depending on the size of the harness.

Self-configuring connectors select their terminals, plugs and seals – speed the design process & eliminate major source of errors

Ever quoted and won an un-buildable harness? Customers may specify the connectors and wires, but they're not always compatible when you start to select terminals and sealing components. This is a monotonous task, repeated hundreds of times: make a mistake and it won't be the customer who pays. VeSys automates this task so you won't be making these errors - you can cut your margins and still be more profitable.





Part Number	Description	Item Cost	Quantity	Total Cost
C-70718	GRAY PVC	9.5	1	9.5
C-70908	26 WAY RED	14.25	1	14.25
C-71332	2 WAY YELLOW	3.2	4	12.8
C-71483	3 WAY BLUE	3.5	3	10.5
C-71849	10 WAY GREEN	11.0	2	22
C-74463	5 WAY BLACK	5.45	1	5.45
COV-4211	COVER	25.0	2	50
CP-6322	CAVITY PLUG - S	0.01	8	0.08
CS-6320	CAVITY SEAL - Y	0.01	18	0.18
Example-Clip-1	CLIP - TAPE TO MOUNT	4.0	7	28
F-71849	CLIP to fix Conn C-71849	0.25	2	0.5
G-70190	Grommet	0.6	3	1.79
SW-51021-K	WIRE 0.25Sq	0.015	21167	317.5
SW-51121-B	Thin Wall Cable 0.75Sqmm	0.015	3919	58.78
T-54038	TERMINAL	0.01	22	0.22
T-54071	TERMINAL	0.01	20	0.2
T-54072	TERMINAL	0.01	52	0.52
T-54079	TERMINAL	0.01	4	0.04
T-54084	TERMINAL	0.01	16	0.16

Instant generation of BOMs, NC and Tester files, and manufacturing reports provides better manufacturing process documentation

Spending too long creating documentation? Bottlenecks stopping you from doing more business? VeSys Harness users can generate a BOM instantly from the diagram – a task that typically takes one or two days is achieved in a few seconds. This is even more valuable when a minor change is made – again the updated BOM is produced in seconds, compare this with the traditional approach that demands another day's work. For every VeSys user, this capability alone is sufficient to generate a rapid ROI.

Embedded engineering intelligence calculates exact wire lengths, bundle sizing, and tape lengths

Would you like to manufacture straight from design data without spending time on prototype builds? VeSys calculates wire length based on many factors, including bundle lengths, connector/terminal dimensioning, connector feed direction (e.g. straight, 90-left, 90-right,..), desired slack, and more. Bundle diameters are calculated directly from the wire size data allowing exact tape lengths to be calculated for spiral wraps. Precise information gives users a better cost estimate before quotation or build and allows companies to take the "guess-timation" away from the prototype build phase.

Integrated Parts Library speeds design, reduces errors, cuts inventory

Companies need to manage inventory and they do this by using the right component when there is a choice; and not selecting a completely new part when there is an equivalent one that has been previously used. The VeSys parts library provides a structured library of intelligent parts that know how to interact with each other – wire-terminal-connector-seal. These part definitions also eliminate the need for the designer to repetitively look-up and transcribe the same definitions and parts for each new harness project.

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