

Streamline Data Entry in Relex 2009: New Libraries Span Several Relex Modules

Experience Streamlined Data Entry with New Assembly Libraries and New OpSim Libraries

Assembly Libraries facilitate the storage and reuse of assemblies, subassemblies, and their components for faster, more efficient data entry. Assembly Libraries are available throughout Relex FMEA, Maintainability Prediction, and Reliability Prediction. In addition, Relex OpSim offers new libraries to store and reuse Block, Diagram, and Maintenance data.

Relex software has long been recognized for its unmatched component library database. Taking this concept one step further, Relex 2009 introduces Assembly Libraries: a new way to control and manage your system data. Assembly Libraries facilitate the encapsulation of data at the Assembly level for ease of reuse and collaboration.

Familiar Libraries in Relex

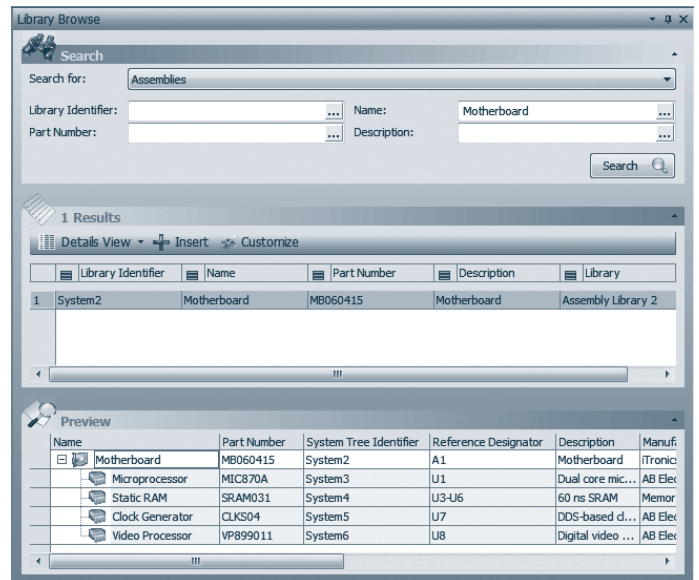
Familiar libraries in previous Relex versions include NPRD and EPRD Libraries (Nonelectronic Parts Reliability Data and Electronic Parts Reliability Data), and user-created parts libraries. These libraries contain key part data, which is used in calculating the reliability and other performance metrics for the system in which the part is used.

Powerful features of both new and familiar libraries in Relex include the ability to search and filter the library to find certain items, insert the found item into the system tree, update a system tree item with data from the found item, and edit information in library entries. Helpful preview images also appear in libraries: when the user mouses over the smaller image, a larger image appears.

About the Assembly Library

New Assembly Library files encapsulate data at the Assembly level, saving the assembly structure as well as any subassembly and child parts associated with it and making it available for future use. By storing each assembly with key library identifiers, or terms associated with the assembly, the Library can easily be searched for the assembly needed.

In addition, all relevant data is saved across modules when applicable modules are enabled. In other words, the same Assembly Library file can be accessed and used in any available module when the data relevant to that module is saved as part of the library file. The Assembly Library file stores information in a similar format to the familiar System Tree found throughout Relex, making it easy to identify the structure and parent/child relationship of items in the assembly.



New in Relex 2009, Assembly Libraries offer the option to search by library identifiers, part numbers, part names, or description, and return the assembly and its component subassemblies and parts for easy data entry and reuse.

Data stored in the Assembly Library File, with the appropriate module(s) selected, includes:

- **The System Tree** (for all supported modules), preserving the parent/child relationships of the components and subassemblies that are part of the stored assembly
- **Parts Table / Prediction Table** (for Relex Reliability Prediction), displaying part classification, category, subcategory, calculation model, and all relevant part parameters such as voltage ratio, number of gates and pins, thermal resistance, and so on
- **FMEA Worksheet** (note that the Relex FMEA Worksheet is stored: not the FMEA Table or Tree) and information that was input into any custom FMEA forms that may be enabled
- **Maintainability Data** (for Relex Maintainability Prediction)

Using the New Libraries

It is possible to create an Assembly Library item for each and every assembly in a system, or only for the assemblies that will be reused. The management of libraries is effortless with the Relex library management utilities, which enable you to create libraries from current Projects,

System Tree							
Name	Part Number	System Tree Identifier	Reference Designator	Description	Manufacturer	Failure Rate, Predicted	MTBF, Pr
Relex Assy 1		System1				##	
Relex SubAssy 1		System2				##	
Part 1		System4				##	
Part 2		System5				##	
Relex SubAssy 2		System6				##	
Part 3		System7				##	
Part 4		System8				##	
		System9				##	

Parts Table							
Name	Part Number	Part Classification	Category	Subcategory	Reference Designator	Quantity	Calculation Model

Sample Assembly Library File with Windows Shown for All Supported Modules: Data is stored across modules in Assembly libraries, including subassemblies, component parts, and all relevant data for use in a variety of modules: Reliability Prediction data, Maintainability Prediction data, and FMEA Worksheet data.

update libraries with new information, and filter libraries based on selected criteria.

Assembly Library files are easy to create and use. Upon creating a new Assembly Library file, simply insert an assembly using the familiar system tree format found in the library file. Insert any child assemblies and/or parts, and enter the relevant data. Alternately, it is possible to drag and drop a selected portion of an existing system tree into an open Assembly Library file to store it for future use.

Inserting an Assembly Library file into a System Tree for reuse is similar to the process of selecting a branch of a system tree, copying that branch, and pasting it from one System file into another. It is also possible to simply drag and drop assemblies from the library into new or existing systems.

In addition, pre-configured Report Design Files are provided for Assembly Libraries, and can be used to create reports on assemblies stored in the library. Reports available for Assembly Libraries include:

- Assembly Library–FMEA Worksheet
- Assembly Library–Maintainability
- Assembly Library–Prediction Assemblies
- Assembly Library–Prediction Parts
- Assembly Library–System Tree Items

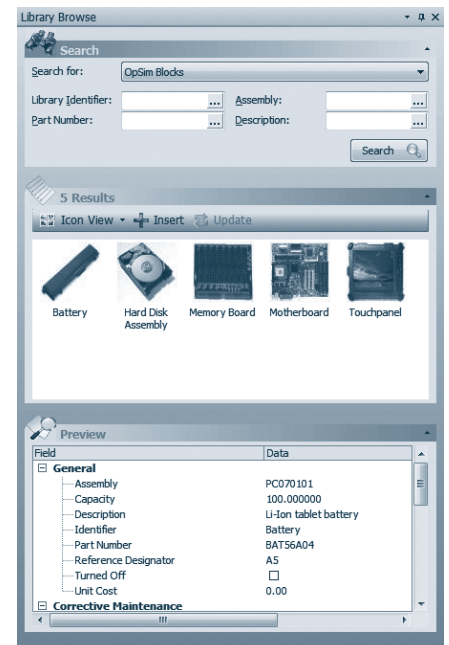
New Libraries in Relex OpSim

In Relex 2009, it is now possible to save OpSim blocks, OpSim diagrams, and OpSim Maintenance Properties, with the ability to easily search and retrieve them for future use. The Diagram Library even

preserves diagram links within blocks, storing linked information together with the diagram to which it is linked. However, only block diagrams—not phase diagrams—can be stored in the OpSim Diagram Library.

When you are ready to reuse the stored information, select an existing diagram in a System file, select the record into which to insert the diagram, and choose “Browse Libraries” from the OpSim menu. Supply the search criteria used previously to store the block or diagram, and drag and drop the selected diagram or block into the current system file.

In addition, the OpSim Maintenance Library stores maintenance tasks and detailed information associated with that task, which can be copied into future blocks. Either input an existing maintenance task in a current System file into the Maintenance Library, or create a new Library file.

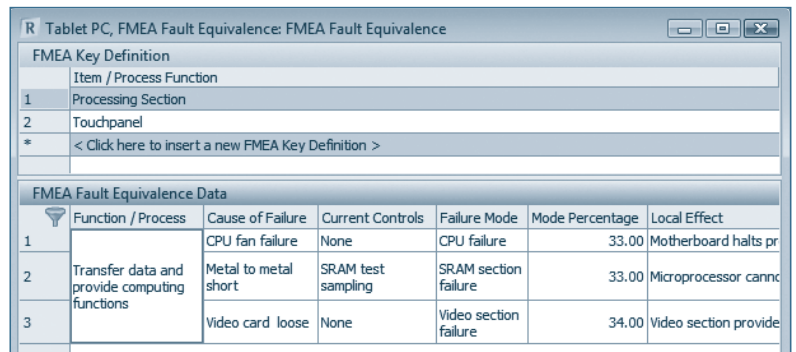


New libraries in Relex 2009, like this OpSim Blocks Library in Relex OpSim, offer new, more streamlined data entry capabilities with familiar Relex features.

Comparing Available Libraries in Relex FMEA

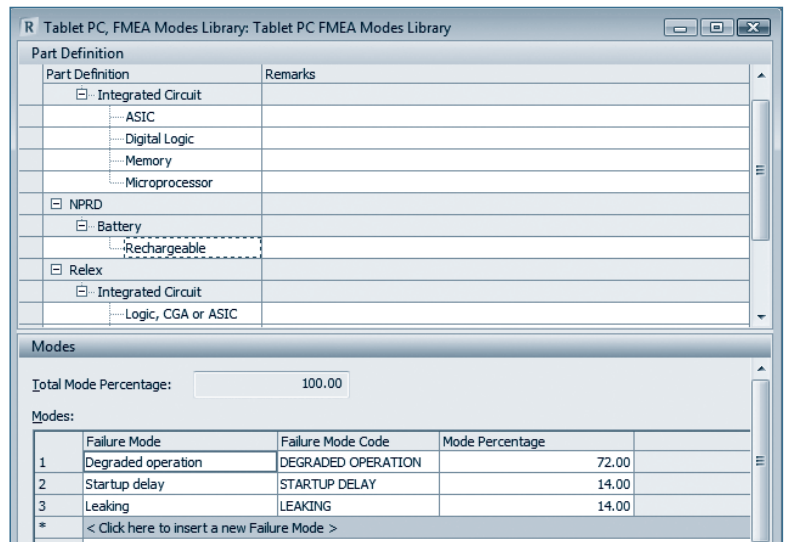
Users of Relex FMEA have had two libraries available to assist them in their analyses: the FMEA Modes Library and the FMEA Fault Equivalence files. The new Assembly Library in Relex 2009 stores FMEA Worksheet data to provide a third form of archived FMEA data. Each of these three libraries performs a unique function, which is outlined below:

- **New FMEA Assembly Libraries:** FMEA Worksheet data and information that was input into any custom FMEA forms that may be enabled can be saved into a new Assembly Library file, including any items/processes, failure modes, local effects, and analysis results from the FMEA. It is *up to the user* to search the library for the desired assembly and insert it into the FMEA where it will be reused.
- **FMEA Modes Library:** FMEA Modes Library files store the failure modes associated with a specific part definition. Search these files for future use to copy failure modes into a System file when this part is used in the FMEA. The Part Definition includes Part Classification, Category, Subcategory, and any related failure modes. When a part is inserted into a FMEA, any enabled FMEA modes Libraries are *automatically* searched for part matches. If a part match is found, the items and failure modes for that part are inserted into the FMEA table. Note that several FMEA Modes Library files are supplied with Relex FMEA. These are from FMEA standards, and are as follows:
 - FMD91 Modes
 - FMD97 Modes
 - MIL-HDBK-338 Rel D Modes
 - NPRD3 Modes
 - RADC-TR-84-244 Modes
 - RAD-TR-844-244 4-A Modes
- **Fault Equivalence Files:** In Fault Equivalence Files, the FMEA data is stored for later use in the FMEA Table when the criteria in the table match the criteria in the file in up to five key fields. This file supports the concept of Fault Equivalence Groups as described in the SAE ARP5580 FMEA standard. Upon entering data into the FMEA Tree or Table, the Fault Equivalence file is *automatically* searched for key field matches. If a match is found, Relex copies the FMEA data associated with the File record into the FMEA Table in the system file.



FMEA Key Definition					
Item / Process Function					
1	Processing Section				
2	Touchpanel				
* < Click here to insert a new FMEA Key Definition >					
FMEA Fault Equivalence Data					
Function / Process	Cause of Failure	Current Controls	Failure Mode	Mode Percentage	Local Effect
1	CPU fan failure	None	CPU failure	33.00	Motherboard halts pr
2	Transfer data and provide computing functions	Metal to metal short	SRAM section failure	33.00	Microprocessor cann
3		Video card loose	Video section failure	34.00	Video section provide

Compare and Contrast FMEA Libraries: A Fault Equivalence File (above) in Relex FMEA indexes a completed FMEA in order to auto-extract data to a future FMEA when the content of key fields matches established criteria. The FMEA Modes Library (below) stores the failure mode associated with a part. When a part is inserted into a FMEA and a match is found, the items and failure modes for that part are inserted into the FMEA. In contrast, the FMEA Worksheet data stored in an Assembly library may be searched by the user and manually imported for use in a future FMEA.



Part Definition		Remarks
Integrated Circuit		
ASIC		
Digital Logic		
Memory		
Microprocessor		
NPRD		
Battery		
Rechargeable		
Relex		
Integrated Circuit		
Logic, CGA or ASIC		

Modes			
Total Mode Percentage: 100.00			
Modes:			
	Failure Mode	Failure Mode Code	Mode Percentage
1	Degraded operation	DEGRADED OPERATION	72.00
2	Startup delay	STARTUP DELAY	14.00
3	Leaking	LEAKING	14.00
* < Click here to insert a new Failure Mode >			

For More Information

For more information about Relex, or to try a free demo version of the software, please visit: www.relex.com

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