

Safety Builder: The Integrated Tool for Configuring Safety Manager



The fully IEC 61131 compliant Safety Builder is the configuration tool for Safety Manager, Honeywell’s advanced safety management system. Safety Builder offers engineers a better way to efficiently engineer and quickly commission Safety Manager. In addition, Safety Builder:

- Complies with all industry standards, including IEC61131 standards for application programming and definition
- Tracks changes automatically
- Provides easy guidance throughout configuration
- Runs on the latest Windows platforms.
- Runs simultaneously with any other program installed on the same PC, including an operator workstation.

Safety Builder’s easy-to-use graphical tools help design the plant’s safety network, define the hardware setup, design Functional Logic Diagrams (FLDs), upload the application and establish a live connection with the safety system.

Safety Builder also supports adequate logging, compliant with the latest standards including IEC-61508 / 61511, to remove the need for separate, extensive logging.

Multiple engineering tools are no longer required as Safety Builder includes a complete set of engineering features, as shown in Figure 1. These features are all graphically represented in Safety Builder for easy access and recognition.

Safety Builder helps you do your job more effectively by easily guiding you through all required steps and helping prevent you from making mistakes that could undermine system operations.

With Safety Builder, multiple users can concurrently work on a plant or unit, allowing large process facilities to be configured and designed quickly by multiple people. Furthermore, the support for bulk operations such as copy controller, copy multiple FLDs and bulk point modifications enable multi-site development of process facilities.

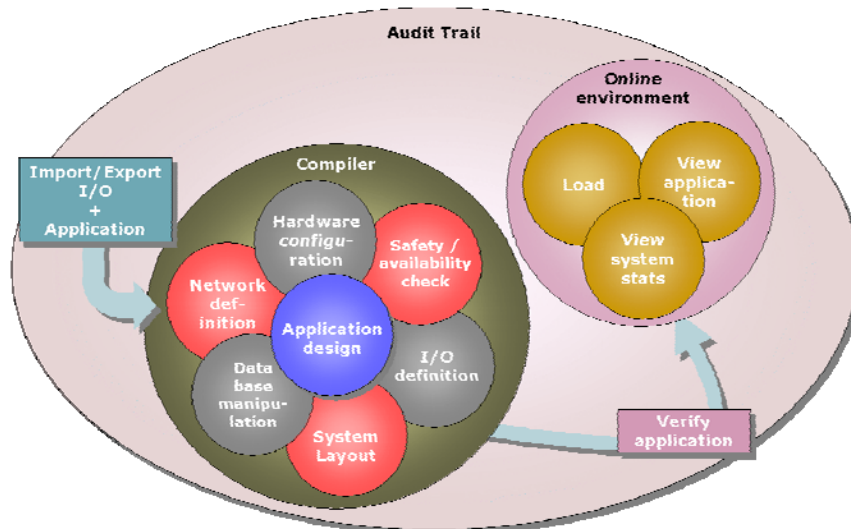


Figure 1. Safety Builder Features and Integration

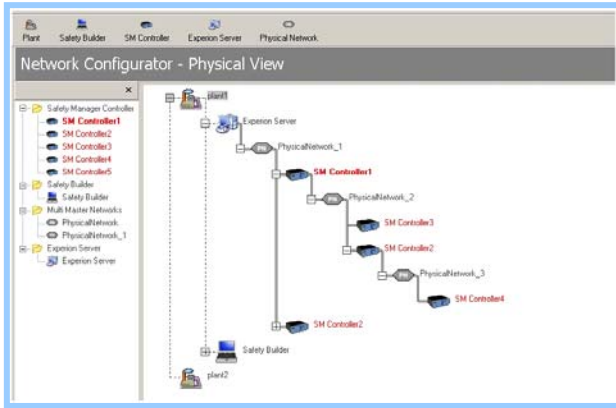


Figure 2. Clear Overview in the Network Configurator

In addition, Safety Manager logs all your actions in an audit trail for easy reference. An easy-to-use Undo feature provides fast recovery from mistakes, quickly restoring work back to its previous state.

Safety Builder 's self-documenting capability takes care of tailor-made printing of all systems, including system-relevant details for easy fault finding throughout the life of the safety system. These details can be saved for later inclusion into electronic documents.

Network configuration

Safety Builder's engineering toolset is equipped with a Network Configurator tool (Figure 2) to configure your safety networks across various process-units in a minute. This tool allows all safety equipment within your site to be easily configured and recognized.

The Network Configurator presents a process-unit- oriented architecture, showing a complete overview of all connections for various safety systems, including communication to the Experion™ platform and other Safety Manager systems, time synchronization sources and 3rd party equipment.

Easy navigation between the various systems is established with the Network Configuration, making it easy to maintain all your safety systems from one centralized location.

Hardware definition

The definition of the safety system hardware is done graphically. The (redundant) control processor chassis including its modules as well as I/O chassis' with the numerous types of I/O modules are dragged and dropped onto a configuration pane immediately showing the layout of the safety system (Figure 3). All system properties are configured during the placement of the various hardware modules.

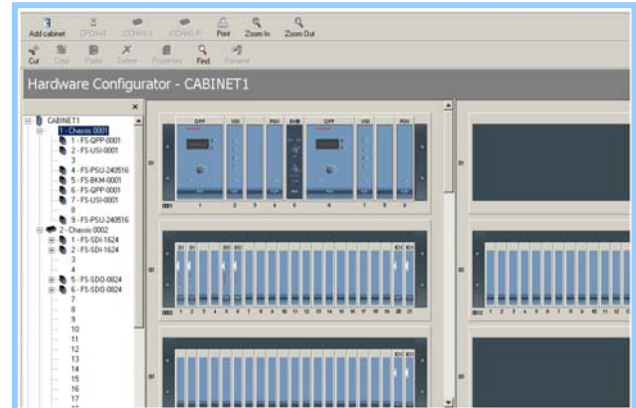


Figure 3. Graphical Configuration through the Hardware Configurator

Point Configuration

The Point Configurator (Figure 4) assists you while configuring your point database. It is the perfect solution for quick data entry of single and bulk points, including all their properties. The Point Configurator uses a spreadsheet-like approach, allowing all points to be sorted, filtered, searched, modified, imported and exported. Columns can be re-sized, hidden and moved. All Point Configurator settings can be saved and then used again at a later stage.

Tag number	Plant	Location Unit	Subunit	Status	Description
780V1023A0	DI	FLD			FCC Unit
	DI	FLD			FCC Unit
	DI	FLD			Clock source 1 fault
	DI	FLD			Clock source 2 fault
	DI	FLD			Clock source 3 fault
	DI	FLD			FCC Controller fault
	DI	FLD			Control processor fault
	DI	FLD			CP 1 running

Figure 4. Powerful Tools and Views Available in the Point Configurator

Since safety systems include safety field devices, full details (properties) of these devices can be configured with Safety Builder, which the Safety Manager can then monitor and act upon in case of device failure.

A point configuration window in the point viewer, application editor and application viewer shows all detailed properties of a point during application design and validation. Fault reaction of each point is user configurable, in line with IEC61508 / IEC61511 standards.

Application Design Editor

The application design is done via the Application Editor (Figure 5). It has all the features needed to assist you with the design of the safety application. Being compliant with IEC-61131, it uses the best possible way to clearly show the application and logic. All symbols are available from a toolbar and can be placed via drag & drop functionality symbols can be changed, dragged or moved with a mouse click, for every I/O point, timer, etc. it is possible to call up a configuration pane to modify its configuration. Easy and fast navigation is done via an explorer window listing all sheets (including comment, program and function blocks).

Together with these capabilities, the design editor also comes with a number of standard function blocks and logic typicals, such as:

- Fire and Gas library (NFPA 72 and EN54-2 compliant)
- Partial Valve Stroke Testing (PVST) library
- Extensive proven-in-use logic library
- EN 954 compliant logic library (machine safety)
- Standard templates for communication with the Experion platform, PlantScape and TPS systems
- Integrated logic for the Trip and Bypass Management System
- Integrated First Failure Detection software
- BMS library (NFPA 85/86 compliant).

The safety application design editor enables and assists in fast, easy and accurate logic design.

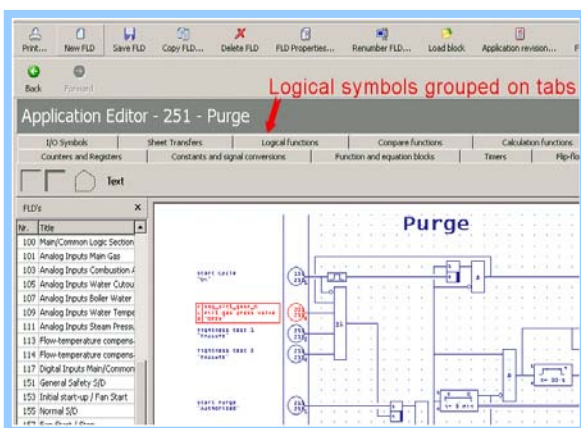


Figure 5. Clear Overview of Functions and Application.

Controller Management

Controller Management makes it possible to:

- Maintain your Safety Manager(s);
- Change/Upgrade safety functionalities and online modifications
- Perform loop diagnostics;
- Verify system status
- Online view of FLDs through the application viewer

An important option is to read extended diagnostics from the controller. Diagnostics are read online and continuously, thus presenting live diagnostics. Upon reading, extended diagnostics are stored in the diagnostics database for archiving purposes (IEC 61508). This enables examination of the diagnostics at a later stage, even when the Safety Manager is not connected.

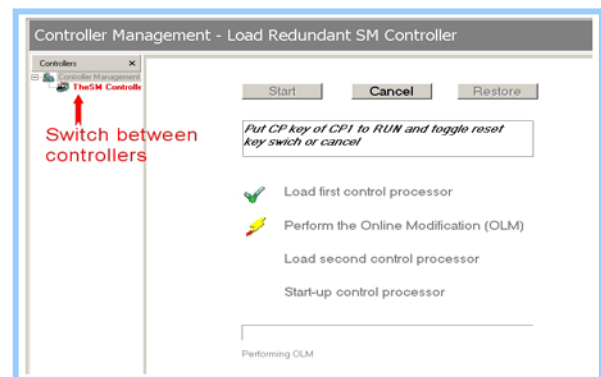


Figure 6. Online Modification Wizard

Process uptime is crucial for all users; therefore the TÜV approved Online Modification (OLM) features of the Safety Manager are designed to guide you during this task; a dedicated wizard is included to address your queries. When the configuration has been completed and compiled, an OLM-wizard (Figure 6) will guide you through the process giving a straightforward interface to upgrade the application and database of the Safety Manager. The TÜV approved OLM features of the Safety Manager allow for full online database modification.

Safety Manager provides various cross-sectional views to view the safety application. Selection can be made from I/O-status view, logic status view and point detail status view. Controlled access to all variables in various views is supported within the safety boundaries defined; forces and set point changes are possible under safety guidance. Fast source finding in case of an abnormal process situation and easy navigation is accomplished

through jumping between program blocks by clicking sheet references, searching for tag numbers and the sheet listing in the navigation pane.

The Safety Builder allows operators to online monitor the ESD status. The safety integrity of the system will remain, because the Safety Builder has different levels of password protection for the different tools. This protects Safety Builder and Safety Manager against unauthorized access and actions.

Audit Trail

A unique feature which is active during all configuration activities. Audit Trail detects and stores all user activities in an event log. It identifies the actual action, the date, the time, the user identification and the actual activity carried out

This feature is essential when compliance with IEC61508 is required or desired. The standard demands that chronological documentation shall be established and maintained. With the audit trail feature, this requirement is automatically fulfilled during the implementation, verification and modification process, therefore saving engineering time for QA/QC, logging and filing.

Summary

Safety Builder is the tool to configure Honeywell's Safety Manager safety management system in a clear and logical manner. It provides a structured way to implement the safety requirements, using the IEC61508 safety life cycle approach. by the user. This information is stored in a database and can be viewed, filtered, sorted and archived using Safety Builder.

More Information

For more information on Honeywell's Safety Manager, visit our website www.honeywell.com/ps, or contact your Honeywell account manager.

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