FIRE AND SECURITY

AUTRO SAFE
Self Verify®

Interactive Fire Alarm System, Release 3

User Guide

Loop Simulator Tool

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Table of Contents

1. Introduction

1.1 About the Handbook

This handbook describes the functionality of the Loop Simulator Tool and how to use it.

1.2 History

Prior to version 2.0.0, the tool was named LoopSimulator. Starting with version 2.0.0, the name has been changed to Loop Simulator Tool. This version replaces all previous versions of this document.

1.3 The Reader

This handbook is intended to be used by Autronica Fire and Security service and technical personnel who are responsible for the configuration and commissioning of the AutroSafe Interactive Fire Alarm System. It might also be a useful reference when experiencing problems using the tool. All main functions of the Loop Simulator Tool are described in detail.

1.4 Compatibility

The Loop Simulator version is always upgraded to be compatible with the latest version of the AutroSafe System Software and AutroSafe Configuration Tool .

1.5 Reference Documentation

In addition to this handbook, Autronica Fire and Security offers the following documentation:

Handbook	Item Number
System Specification	P-ASAFE/XE
Installation Handbook, Fire Alarm Control Panel (BS-310/320) / Controller (BC-320)	P-ASAFE-FA/DE
Installation Handbook, Operator Panel (BS-330)	P-ASAFE-OP/DE
Installation Handbook, Repeater Panel (BU-320) / Information Panel (BV-320)	P-ASAFE-RI/DE
Installation Handbook, Battery Cabinet (SY-310)	P-ASAFE-BC/DE
Commissioning Handbook	P-ASAFE/EE
Operator's Handbook, Fire Alarm Control Panel (BS-310/320) / Operator Panel (BS-330)	P-ASAFE-FO/FE
Operator's Handbook, Repeater Panel (BU-320)	P-ASAFE-FB/FE
Operator's Handbook, Information Panel (BV-320)	P-ASAFE-IN/FE
Shortform User Guide	P-ASAFE-SH/LE
Shortform Configuration Guide (for the AutroSafe Demo Board)	P-ASAFE-SH/VE
Wall Chart	P-ASAFE-WE/LX
Wall Chart	P-ASAFE-CH/LX
Menu Structure	P-ASAFE/MX
Operator's Handbook, Loop Diagnostic Tool, AS-2000	P-ASAFE-AS/FE
Operator's Handbook, Loop Simulator Tool	P-ASAFE-LS/FE
Operator's Handbook, Loop Calculator Tool	P-ASAFE-LC/FE
Operator's Handbook, Merge Tool	P-ASAFE-MT/FE
Operator's Handbook, Power Calculator Sheet	P-ASAFE-PC/FE

2. System Requirements

2.1 System Requirements

The Loop Simulator Tool requires the following minimum system configuration in order to run properly:

- A 150Mhz Pentium PC with 32MB RAM
- Windows 95/98
- 1 free Serial Port (RS-232c)
- A cable for the Loop Simulator Tool connecting the simulator to the AutroSafe system unit (XJA-028 with 9-pin female connector)

Multiple loop simulator applications may run simultaneously on one computer, limited by the number of available serial ports and available system resources.

Running the Loop Simulator Tool in combination with other high resource consuming applications may interrupt the communication, and is therefore not recommended.

2.2 Other Requirements

In order to run a simulation, the Loop Simulator Tool requires a valid binary AutroSafe configuration. The configuration loaded into the Loop Simulator Tool must be identical to the configuration loaded into the AutroSafe system.

3. Starting the Loop Simulator Tool

3.1 Introduction

The Loop Simulator Tool can be started from the command line or from the Windows Start menu.

3.2 Command Line

To start the Loop Simulator Tool from the command line, simply run the <*AS_LoopSim.exe*> file.

When starting the Loop Simulator Tool with no command line parameters, a configuration must be loaded prior to communicating with an AutroSafe system.

3.2.1 Command Line Parameters

Optionally, a configuration may be loaded immediately after the Loop Simulator Tool is started. This is done by adding the following set of parameters:

- AS_LoopSim.exe [path_to_config_files] [COM Port]
  ex. `AS_LoopSim c:\Config_Bin\BS-320_01_00 1`

By running the simulator with the command line parameters, a configuration is automatically loaded, ready to communicate with an AutroSafe system.

3.3 Windows Start Menu

A shortcut to the Loop Simulator Tool is located among the other AutroSafe tools on the Windows Start Menu.

When starting the Loop Simulator Tool from the Windows Start menu, a configuration must be loaded prior to communicating with an AutroSafe system.

4. Menus

4.1 Introduction

All common functions are available through the menu bar at the top of the screen. Functions related to specific loop units will be described separately in the Loop Units chapter. This chapter describes the general behaviour and functionality of the Loop Simulator Tool menus.

4.2 File Menu

The file menu is used for loading configurations and has two main items:

- ***Load config*** - Used to load a binary configuration created by the AutroSafe Configuration Tool. The Loop Simulator Tool requires both the FACS binary configuration files, <*EacFlash.bin*> and <*EacEeprom.bin*>.

  When loading, please select the correct binary files directory. The Loop Simulator Tool automatically assumes that all the configuration files are located in the same directory.

  The OP_Eq binary file <*BsrFlash.bin*> will also be loaded if it is located in the same directory, but this file is not required. By loading the OP_Eq binary file, the configured UnitTexts will be shown in the Loop Simulator Tool.

- ***Exit*** - Close the Loop Simulator Tool

- In addition to the two main menu items, the file menu also features a history of the ten most recently loaded configurations. By selecting any configuration in the history list, the selected configuration is loaded automatically.

4.3 Log Menu

At the bottom of the Loop Simulator window there is a log view showing all AL_Com-traffic. This view is turned off by default. The log menu is used in relation to the Loop Simulator log view. Currently the following options are available:

- ***Reset Log*** - Empty the log window, all logged messages is deleted.
- ***Disable/Enable Log*** - Disable and Enable the log respectively.

4.4 Help Menu

This menu is used to display help and system information. The [About AS-LoopSim] menu item shows information about the version of Loop Simulator Tool currently running.

5. Loading a New Configuration

5.1 Introduction

The Loop Simulator Tool is based on the FACS binary configuration data files generated by the AutroSafe Configuration tool. The AutroSafe Configuration tool generates two binary files for FACS, <*EacFlash.bin*> and <*EacEeprom.bin*>, both whom are required by the Loop Simulator Tool. The OP_Eq binary file, <*BsrFlash.bin*>, is not required, but may be loaded in order to display the configured UnitTexts.

5.2 Loading Procedure

- To load a configuration, access the [File, Load config] menu.

  The Loop Simulator Tool will ask for the directory of the binary configuration data files.

  It is a requirement that all the binary files is located in the same directory.

Once a configuration is loaded, general information about the configuration is displayed on the tab called «Info».

Note that the AutroSafe System must be loaded with the same configuration as the Loop Simulator Tool.

A previously loaded configuration may be loaded by accessing the history list, located in the [File] menu. The history list contains the ten most recently loaded configurations.

5.3 Supported Configurations

The Loop Simulator Tool supports almost any configuration, including configurations featuring spurs. The Loop Simulator Tool will detect, view and simulate the topology of any loop based upon the FACS binary configuration data files.

5.4 Choosing COM Port and Simulation Mode

Once a valid configuration has been loaded, the user will be asked to select the correct COM port and simulation mode of the Loop Simulator Tool. When running the Loop Simulator Tool in «View Only» mode, selection of COM port may be skipped.

The different modes are described in the next chapter.

5.4.1 Connection to AutroSafe

Connect the Loop Simulator Tool to an AutroSafe system unit using an XJA-028 cable (PC connection with 9-pins female plug).

The cable shall be connected between the selected COM port and the BSF-310 card located inside a BS-310/320 Fire Alarm Control Panel or a BC-320 Controller.

6. Simulation Modes

6.1 Introduction

Once the correct COM port is selected, simulation mode must be chosen. There are two valid modes available:

- ***Run Simulation*** - This mode simulates all loops found in the loaded configuration. Once this mode is selected, simulation is initiated and the simulator is ready to communicate with a AutroSafe system unit. At this time the system unit should be turned on. The Loop Simulator Tool requires the initialisation procedure to be run before any further action takes place.

- ***View Only*** - This mode disables all simulation and is provided in order to visualise and verify loaded configurations. *There is no communication with the AutroSafe system unit when running in this mode.*

6.2 Run Simulation Mode

Upon loading a valid configuration and selecting «Run Simulation», the simulator is ready to be initialised. The Loop Simulator Tool requires the initialisation procedure to be run in order to be fully operational.

Running the initialisation procedure will initiate the simulated loops as if they were real physical loops. As soon as the first unit is powered up, the Loop Simulator Tool shows current system state in various ways:

- Before initialisation, all loop units are visualised using only two colours (Black/White). As each loop unit receive a power on message, the associated icon will turn into colours. (i.e. B/W indicates no power, full colours indicates a powered unit.)
- The first two columns of the status bar shows the number of AL_Com messages transmitted to and from FACS.
- The third column of the status bar shows time elapsed since the first loop unit was powered on.
- In the forth column, the number of currently initiated loop units is shown.

- As the state of any loop unit is changed, the icon and unit description of that unit is changed in order to reflect the new state.

  Such changes includes:
  - Visualisation of unit detecting fire
  - Visualisation of FAD, FARE, FWRE & FPE status
  - Visualisation of unit disablements
  - Visualisation of current control condition on I/O modules

Please note that unless performing special system tests requiring such activity, the user should not perform any manual actions on the system unless initialisation procedure has been fully completed.

Once the initialisation procedure has completed, the Loop Simulator Tool is fully operational and ready to transmit/receive messages like real world AutroSafe loops / loop units.

6.3 View Only Mode

When running the simulator in the «View Only» mode, all simulation is disabled. This mode visualises binary configuration data. Each loop with it's loop units is visualised in order to verify that the topology and configuration are as expected.

It is not possible to issue commands or messages while running in this mode.

By clicking the left mouse button on any loop unit, detailed information of the clicked unit will be displayed in the right hand side information window. Note that the information shown is equal to the loop unit status prior to initialisation of the AutroSafe system.

7. Loop Units

7.1 Introduction

Clicking the left mouse button on any loop unit will display detailed unit information in the right hand side information window. The information may be changed during initialisation of the AutroSafe system.

By clicking the right mouse button on any loop unit, a popup menu is revealed. This menu contains a few general commands to be performed on the clicked unit. By selecting any menu item, the selected action is completed by transmission of the appropriate AL_Com message. Please note that some actions require further user input.

By doubleclicking any loop unit except units connected to a BSJ-310, a dialog box will be displayed. This dialog box controls the behaviour of each loop unit and lets the user enter inputs to the AutroSafe system.

7.2 Popup Menu

The menu is accessed by clicking the right mouse button on the desired loop unit and is used in order to simulate some general actions and events. Available commands at the popup menu are:

- ***Restart*** - Use this choice to restart the selected Loop Unit
- ***Send AL_Com Message*** - By using this feature, it is possible to send any user defined AL_Com message.
- ***Other Faults*** - This item contains a sub-menu listing possible faults of the selected Loop Unit. Selecting any fault from this list will issue the selected fault.

Please note that some of the popup menu items depends on the Loop Unit Type, and are thus not available through all units.

7.3 Condition Input Dialogs

A Condition Input Dialog is available for all loop units except units connected to a BSJ-310, and it is accessed by doubleclicking a loop unit. Using this dialog, the user can enter loop unit specific inputs to the AutroSafe system.

A Condition Input Dialog has one of two basic forms:

- ***A Close button only*** - Any input given to the dialog is immediately sent to the AutroSafe system.
- ***An Accept and a Cancel button*** – Any input given to the dialog must be accepted before it is sent to the AutroSafe system.

8. Logging

8.1 Introduction

The Loop Simulator Tool includes a logging feature. When enabled, the log is displayed at the bottom of the Loop Simulator Tool window.

The log is used to present all AL_Com transmissions along with other messages such as status reports and error messages.

For information on how to enable the log, please refer to the chapter describing the menus.

8.2 Logging AL_Com Messages

The format of these messages is as follows:

```
<-/-> xx : Directive_Name (ALCOM_MESSAGE)
```

- `<-/->` - Notes whether it is an incoming (`->`) or outgoing (`<-`) message
- `xx` – The Loop that is receiving or transmitting the message
- `Directive_Name` - The name of the transmitted/received directive
- `ALCOM_MESSAGE` - The actual message transmitted/received

Sample messages:

```
-> 01 : Restart Loop Driver (15 25 00 00 01 C4
)
<- 01 : Restart (01 2C 00 00 00 00 D8 01 E1 43
02 05 CE)
```

9. Reader's Comments

Please help us to improve the quality of our documentation by returning your comments on this manual:

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