

# System Description

**AutroMaster ISEMS - Integrated Safety and Emergency Management System**



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# 1. Introduction

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## 1.1 About this handbook

This handbook provides a system overview of the AutoMaster Integrated Safety and Emergency Management System (AutoMaster ISEMS).

## 1.2 The reader

This handbook is intended for consultants, sales personnel, potential customers and distributors.

## 1.3 Reference documentation

The AutoMaster ISEMS documentation consists of the following documents:

Document Name	Part number	File name
System Description	116-AMASTER-SYSTEM/XGB	amastersystem_xgb
Basic Configuration Handbook	116-AMASTER-BASICCONF/EGB	amasterbasicconf_egb
Advanced Configuration Handbook	116-AMASTER-ADVCONF/EGB	amasteradvconf_egb
Installation and Commissioning Handbook	116-AMASTER-INSTCOMM/IGB	amasterinstcomm_igb
Operator's Handbook	116-AMASTER-OPERATE/FGB	amasteroperate_fgb
Shortform User Guide	116-AMASTER-USERGUI/LGB	amasterusergui_lgb
AutoBrowser, Installation	116-AUTROBROWIN/DGB	autrobrowin_dgb
Datasheet: AutoMaster ISEMS	116-AMASTER-ISEMS/CGB	amasterisems_cgb

## 2. System Overview

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### 2.1 System Characteristics

**AutoMaster ISEMS** is an Integrated Safety and Emergency Management System which can be used together with the AutoSafe Interactive Fire Detection System and the BS-100 system.

The AutoMaster ISEMS has an intuitive control and monitoring interface, providing an easy-to-understand graphical presentation of the premises and events that may occur. Navigation is fast and instinctual, and the powerful zoom functions allow you to monitor all areas in great detail.



The system can be connected to a large number of fire-alarm panels of different types (such as operator, control or repeater panels) via a serial connection or an ethernet network.

AutoMaster ISEMS uses colour graphics for the display of system events (smoke/heat development, switching, placement, etc.), providing detailed information so that necessary actions can be taken. The system provides overviews of measured values for specific detectors, as well as status for the entire system using the built-in report generator; these provide cost-efficient documentation and maintenance logs.

Control of the alarmed area and its subsystems are unlimited; core features include: detector-group management for logical grouping of detectors; enablement/disablement of detectors and groups; control of programmable logic controllers; door control; control of low-location lighting, CCTV systems and emergency lighting.

AutoMaster ISEMS can be distributed on a synchronized network, ensuring information and control is available throughout the system. Duty control allows delegation of duty between networked systems.




## 2.2 Platform

AutoMaster uses Linux<sup>1</sup> as an operating system.

Computer platform	Operating system
PC	CentOS 5.11

AutoMaster functionality varies depending on which platform/operating system it is running on, and whether it is connected to AutoSafe or Saia PLC.

In this handbook, the following symbols are used to indicate information relating to a specific operating systems and/or types of fire detection systems:

Symbol	Comments
	The function is only available for AutoSafe panels connected to AutoMaster.
	The function is only available for Autoprime panels connected to AutoMaster.
	The function is only available for BS-100 panels connected to AutoMaster.

### Registered trademarks.

1) Linux is a registered trademark of Linus Torvalds.



## 2.3 AutoMaster Editions

AutoMaster ISEMS is the full AutoMaster edition, including all functionality. In addition, there are three editions; one for the oil & gas market, the maritime market, and the onshore market (see details in the overview below).

Functions/Modules	Oil & Gas	Maritime	Onshore	ISEMS
<b>Basic functionality</b>				
Fire management basic functions (AutoSafe, Autoprime 2.0.x or later, and BS-100 interface)	x	x	x	x
MultiSensor control	x	x	x	x
Report generator	x	x	x	x
Control and monitoring of emergency lights/LLL	x	x	x	x
<b>Extended functionality</b>				
AutoSafe IFG unit support	x	NA	NA	x
Dual Safety (AutoSafe 4.3 or later)	x	x	x	x
Touch screen support	x	x	x	x
Decision support system/incident manager				x
Electronic plotting table				x
Training/simulation module				x
Event record and replay module				x
Video module (live video support CCTV)	x			x
Remote connect function				x
Message center module				x
<b>Interfaces</b>				
Hernis CCTV interface				x
System-S interface				x
NMEA interface				x
VDR output		x		x
Modbus interface		x	x	x
ESPA 4.4.4 interface		x	x	x
Gessler				x
Saia PLC		x		x

## 2.4 Compatibility

### 2.4.1 AutoMaster/AutoMaster Compatibility Matrix

√ = full compatibility  
o = partial/backwards compatibility

Versions		Autromaster											
		3.1.1	3.3.0	4.0.0	4.1.0	4.1.1	4.1.2	4.1.3	4.2.0	4.3.0	4.3.1	4.3.3	
Autromaster	3.1.1	√											
	3.3.0		√										
	4.0.0			√									
	4.1.0				√								
	4.1.1					√							
	4.1.2						√						
	4.1.3							√					
	4.2.0								√				
	4.3.0									√			
	4.3.1										√		
	4.3.3											√	

### 2.4.2 AutoMaster/AutoSafe Compatibility Matrix

√ = full compatibility  
o = partial/backwards compatibility

Versions		Autrosafe												
		<= 3.4.0	3.4.1	3.5.0	3.5.2	3.6.0	3.7.0	3.8.0	4.1.1	4.3.1	4.4.1	4.5.0	4.6.0	4.7.0
Autromaster	3.1.1	√	√	√	√	√	√	o	o	o	o	o	o	o
	3.3.0	√	√											
	4.0.0		√	√	√	o	o	o	o	o	o	o	o	o
	4.1.0		√	√	√	o	o	o	o	o	o	o	o	o
	4.1.1		√	√	√	o	o	o	o	o	o	o	o	o
	4.1.2		√	√	√	o	o	o	o	o	o	o	o	o
	4.1.3		√	√	√	√	o	o	o	o	o	o	o	o
	4.2.0		√	√	√	√	√	√	√	o	o	o	o	o
	4.3.0		√	√	√	√	√	√	√	√	o	o	o	o
	4.3.1		√	√	√	√	√	√	√	√	√	√	o	o
	4.3.3		√	√	√	√	√	√	√	√	√	√	√	√

### 2.4.3 AutoMaster/Autoprime Compatibility Matrix

√ = full compatibility  
 o = partial/backwards compatibility

		AutoPrime		
		=>1.1.7	2.0	2.1
Autromaster	Versions			
	3.1.1			
	3.3.0			
	4.0.0			
	4.1.0			
	4.1.1			
	4.1.2			
	4.1.3			
	4.2.0			
	4.3.0		√	√
	4.3.1		√	√
4.3.3		√	√	

### 2.4.4 AutoMaster/ Linux Compatibility Matrix

		Red Hat			CentOS																		
		7.1	7.2	9	4.2	4.3	4.4	4.6	4.7	4.8	5.0	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.10	5.11	6.x	7.x	
Autromaster	Versions																						
	3.1.1	R																					
	3.3.0		R																				
	4.0.0			R																			
	4.1.0			R																			
	4.1.1			√	√	√	√	R	√	√													
	4.1.2			√	√	√	√	R	√	√													
	4.1.3			√	√	√	√	R	√	√													
	4.2.0				√	√	√	R	√	√	√	√	√	√	√	√	√	√	√	√	R		
	4.3.0										√	√	√	√	√	√	√	√	√	√	R		
	4.3.1										√	√	√	√	√	√	√	√	√	√	R		
4.3.3										√	√	√	√	√	√	√	√	√	√	R			

**R** = Recommended configuration  
 √ = Possible configuration  
 Older Linux versions (Red Hat v. 7.1., 7.2 and 9) do not support modern hardware/computers.

## 2.4.5 Compatibility with Peripheral Systems

AutroMaster ISEMS version 4.3.3 is compatible with the following systems:

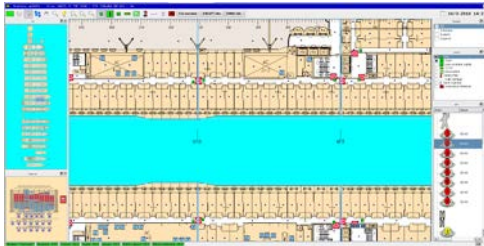
- BS-100 version 3.20
- Dardo2 panel
- DardoPlus panel
- VDR over NMEA 0183
- ESPA 4.4.4
- ESPA GSM
- Subset of ModBus RTU and ModBus TCP/IP
- Hennis CCTV
- System-S: RE-4 and RK-10
- Masterclock NMEA 0183, Mobaline IF 482 and the simple format HH:MM:SS
- GPS synchronization using NTP
- Gessler GV 1500 and Sibecontrol
- Saia PLC

## 2.4.6 Incompatibility with Earlier Versions of AutroMaster 5000

AutroMaster ISEMS version 4.3.0 is not compatible with any earlier versions of AutroMaster 5000.

## 3. The Presentation Window

### 3.1 Graphical Interfaces



AutoBrowser (introduced with AutoMaster ISEMS)



Standard graphical user interface

AutoMaster ISEMS provides the following two graphical interfaces:

- Standard graphical user interface (default)
- AutoBrowser (introduced with AutoMaster ISEMS)

The graphical interfaces comprise display views, menu handling, buttons, panes, navigation techniques, system operating techniques, the change of mimics, the selection of points (detectors, manual call points, etc.).

**NOTE:**

The display views, buttons, elements, mimics, colours and symbols used throughout this manual are configurable and based on examples. These may therefore not necessarily correspond to the actual ones used for a specific configuration.

The graphical interface, AutoBrowser, is used throughout this chapter, unless indicated otherwise.

### 3.2 Customizing the Layout

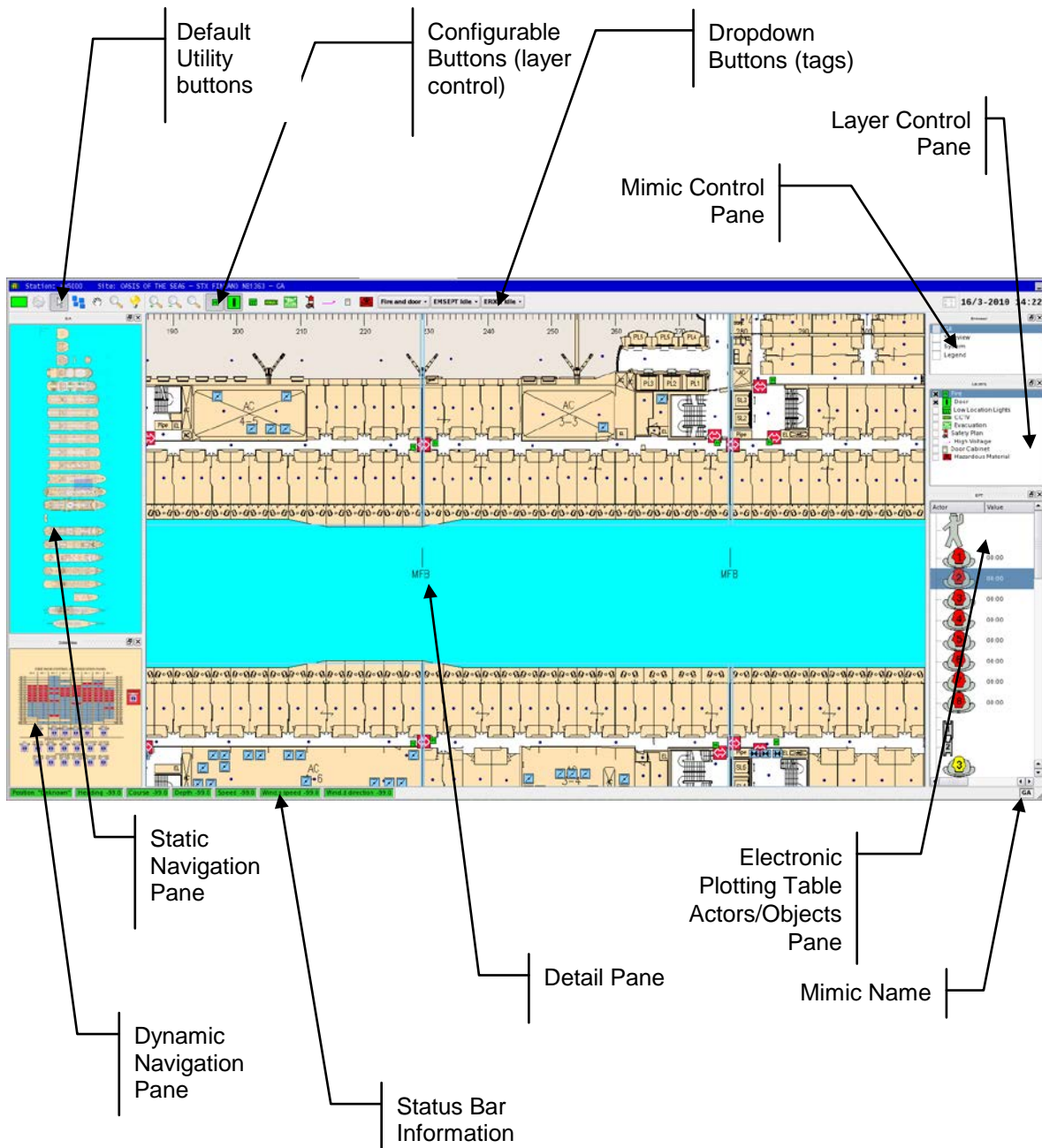
The layout can be customized in respect to:

- the position of each pane
- the size of each pane
- whether a pane is visible or hidden

Note that the Detail Pane (chapter 3.4) cannot be moved or resized.

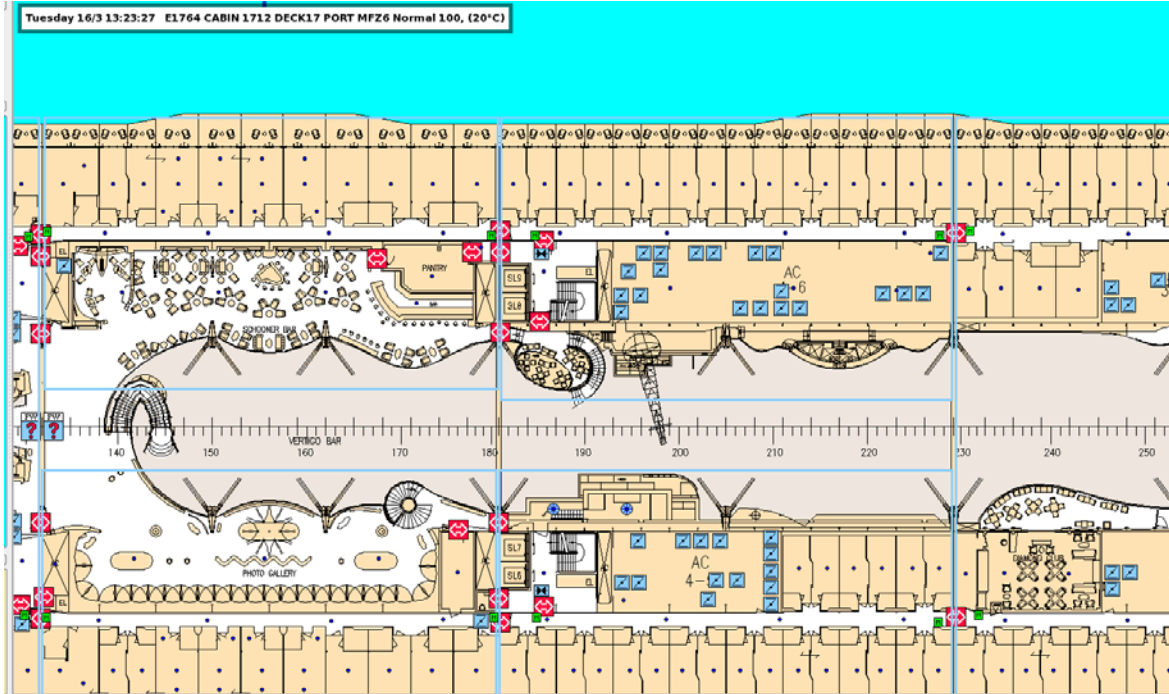
### 3.3 Elements in the Presentation Window

The different elements are described in the following chapters.



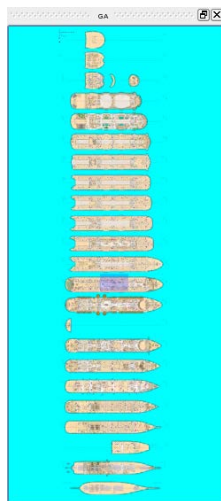
### 3.4 Detail Pane

The Detail Pane is the focused area, i.e. the area chosen in the Static Navigation Pane. It contains the customer-specific data and site mimic (normally maximized).



### 3.5 Static Navigation Pane

The Static Navigation Panel displays the entire mimic area and is always visible. A small movable navigation box inside the pane is used to choose a focused area in the Detail Pane. There can be one or several of these panes.



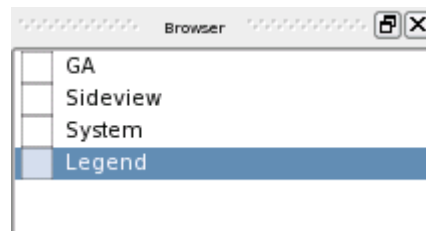
## 3.6 Dynamic Navigation Pane

The Dynamic Navigation Pane displays the mimic that is selected in the Mimic Control Pane.



## 3.7 Mimic Control Pane

The Mimic Control Pane (browser) shows all available mimics (both static and dynamic mimics).



The colour of a mimic box will change to a different colour if a fault, a prewarning or an alarm situation occurs;

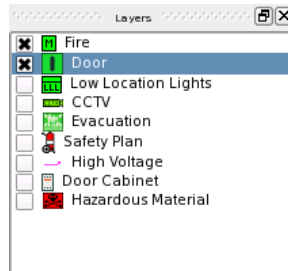
- fault: yellow
- prewarning: orange
- alarm: red

The box will also flash (accompanied by a audio signal) if a prewarning or an alarm situation occurs.



### 3.8 Layer Control Pane

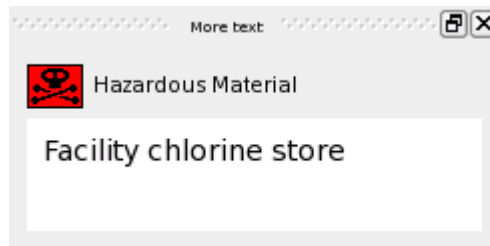
The Layer Control Pane shows the available layers (configurable). Each layer is also represented by a button (see Configurable Buttons).



### 3.9 More Text Pane

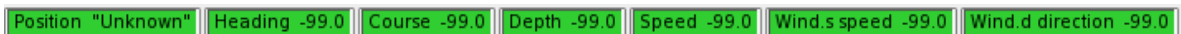
During configuration, additional text can be added to a tag, and each status of a tag can be given a unique text.

The More Text Pane displays additional information for a selected tag (if configured).



### 3.10 Status Bar (configurable)

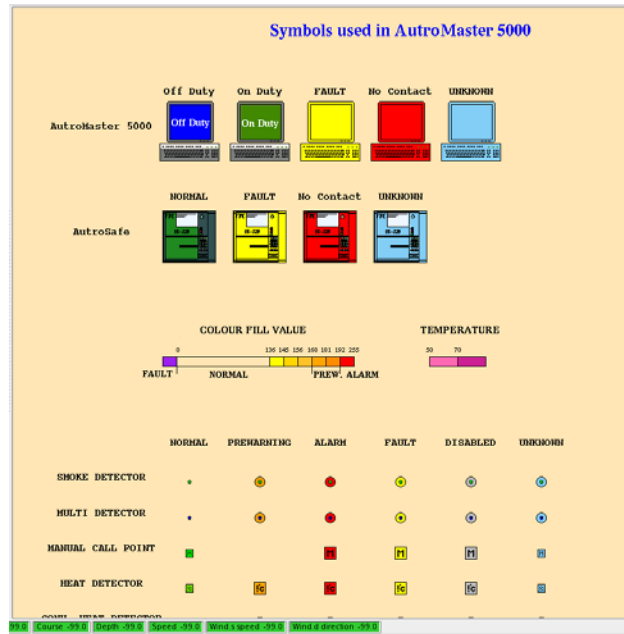
Tags can be displayed in the status bar, providing information on status and analogue values (for example, temperature 20°C).



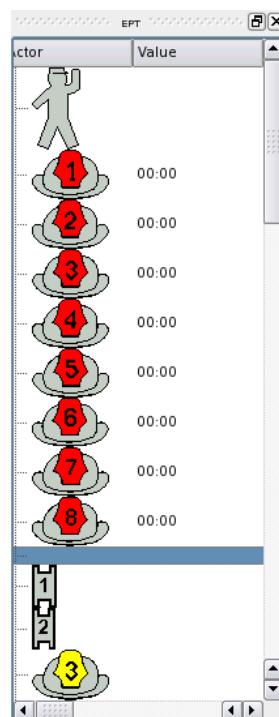
### 3.11 Symbols and Colours

AutoMaster ISEMS uses colour to indicate dynamic status; colours display important information about what is actually happening in the alarmed area.

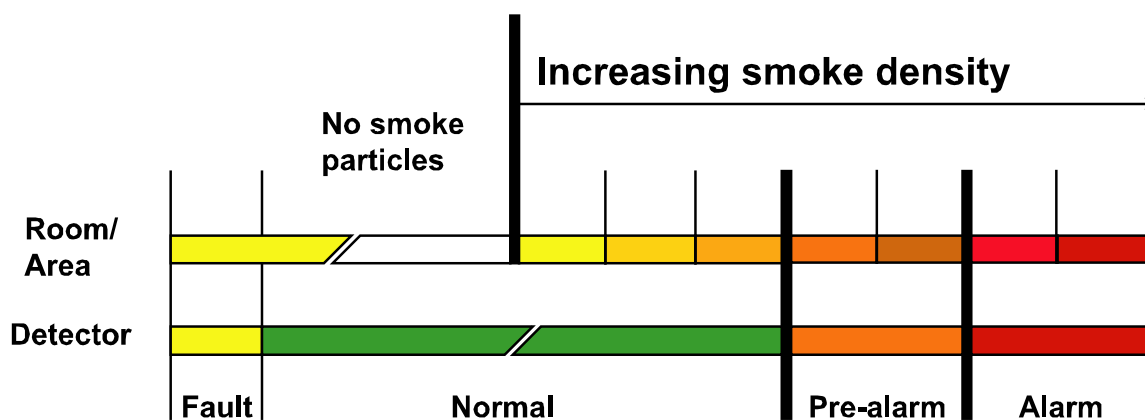
The following definition of the colours and symbols that are used in the system is always available to operators by clicking the symbol mimic in the Mimic Control Pane (in this example named Legend).



In the EPT Actors/Objects Pane, all preconfigured actors and objects used for the Electronic Plotting Table are displayed. Each actor/object has its own symbol.



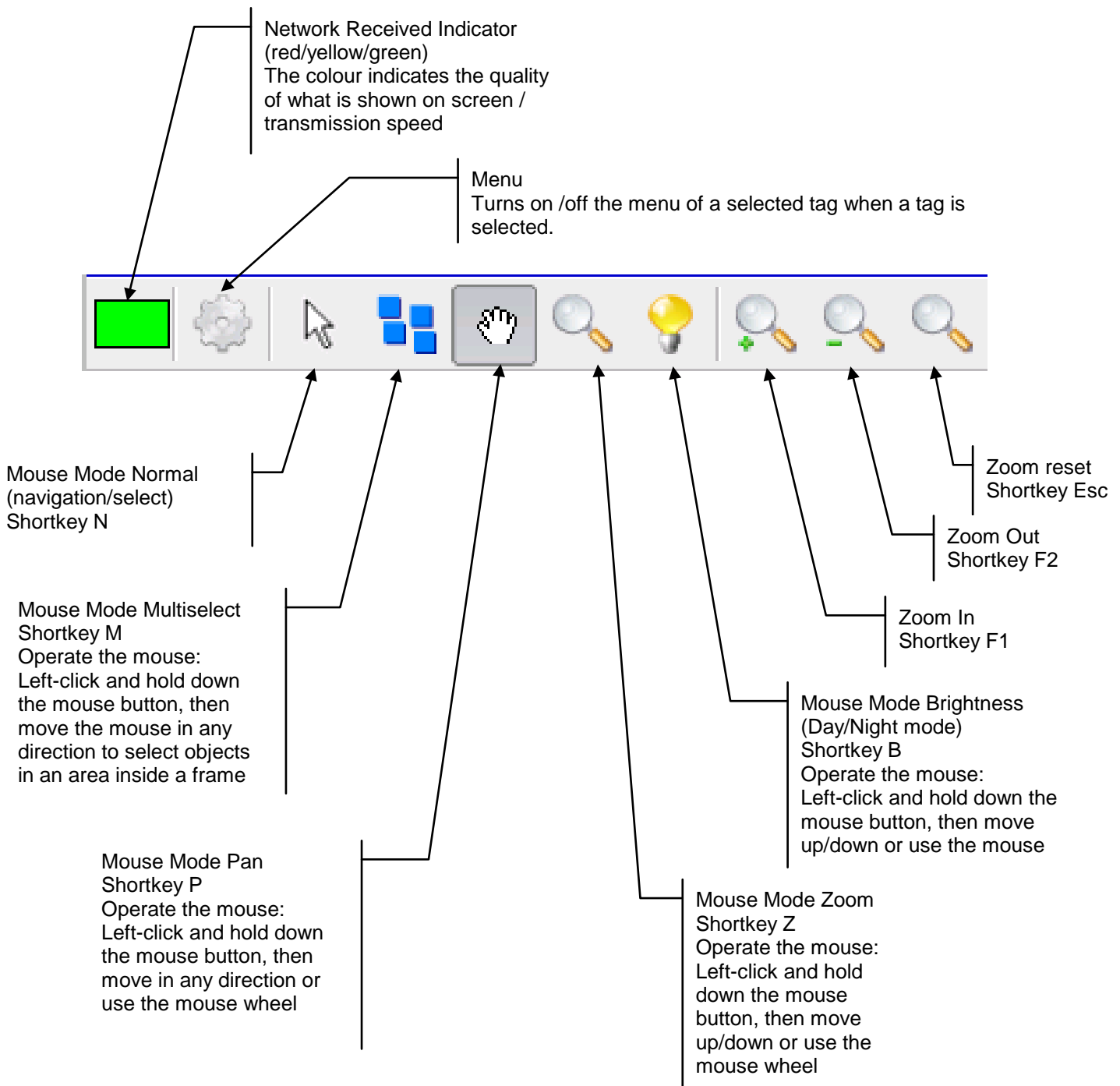
Colours are used in the following way in the event of an alarm situation:



## 3.12 Buttons

### 3.12.1 Default Utility Buttons

The overview below shows the default utility buttons.



### 3.12.2 Configurable Buttons

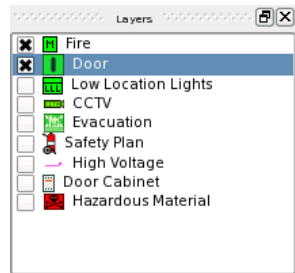
In addition to the default utility buttons, several configurable buttons can be added, for example, buttons used to turn on/off information layers (hide or make visible), buttons giving easy access to important tags in the system, etc.

The total number of configurable buttons depends on the complexity of the system.

The example below shows 9 buttons for layer control and 3 global command buttons with dropdown menus.

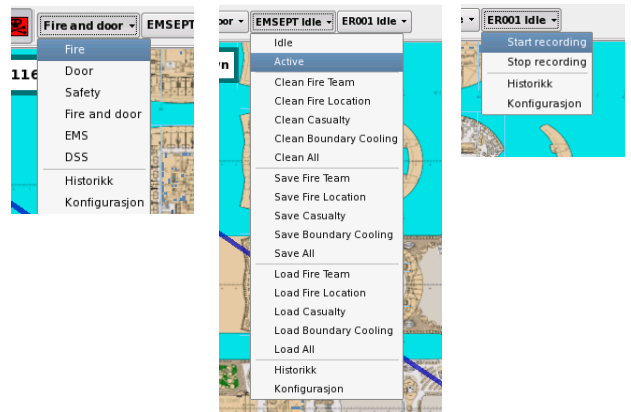


Layer Control Buttons used to hide a layer or make a layer visible  
The same layers are listed in the Layer Control Pane (shown below)



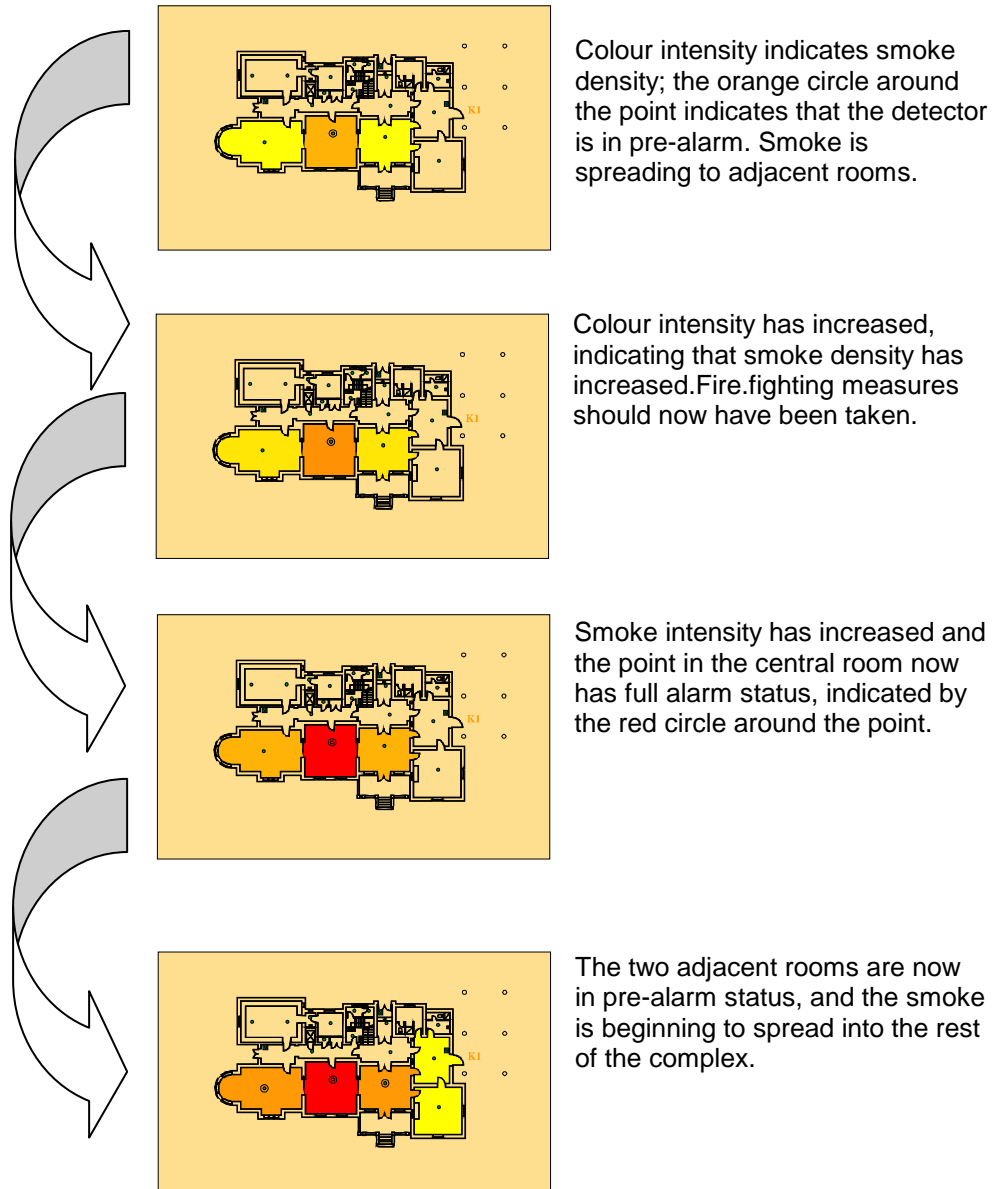
Global Command Buttons (examples) with dropdown menus.

The dropdown menus in this example are shown below.



### 3.13 Indication of Status and Development of an Incipient Fire

The example below (standard graphical user interface) shows how the development of a fire is indicated in the display; at the same time, AutoMaster ISEMS emits an alert sound, drawing the operator's attention to the display, allowing appropriate action to be taken.

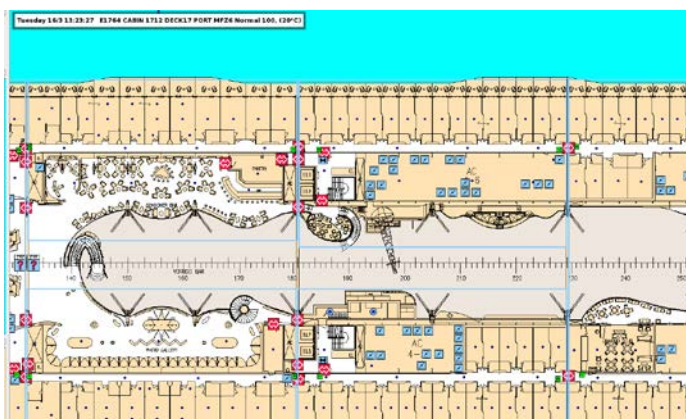


## 4. System Functions

### 4.1 Presentation of Secured/Alarmed Areas

**Description:** AutoMaster ISEMS provides a full-colour presentation of the secured/alarmed areas in the form of a custom-made map providing an instantaneous and up-to-date overview of relevant information from installed fire-safety equipment. It also provides control of fire-safety equipment and related installations

**Use:** AutoMaster ISEMS provides information about hazards/changes in the alarmed area on screen, ensuring that any abnormal occurrence is brought to the attention of the system operator



### 4.2 Control of Fire-Safety Equipment

**Description:** AutoMaster ISEMS supports a wide range of devices, including all AutoSafe panels and loop units, BS-100 fire-alarm systems, PLCs, Dardo emergency lighting and sprinkler systems etc.

**Use:** AutoMaster ISEMS allows operator to disable/enable system units, test Dardo emergency lightning, open/close fire doors, etc.

### 4.3 Security-Clearance Level and User Identification

**Description:** AutoMaster ISEMS can be configured to require user identification from the user before access is given to the different security-clearance levels

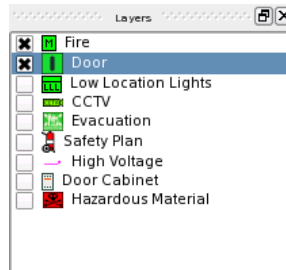
**Use:** Eliminates the possibility that non-authorized personnel can affect the system.

## 4.4 Information Layers

**Description:** AutoMaster ISEMS provides customer-specific information for the alarmed area. These layers can be toggled on/off in order to simplify overviews and present only necessary information at any given time

**Use:** Information layers allow operators to toggle information such as power/water supply networks, sprinkler systems and fire doors, etc., which may be relevant in an emergency

### Layer Control Pane



### Layer Control Buttons (configurable)





## 4.5 Change of Performance Class

Applies to AutoSafe only.

**Description:** AutoMaster ISEMS allows users to change the Performance Class of selected optical smoke and heat detectors and MultiSensors. If the detector in question is not manually restored within 24 hours, the detector will automatically return to its predefined Performance Class.

**Use:** one of three different *Performance Classes*, with sensitivity settings covering the following environments:

- clean environments, for example data rooms etc.
- normal environments (1 and 2), ship cabins etc.
- industrial environments, for example, machine rooms etc.

**Description:** AutoMaster ISEMS allows users to change the Performance Class of the BG-201 Flame Detector. If the detector is not manually restored within 24 hours, the detector will automatically return to its predefined Performance Class.

**Use:** The detector can be set to three different *Performance Classes* covering the following ranges:

Performance class	Range
Class 1	Up to 25 m
Class 2*	Up to 17 m
Class 3	Up to 12 m

## 4.6 Change of Operation Class

Applies to AutoSafe only.

**Description:** AutoMaster ISEMS allows users to change the Operation Class of selected MultiSensors. If the MultiSensor in question is not manually restored within 24 hours, it will automatically return to its predefined Operation Class.

**Use:** The MultiSensor can be set to one of the following Operation Classes:

- MultiSensor (optical detection with heat enhancement)
- Heat only (thermal detection only) - class A1
- MultiSensor with Heat (a combination of optical detection with heat enhancement *and* Heat class A1)

## 4.7 Activate LED on Detectors

Applies to AutoSafe and Autoprime

**Description:** AutoMaster ISEMS allows users to activate LEDs on selected detectors (applies only to detectors with LEDs, not Ex detectors).

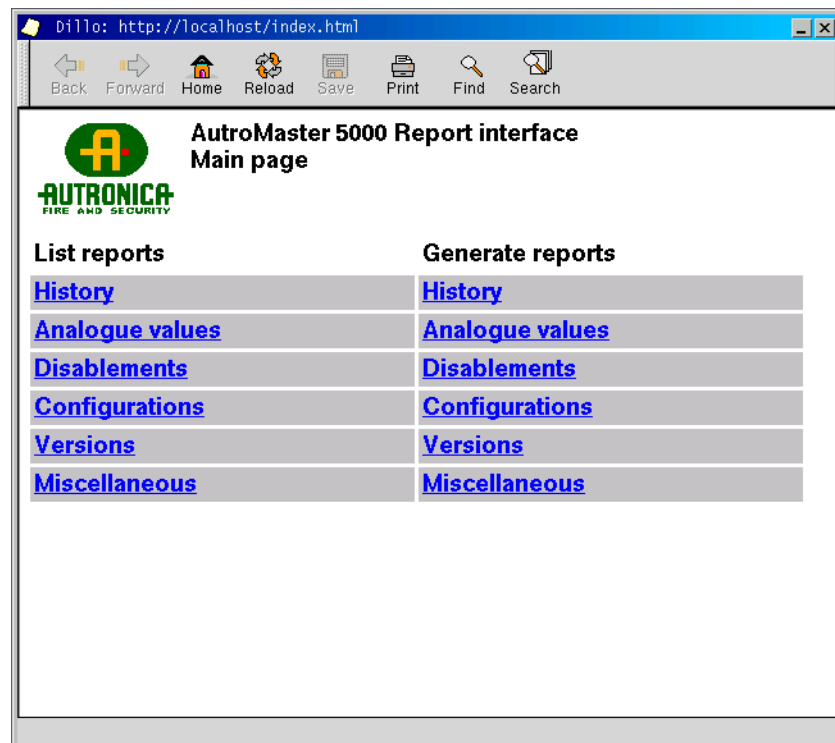
After activating a LED on a selected detector from the AutoMaster, the LED will automatically be turned off after 5 seconds (default value, configurable).

**Use:** By means of a tablet with AutoBrowser connected to the Wi-fi network, it is possible to ensure that each detector's position on the site specific drawings (General Arrangement Plan) corresponds to the actual physical location.

## 4.8 Report Generator

**Description:** AutoMaster ISEMS allows users to create reports and logs of various properties and information from the system

**Use:** Operators can create historical logs for the system and/or individual units between specified dates, analogue values read from detectors, disablement data, configuration data, configuration information and fault/alarm information. The report generator provides the operator with a simple method of creating a cost-effective system log for maintenance and documentation purposes



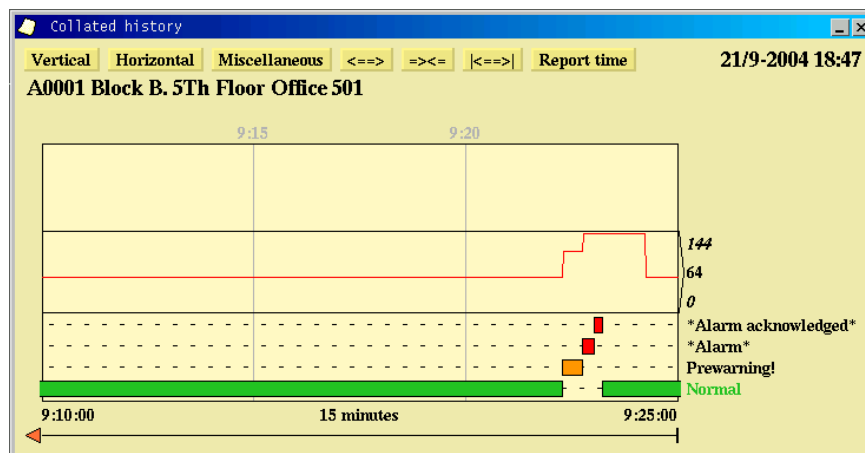
The following options are available for report creation:

- History  
Reports of events from the system and connected subsystems (alarms, faults, disablements, etc.) during specified periods of time
- Analogue Values  
Reports measured values from detectors
- Disablements  
Reports on all currently disabled groups or a given group
- Polluted detectors (AutroSafe only)
- SelfVerify report (AutroSafe only)
- Configurations  
Reports a comparison of the current configuration implemented in AutroMaster ISEMS with a backed-up configuration
- Versions  
Reports comparisons of the present configured options (symbols, functions, etc.) with backed-up configurations
- Micellaneous
- Generates a report without any parameters regarding alarms

## 4.9 History - System/Point

**Description:** AutoMaster ISEMS provides users with information about system units in terms of recorded values and events, showing development over time

**Use:** Helps to indicate problems and isolate faults/sources of (unwanted) alarms



Colour codes (the default colour codes are shown – other colours may be specified)

Status	Colour code
Normal	Green
Alarm	Red
Alarm acknowledge	Red
Disabled	Grey
Prewarning	Orange
Prewarning acknowledged	Orange
Fault	Yellow
Fault acknowledged	Yellow

The screenshot shows the history of detector A0001 in connection with an alarm situation. The horizontal axis is the time scale with a resolution (in this example) of 15 minutes.

- The history window contains one curve graph and three bar graphs.
- The curve graph represents the detector's analogue value (sensitivity).
- The green bar shows the normal statuses of the detector.
- The red bar shows the detector's alarm statuses.

## 4.10 Master-Slave Configuration

**Description:** AutoMaster ISEMS supports one master and up to 4 slaves that can be started up independently. In the event of a communication failure, the system will automatically try to re-establish communication; the communication failure will be reported on both master and slave

**Use:** Allows information and control to be disseminated throughout the alarmed area

## 4.11 Programmable Logic Controllers (PLC) Integration

**Description:** AutoMaster ISEMS can be used as a control system for programmable logic controllers

**Use:** Allows control of, for example, water-mist system flow-valves, process systems, fire doors, etc.

## 4.12 ESPA 4.4.4 Messaging

**Description:** AutoMaster ISEMS can, using the standard ESPA 4.4.4 protocol, automatically send messages to pagers

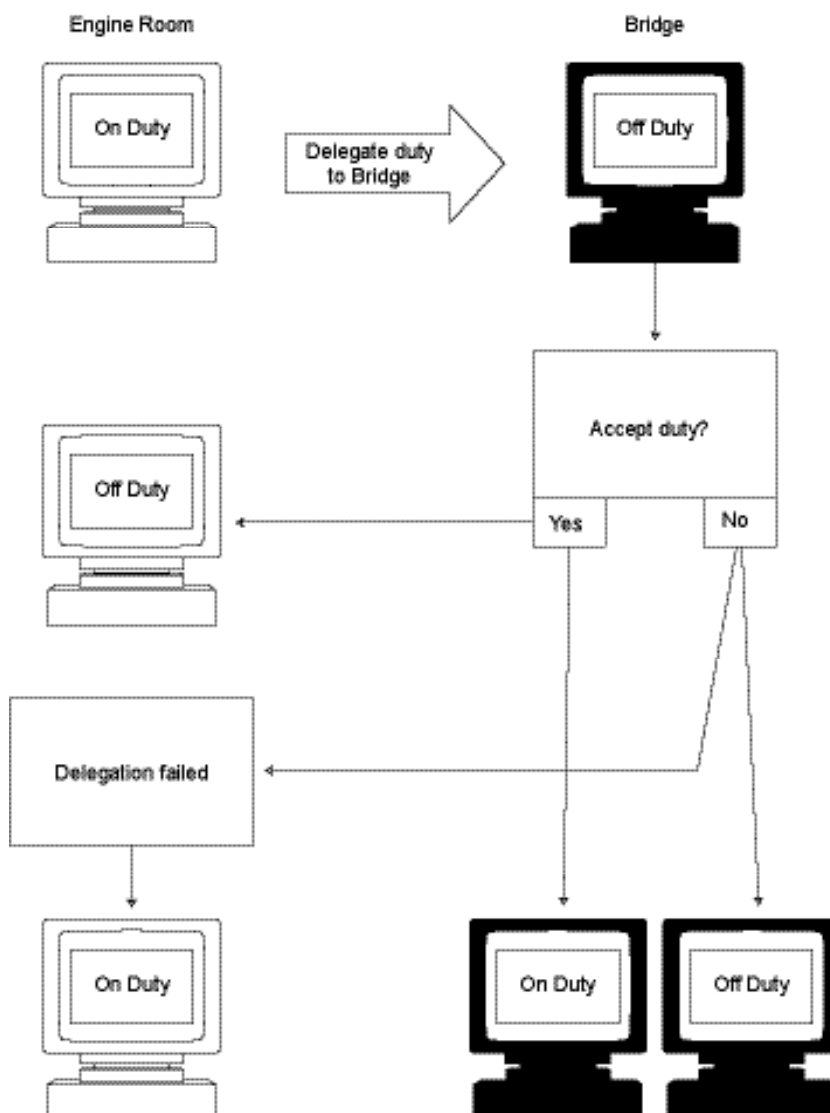
**Use:** AutoMaster ISEMS can be set up to automatically distribute alarm messages to pagers when predefined events occur in the system.

## 4.13 Duty Control

**Description:** AutoMaster ISEMS allows duty to be transferred between networked AutoMaster ISEMSs

**Use:** Allows users to delegate/accept/assume duty, allowing users to control the system from any given AutoMaster ISEMS, at the same time ensuring that the on-duty operator is at the controls

Transferring duty control between machine 1 and machine 2.



## 4.14 Watchdog

**Description:** If a fault appears on the system, a digital output is activated; if a serious fault is encountered, the watchdog raises an alarm

**Use:** Allows advanced failsafe warnings to be implemented, alerting safety operators to take necessary precautions

## 4.15 Fire-Patrol Supervisor

**Description:** The AutoMaster ISEMS Fire-patrol supervisor is a monitoring facility for fire patrols. To verify that all checkpoints are checked according to a pre-defined plan and time schedule, security officers must turn a key at pre-defined check-points. If unable to do so, a local alarm will be activated

**Use:** Ensures that fire-patrols are carried out according to schedule, and in the event of an incident, that this is checked out and logged



## 4.16 Network Monitoring – Simple Network Management Protocol (SNMP)

**Description:** Based on the the Simple Network Management Protocol (SNMP), AutoMaster provides a monitoring feature of the network and network-attached devices, including, Phoenix LM switches (Lean Managed switches) and their connections. The SNMP protocol is an "Internet-standard protocol for managing devices on IP networks".

**Use:** Ensures a constant monitoring of Phoenix LM switches (Lean Managed switches) and their connections.

## 4.17 Door Control

**Description:** AutoMaster ISEMS can monitor and control fire doors. Doors can be controlled automatically, automatically according to certain pre-configured events and manually

**Use:** AutoMaster ISEMS can be set up to control fire doors, water-tight doors, etc.

Fire doors can be configured in the following ways:

- Doors controlled by the system.  
The status of the door's position is indicated (open, closed, opening, closing); the user controls the state of the fire doors.
- Doors not controlled by the system.  
Only the status of the door's position is indicated (open, closed, opening, closing).
- Automated doors.  
Doors that operate automatically in reaction to pre-configured events. The status of the door's position is indicated (open, closed, opening, closing).

The number of inputs used in the configuration determines the amount of status information that can be shown.

## 4.18 Low-Location Lighting

**Description:** AutoMaster ISEMS can monitor and control low-level lighting for escape routes.

**Use:** In case of fires and evacuation, AutoMaster ISEMS can turn the low-location lighting for escape routes on. AutoMaster ISEMS also provides test and logging facilities for this equipment, allowing trouble-free maintenance and documentation

## 4.19 CCTV

**Description:** AutoMaster ISEMS supports control switching for external closed-circuit television systems, allowing users to remotely observe the alarmed area

**Use:** When a door won't close, or an alarm is raised in a given area, AutoMaster ISEMS can automatically set the CCTV system to show the problem areas, allowing the operator to assess the problem visually



## 4.20 Emergency Lighting - Gessler

**Description:** AutoMaster ISEMS supports the Gessler emergency lighting system, providing automatic monitoring and control of emergency lighting

**Use:** Connecting the system to AutoMaster ISEMS shows each luminaire as an icon in the mimic. AutoMaster ISEMS provides information on the luminaire status, and makes it easy to monitor the status of system components as well as manually test the system

Daily tests ensure that the system is always error-free.

- Makes maintenance easier
- Speeds up error detection
- Documents internal control routines
- Tests the system manually or automatically

A CAN Bus/Ethernet Converter must be installed in the Gessler panel to enable communication with the AutoMaster ISEMS workstation.

## 4.21 Display Dimming

**Description:** AutoMaster ISEMS supports display dimming for applications where light emissions are critical

**Use:** Ensures that low-light emissions areas are kept dark

## 4.22 Detector Group Management

**Description:** Detectors and other loop units may be grouped together so that a whole group can be controlled simultaneously instead of single detectors being controlled individually

**Use:** The operator can group system units logically, making it easy to, for example, disable all the detectors in one area

## 4.23 Disablement/Enablement of Detectors, Groups

**Description:** AutoMaster ISEMS allows users to disable/enable system units

**Use:** Allows the system to be switched so that it does not report unwanted alarms if activities that potentially cause these are going on. In the case of welding, for example, detectors in the relevant area can be disabled for the duration of the work (manually or as part of a scheduled disablement for a given period of time).

**Important:** Security clearance 2 (Operate) is necessary to disable/enable detectors.

Point types that can be disabled:

System	Points which can be disabled
BS100	Detectors
AutoSafe	Detectors, Detector Zones, Loop Sounders, Alarm bell outputs, Output Controls, Alarm and Fault Output, Loops

## 4.24 Voyage Data Recorder (VDR) Output

**Description:** AutoMaster ISEMS can send data to VDRs

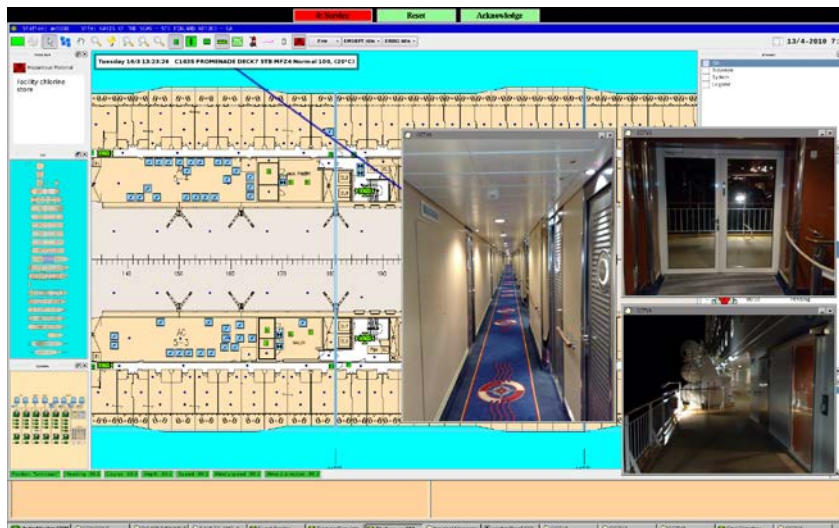
**Use:** Allows fire-alarm system events to be recorded

## 4.25 Live Video Support

**Description:** AutoMaster ISEMS features live video support. Requires CentOS 5 and more recent versions.

**Use:** Live video from an external CCTV system can be shown on the AutoMaster monitor (configurable)

Live video for the selected CCTV camera will be shown on the screen.

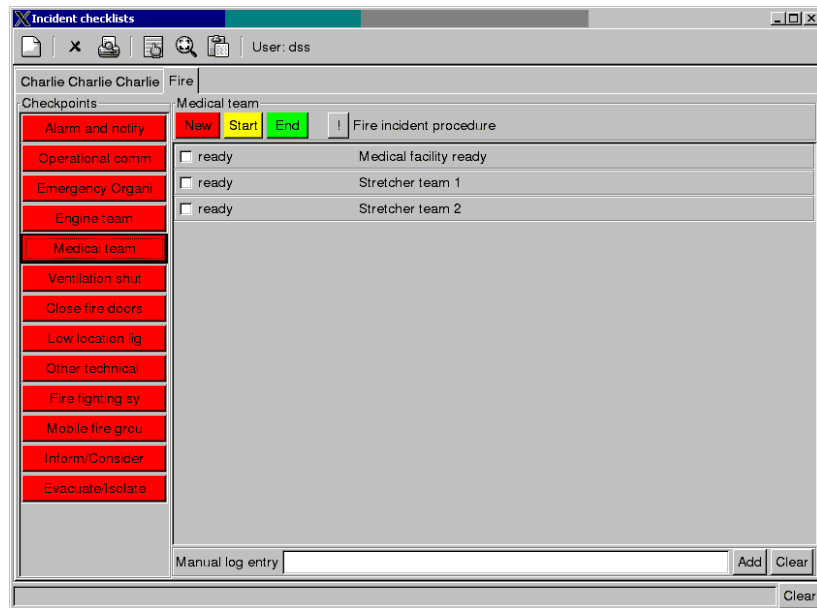


## 4.26 Decision Support System

**Description:** AutoMaster ISEMS provides a decision support system for Cruise vessels

**Use:** The incident manager gives operators access to customer-specified checklists. The checklists are organized as checkpoints with one or more action items that can be used to manage operations, and these can be marked off as actions are completed. When an incident is closed, the integrated report generator will generate a report of how the incident was resolved.

The figure below shows the incident manager when an incident is active.



## 4.27 Electronic Plotting Table

**Description:** AutoMaster ISEMS features an Electronic Plotting Table (EPT).

**Use:** In addition to showing an overview and the location of fire zones, extinguishing equipment and special areas within the Detail Pane, the Electronic Plotting Table allows you to:

- add, move and remove graphical objects in the mimic to indicate safety incidents
- add, move and remove graphical objects in the mimic to indicate location and status of damage control teams, OOW, fire-fighting teams smoke-divers and other actors
- connect timers to actors/objects plotted in the EPT to monitor time in the mimic, for example, for smoke-divers to monitor time on air
- add, move and remove graphical objects in the mimic to indicate known damage data and location
- add, move and remove graphical objects in the mimic to indicate persons requiring assistance, hazardous materials, etc.
- handle up to three incidents at a time

All EPT activity will be logged using the Decision Support System's Incident Manager.

The EPT Actors and Objects Pane (example below) displays all available symbols.

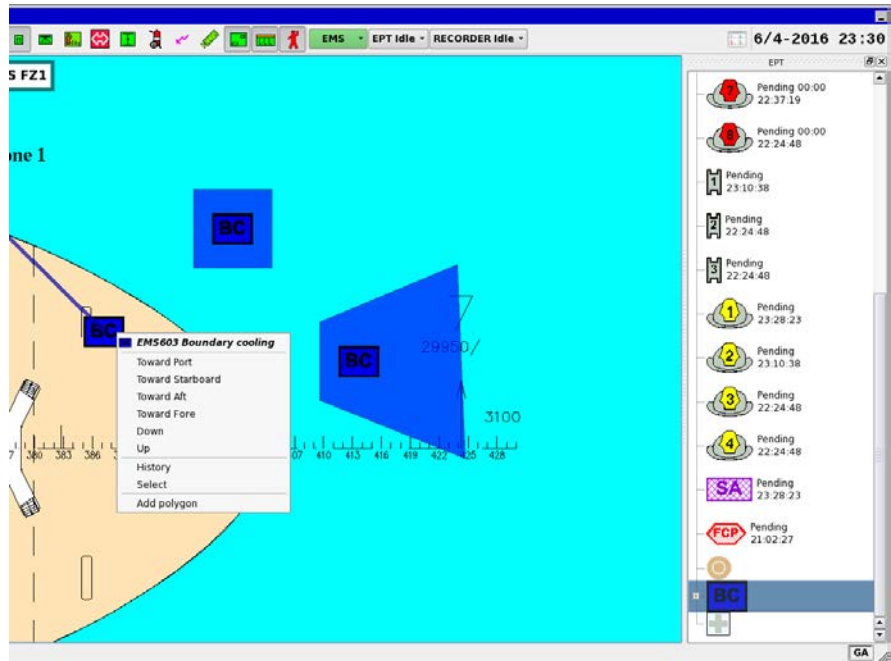
Actor	Value	State	Position	Time
		Pending		Tuesday 16/9 16:08:22
	00:00	Pending		Tuesday 16/9 14:08:53
	00:00	Pending		Tuesday 16/9 14:11:40
	00:00	Pending		Tuesday 16/9 13:19:53
	00:00	Pending		Tuesday 16/9 13:19:53
	00:00	Pending		Tuesday 16/9 13:19:53
	00:00	Pending		Tuesday 16/9 13:19:53
	00:00	Pending		Tuesday 16/9 13:19:53
	00:00	Pending		Tuesday 16/9 13:19:53
	00:00	Pending		Tuesday 16/9 13:19:53
	00:00	Pending		Tuesday 16/9 13:19:53
	00:00	Pending		Tuesday 16/9 13:19:53
		Pending		Tuesday 16/9 13:19:53
		Pending		Tuesday 16/9 13:19:53
		Pending		Tuesday 16/9 13:19:53
		Pending		Tuesday 16/9 13:19:53
		Pending		Tuesday 16/9 14:09:16
		Pending		Tuesday 16/9 13:19:53
		Pending		Tuesday 16/9 13:19:53
		Pending		Tuesday 16/9 13:19:53
		Pending		Tuesday 16/9 13:19:53
		Pending		Tuesday 16/9 13:19:53
		Pending		Tuesday 16/9 13:19:53
		Inactive		Tuesday 16/9 13:19:53
		Inactive		Tuesday 16/9 13:19:53
		Inactive		Tuesday 16/9 13:19:53
		Inactive		Tuesday 16/9 13:19:53
		Inactive		Tuesday 16/9 13:19:53

## 4.28 Electronic Plotting Table - Polygons

**Description:** In the Electronic Plotting Table, polygons can be added to symbols/graphical objects that are dragged and dropped in the Detail Pane.

**Use:** To more exactly pinpoint the location of a symbol and show the approximate area the symbol covers, a symbol can be resized and shaped by adding a polygon to the symbol.

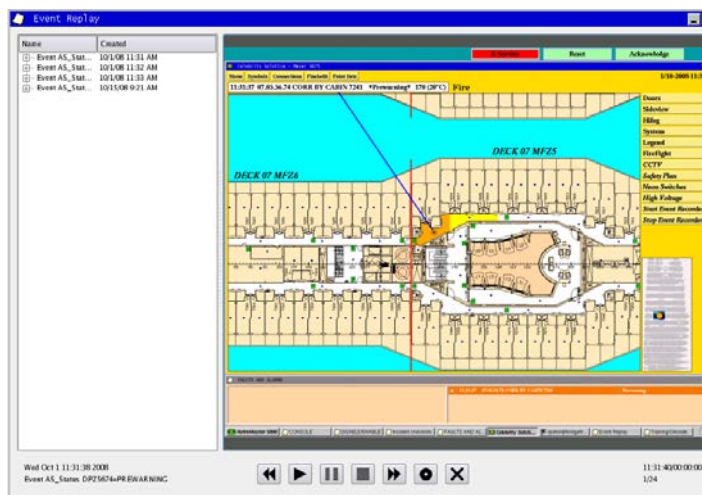
The screenshot below shows a Boundary Cooling symbol dropped into the Detail Pane. It shows the symbol before a polygon has been added (leftmost), after a polygon has been added and after the polygon has been resized (to the right).



## 4.29 Event Recording and Replay

**Description:** AutoMaster ISEMS features Event Recording and Replay.

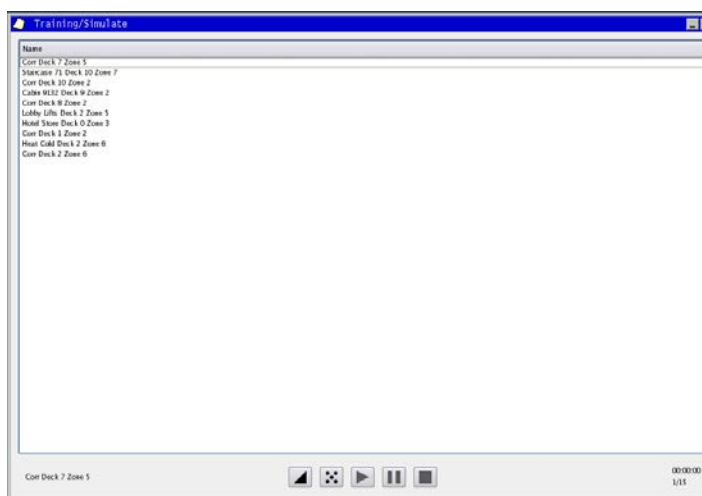
**Use:** Offers a screenshot-based record and replay of incidents on AutoMaster. The module can be configured to automatically start recordings on pre-configured events, or manually by means of the Event Recorder button. Recordings are available for replay, and during replay the operator can start, stop, pause, or replay fast forward and fast backward.



## 4.30 Training and Simulation

**Description:** AutoMaster ISEMS features a Training and Simulation Module.

**Use:** With a graphical tool accessible from the menu, an operator is able to simulate (manual or randomly selected) pre-configured scenarios that could take place on the AutoMaster. During simulation, the operator can observe incidents on the screen, and manage them as if they were real incidents.



## 4.31 Remote Monitoring and Limited Control with AutoBrowser

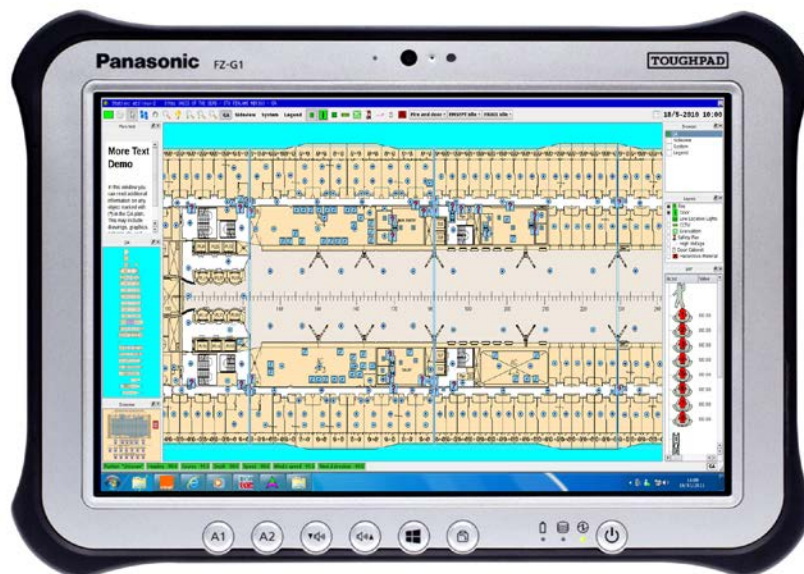
**Description:** AutoMaster ISEMS allows remote monitoring and limited control of the site using a portable tablet/laptop/PC with AutoBrowser.

**Use:** In addition to being able to remotely monitor the site, technical personnel can be given limited control of functions. The extent of control with AutoBrowser depends on whether AutoMaster is configured with password restrictions or not.

If AutoMaster is configured with password restrictions, only remote monitoring is possible.

If AutoMaster is not configured with password restrictions, limited control of functions is possible in addition to monitoring. However, the control is limited and does not include the following:

- Configuration (not possible)
- Change disablement time for detectors, zones and other units (not possible). Only the default disablement time (2 hours) is supported.
- Disable/enable predefined groups (not possible)
- Open history window (not possible)



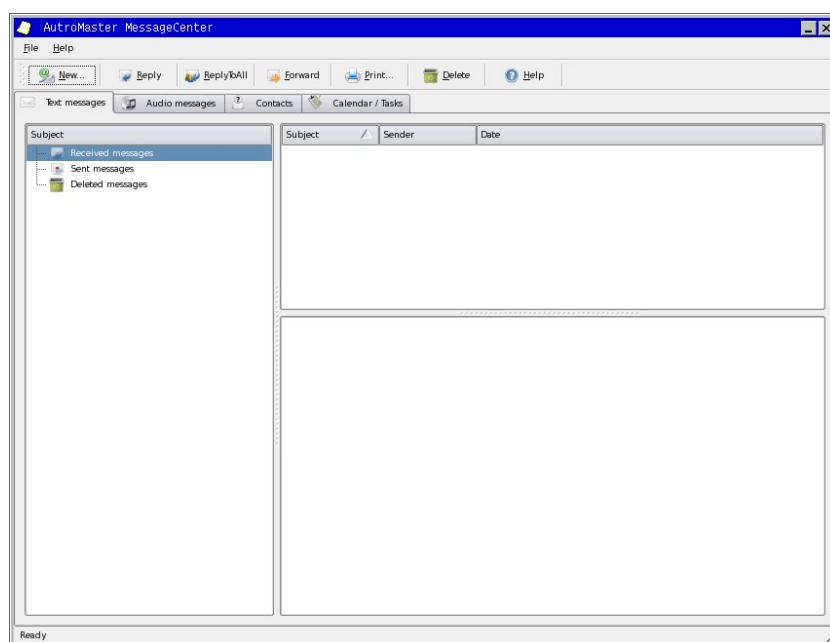


## 4.32 Message Center

**Description:** AutoMaster ISEMS features a Message Center.

**Use:** The Message Center module provides the following:

- Audio messages
- Text messages
- Contacts
- Calendar / Tasks



## 4.33 Time Synchronization

**Description:** AutoMaster ISEMS can synchronize its clock to a master clock. In a network configuration, one AutoMaster ISEMS must be defined as master clock, allowing the remaining AutoMaster ISEMSs to synchronize to this system. This is an important function for system logging

**Use:** Allows AutoMaster ISEMSs in a network to operate with synchronized clocks, which provides synchronized logging and display across all AutoMaster ISEMSs

## 4.34 Multi-Language Support

**Description:** AutoMaster ISEMS is available in the following languages: Dutch, Danish, English, Finnish, Norwegian, Portuguese, Spanish and Swedish

**Use:** Allows operators to use their own language, speeding up learning curves and response in emergencies



## 4.35 Backup Tools

**Description:** AutoMaster ISEMS includes functions for creating, restoring and comparing backups of all mimics, information, configuration and texts to floppy disk, USB memory stick and tape

**Use:** Provides security and comparison functions for customer-specific parameters, for example if changes are made in the display system, or if system equipment is added

## 4.36 Software Upgrade Tool

**Description:** AutoMaster ISEMS includes a tool for upgrading the AutoMaster ISEMS software from a USB memory stick.

**Use:** Makes it easy for users to upgrade AutoMaster ISEMS

## 4.37 Touch Screen Functionality

**Description:** AutoMaster ISEMS supports touchscreen functionality.

**Use:** Requires the use of touchscreen monitors. Instead of using the mouse, it is possible to interact what is displayed within the area of the screen directly by using a finger.

# 5. AutoSafe Dual Safety Concept

## 5.1 Overview

AutoSafe version 4.3 and more recent versions feature the AutoSafe Dual Safety concept. An AutoSafe system using the Dual Safety concept consists of a Primary System and a Secondary System. The purpose of the concept is to ensure that the Secondary System takes over the control of the detection loops if the Primary System is lost for any reason.

To achieve a complete graphical overview and control of the total system, AutoMaster ISEMS can be used as a top-level system, connected to both the Primary and the Secondary System via AutoCom.

The following definitions apply:

- Primary System: The AutoSafe system that is designed to be in Active mode during normal operation.
- Secondary System: The AutoSafe system that is designed to be in Standby mode during normal operation.
- Active Mode: The AutoSafe system is in Active Mode when it control the detection loops.
- Standby Mode: The AutoSafe system is in Standby Mode when it is ready to take over the control of the detection loops if the system in Active Mode fails.

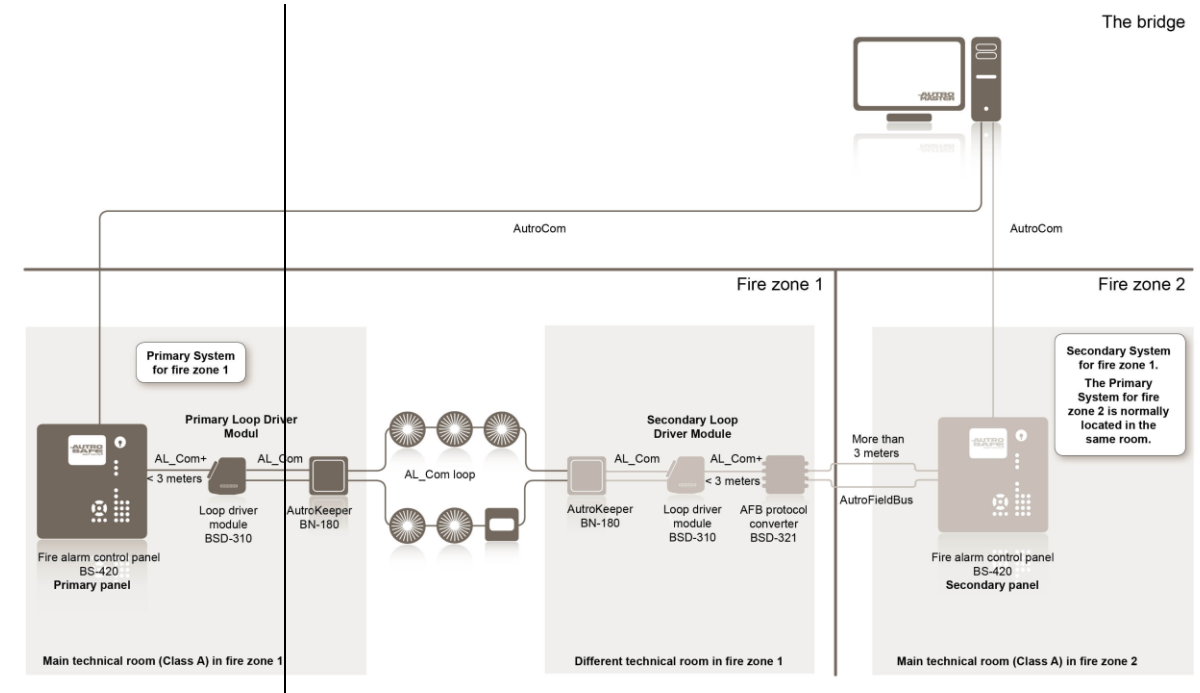
## 5.2 Example

The figure on the next page illustrates an example of the system concept on a vessel where a Primary System and a Secondary System share a detection loop.

The detection loop covers an area of Fire Zone 1, and all equipment in the Primary System plus the Loop Drivers in the Secondary System are located in this fire zone.

The panels in the Secondary System are located in Fire Zone 2. Only the AutoFieldBus crosses the boundary between the fire zones. The AutoFieldBus Protocol Converter BSD-321 is used to connect the Loop Drivers in the Primary System to the Secondary System. The AutoKeeper BN-180 monitors the detection loop and switches the loop control from the Primary to the Secondary System in case of a fault.

An AutoMaster (top-level Integrated Safety and Emergency Management System) is located on the bridge, and communicates with both the Primary and Secondary System via AutoCom. The AutoMaster operator has a complete graphical view of the entire system, and can easily see which system is in Active or Standby mode during normal operation (see definitions). If necessary, the operator can manually transfer the control of detection loops from the Primary to the Secondary System, and vice versa (Give Control/Take Control).



# 6. AutroMaster ISEMS as an Integral Part of AutoSafe 3

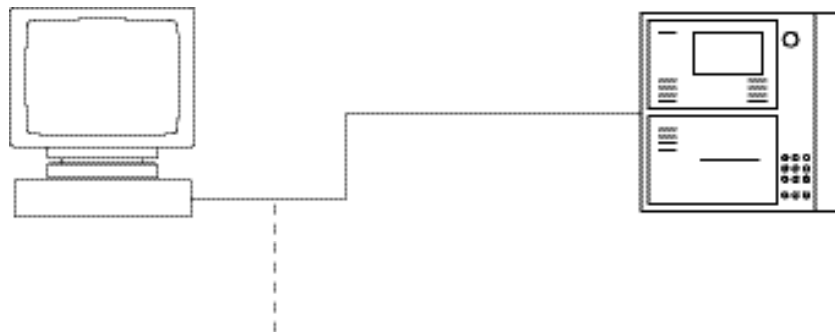
## 6.1 Overview



The AutroMaster ISEMS Presentation System forms an integral part of the AutoSafe 3 Interactive Fire Detection System, providing control of fire-management and related systems.

## 6.2 Connection to Standalone Panel or an AUTROLON Ring

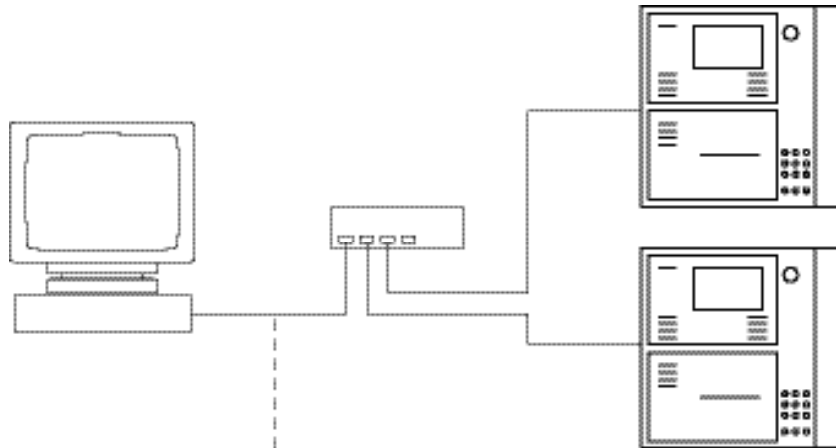
A twisted pair (cat 5 or better) cable is used to connect the network card in the PC to the network board (EAU-330/2) in the panel. Note that the twisted-pair cable is a cross-over cable and not a direct patch cable.



## 6.3 Applications in Larger AutoSafe Systems

In applications with several AUTROLON Rings, AutoMaster ISEMS is used as the top level system. AutoMaster ISEMS enables two-way communication with both AUTROLON rings, and monitors the entire system. It is possible to operate the whole fire-alarm system from one or several work stations, depending on the system configuration.

To communicate with 2 or more AutoSafe rings, a network HUB must be used. A hub can also be used to amplify the signals in order to extend the range of the communication cable.



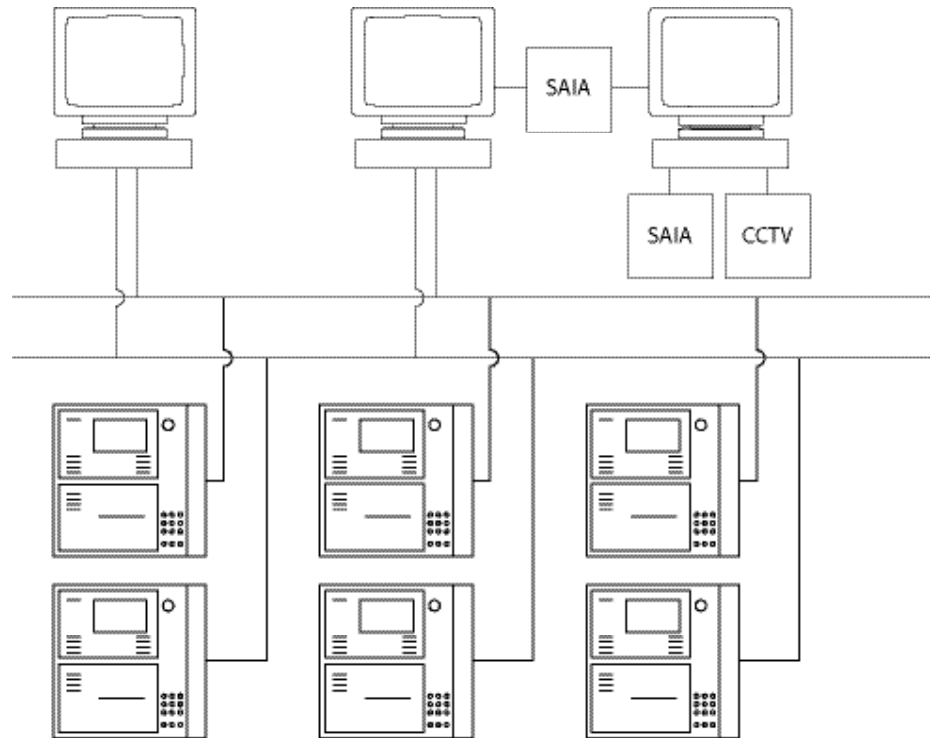
A high-level bus based ethernet, *LAN*, can be used between the different work stations in the AutoMaster ISEMS system. The AUTROLON is connected to the workstations. The operator panels can be installed in different buildings, operation zones, etc.

**NOTE:**

AutoMaster ISEMS cannot communicate through AUTROLON. The connection from the panels on each AUTROLON ring is made via twisted-pair or fibre-optic cables and a HUB.

### 6.3.1 Dual Ethernet Configuration

In applications where regulations require that fire-safety systems are split into independent zones, *AutroMaster ISEMS* supports dual ethernet connections, allowing these highly complex systems to be presented via *AutroMaster ISEMS*.



# 7. AutroMaster ISEMS as an Integral Part of AutroSafe 4

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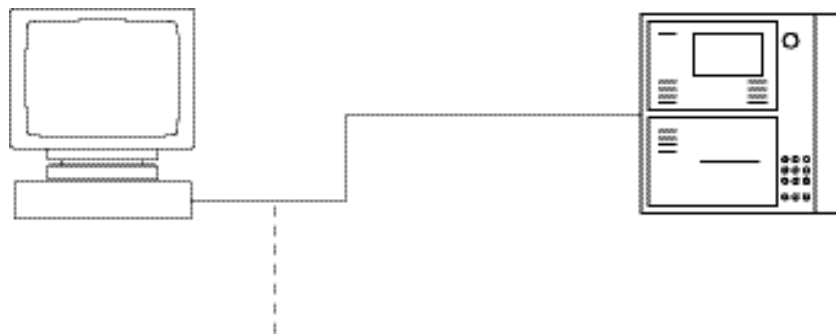
## 7.1 Overview



The AutroMaster ISEMS Presentation System forms an integral part of the AutroSafe 4 Interactive Fire Detection System, providing control of fire-management and related systems.

## 7.2 Connection to a Standalone Panel

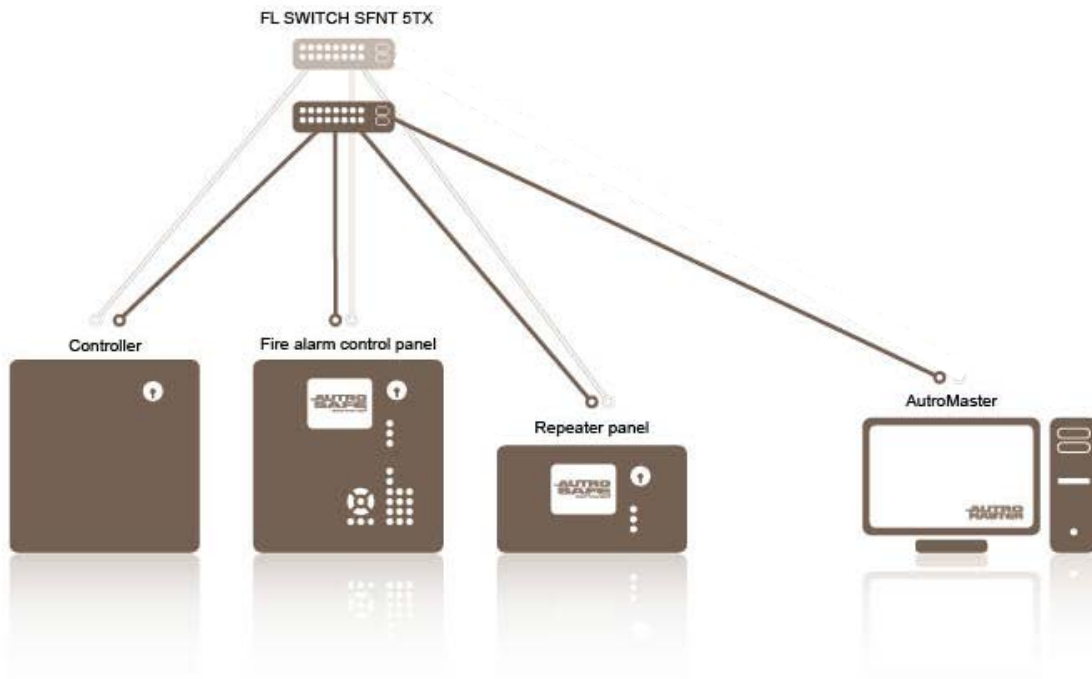
A twisted pair (cat 5 or better) cable is used to connect the network card in the PC to the panel. Note that the twisted-pair cable is a cross-over cable and not a direct patch cable.



## 7.3 Applications with Several AutoSafe Systems

In applications with several AutoSafe systems, AutoMaster ISEMS is used as the top level system. AutoMaster ISEMS enables two-way communication with both systems, and monitors the entire system. It is possible to operate the whole fire-alarm system from one or several work stations, depending on the system configuration.

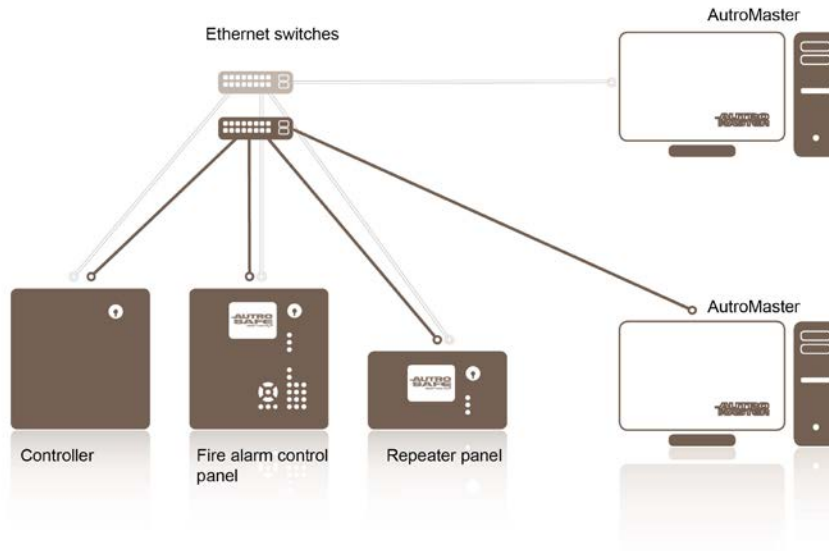
All AutoSafe 4 panels within a system are linked together using an internal Ethernet network. The AutoSafe 4 system uses the same network to communicate with AutoMaster ISEMS (Integrated Safety and Emergency Management System).





### 7.3.1 Dual Ethernet Configuration

In applications where regulations require that fire-safety systems are split into independent zones, *AutroMaster ISEMS* supports dual ethernet connections, allowing these highly complex systems to be presented via *AutroMaster ISEMS*.



## 8. AutroMaster ISEMS as an Integral Part of Autroprime

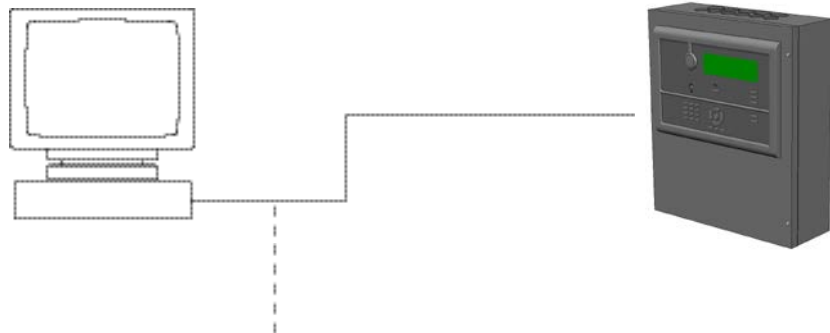
### 8.1 Overview



The AutroMaster ISEMS Presentation System forms an integral part of the Autroprime Interactive Fire Detection System, providing control of fire-management and related systems.

### 8.2 Connection to a Standalone Panel

A twisted pair (cat 5 or better) cable is used to connect the network card in the PC to the panel. Note that the twisted-pair cable is a cross-over cable and not a direct patch cable.



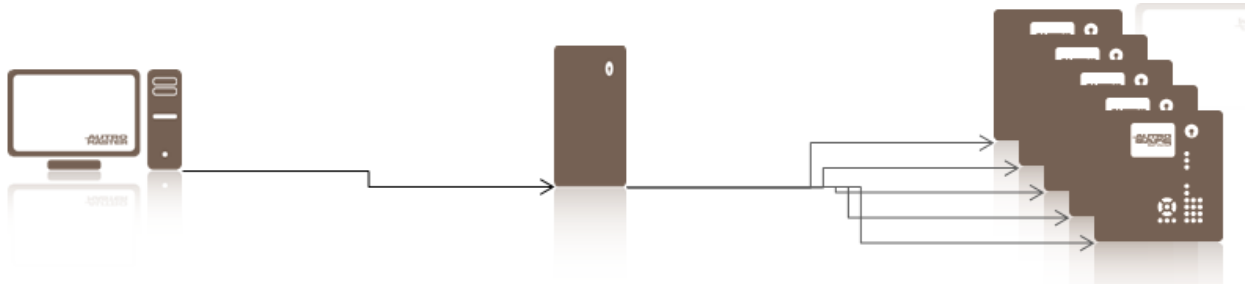
## 8.3 Autoprime as a TCP/IP Network Node

### 8.3.1 Communication with AutoMaster ISEMS

Autoprime can be configured to act as a TCP/IP network node, allowing Autoprime to communicate with an AutoMaster Integrated Safety and Emergency Management System.

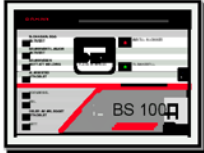
Autoprime can be configured to both receive information from and transmit information to AutoMaster ISEMS.

The figure below shows AutoMaster connected to a Proxy server and several Autoprime systems.



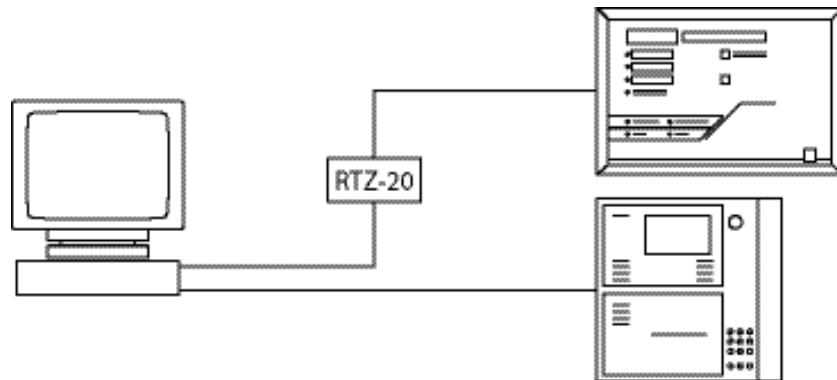
# 9. AutroMaster ISEMS as an Integral Part of BS100

## 9.1 Overview



The AutroMaster ISEMS presentation system forms an integral part of the BS-100 DYFI analogue-addressable fire-alarm system, providing control of fire-management and related systems.

## 9.2 System Diagram



Autronica is a leading innovator, manufacturer and supplier of fire safety equipment. Our products ensure safety in applications on land and sea worldwide. The company is owned by United Technologies Corporation (UTC) and employs more than 380 people with great skill and experience in the developing, manufacturing and marketing of fire safety equipment. Autronica Fire and Security AS is an international company based in Trondheim, a dynamic city known as the technological hotspot of Norway.

Protecting life, environment and property

Autronica Fire and Security AS

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