Manual

Consilium

Salwico Cargo Conventional

Fire Detection System

User Guide

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1 Introduction

1.1 About this Manual

This User Guide is intended for personnel using the Fire detection system and provides basic understanding how to operate the system.

NOTE!
This user guide has been revised based on system version 1.9.00 but is valid for Control panel software versions beginning with version 1.0.0.

The chapter Fire Detection System gives general information about the system.

The chapter Control Panels describes the function of the Control panel and the Repeater in the Fire detection system.

The chapter Operations describes how to operate the Fire detection system.

The chapter Testing provides brief instructions on how to connect and test the system (detailed information is found in the Service & Maintenance manual).

The Fault Code List in the Appendix lists the different fault codes.

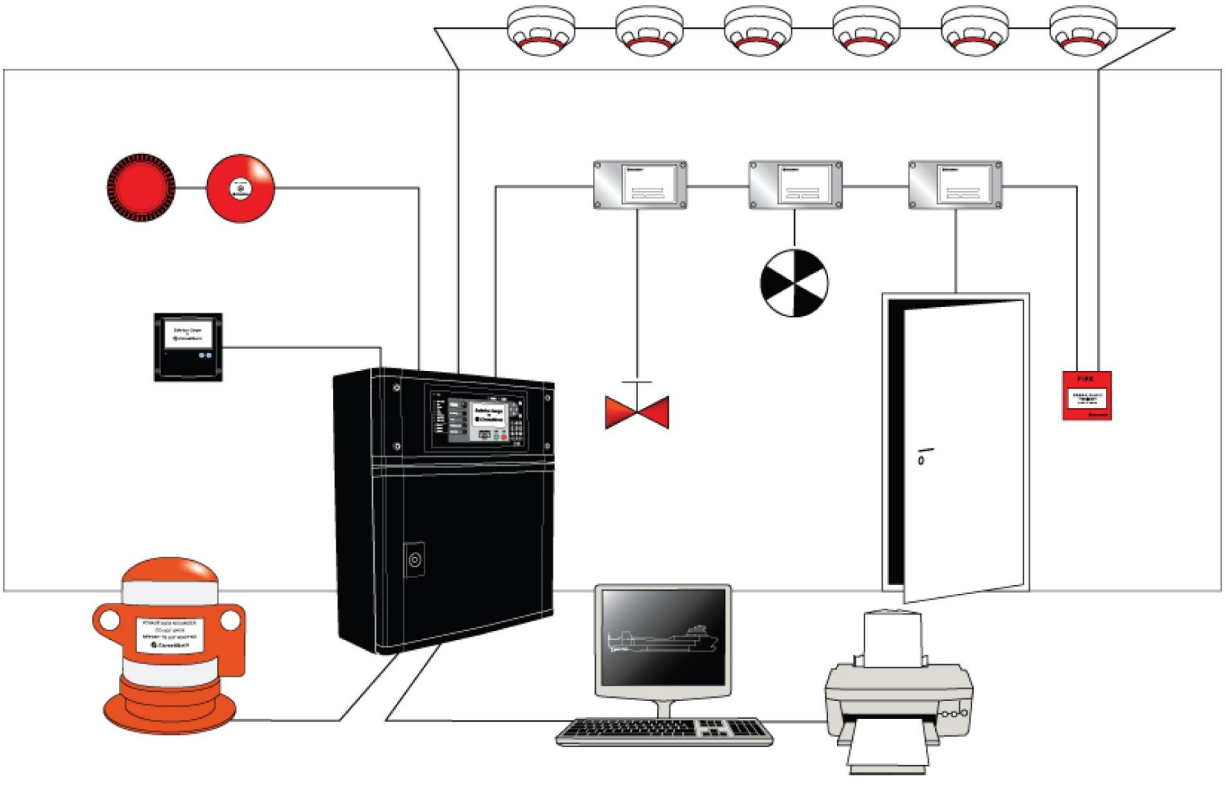

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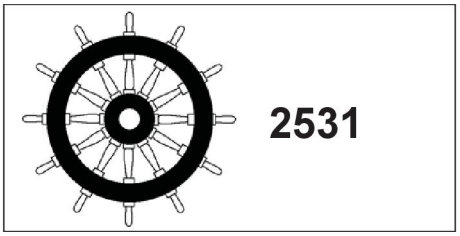
Figure 1. Salwico Cargo Fire Detection System, an example.

1.2 Approvals



1.3 Symbols used in the manual

DANGER!
Risk of serious or fatal injury to the user, and/or severe damage to the product, if the instructions are not followed.

WARNING!
Risk of personal injury and/or damage to the product if the instructions are not followed.

CAUTION!
Risk of minor or moderate personal injury. Risk of equipment damage, loss of data, extra work, or unexpected results, if the instructions are not followed.

NOTE!
Note symbols alert you to important facts and conditions.

Hint!
Hint symbols direct you to specific instructions, such as where to find additional information and tell you how to perform a certain operation in an easier way.

2 Fire Detection System

2.1 System Description

This Fire detection system is a state-of-the-art fire-detection system designed to meet marine and industrial requirements. Special care is given to ergonomics and user-friendliness with its logical and intuitive operator panel.

2.2 System Block Diagram

The following figure shows a typical system and its connected components, see Definitions and Abbreviations, page 54 in the Appendix for explanation of terms and abbreviations.

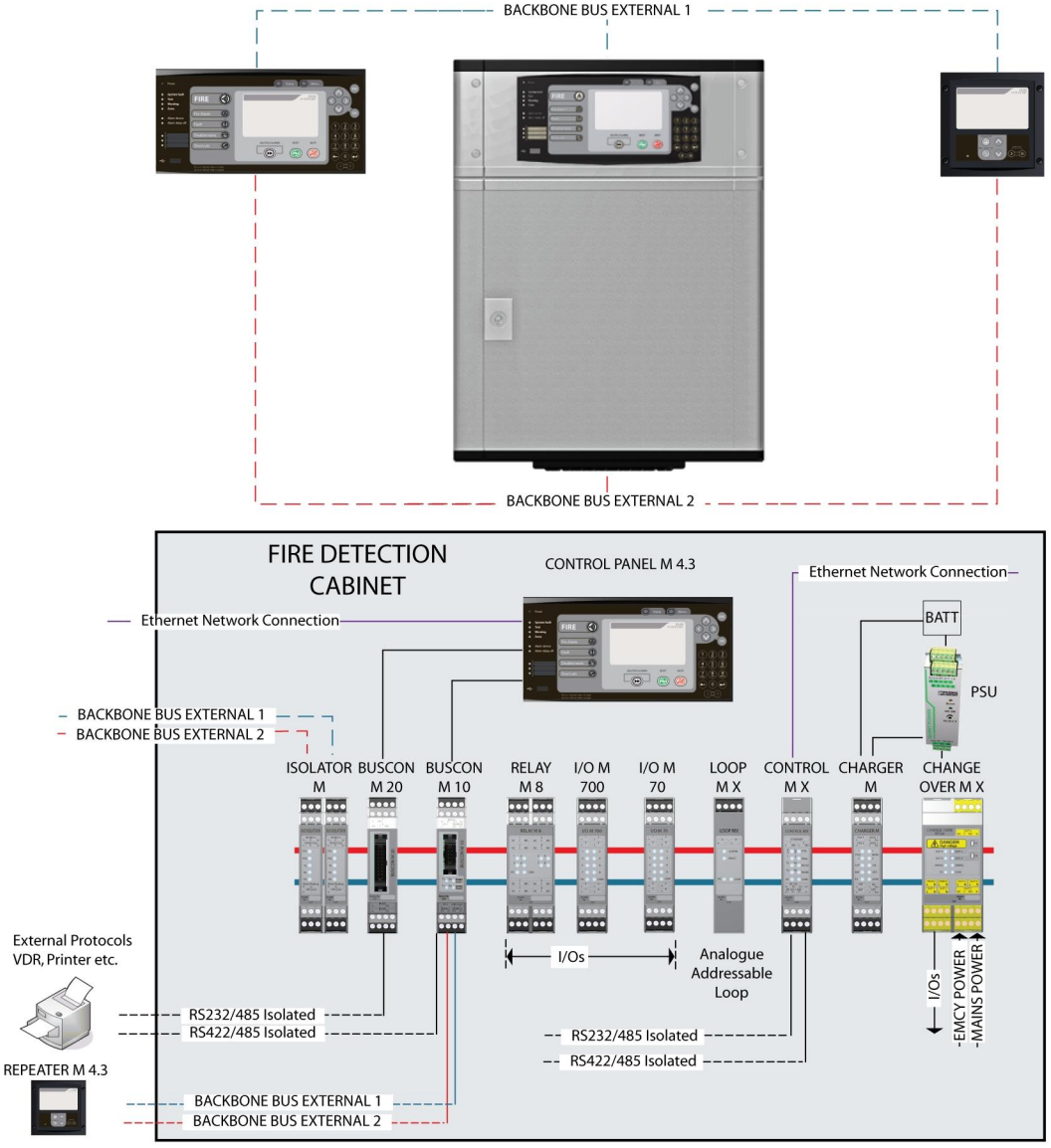


Figure 2. An example of a system block diagram.

3 Control Panels

3.1 Control Panel M 4.3

3.1.1 General

This menu-operated system monitors and controls all system functionality. The control panel's clear graphical display makes it easy to use.

3.1.2 Description of Keys and Indicators

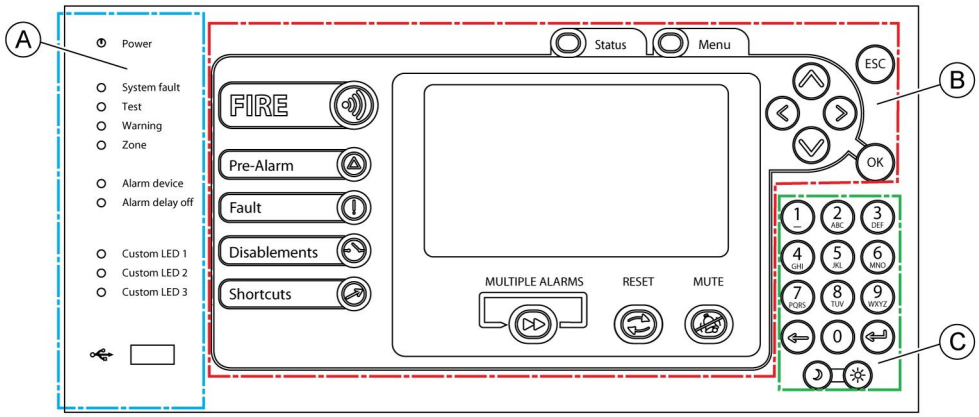


Figure 3. Keys and indicators for the control panel

As shown in the figure above, the control panel is divided into three sections:

A = System Indicators
B = Operational Controls
C = Numerical Keypad

Part A: System Indicators

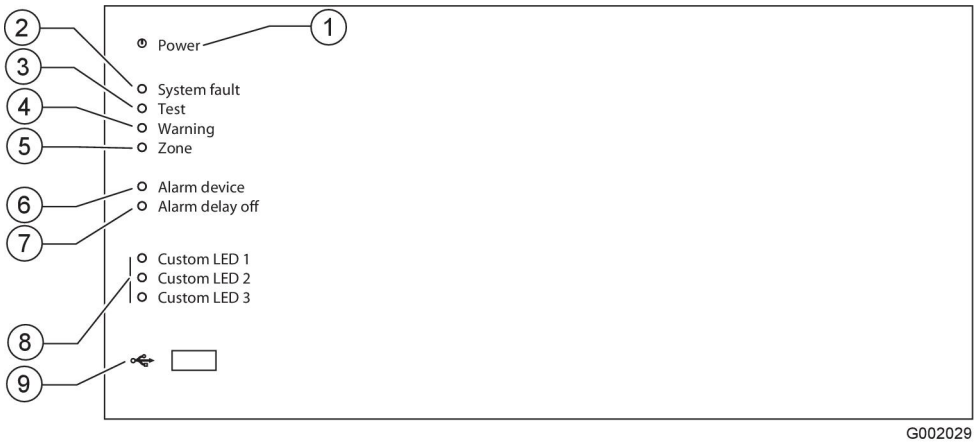


Figure 4. The system indicators section of the control panel

The System Indicators section is comprised of the following indicators:

1. **Power**

Steady green light	Power supply to the control panel is OK.

2. **System fault**

Flashing yellow light	Main process fault. A serious system fault in the system.

3. **Test**

Steady yellow light	At least one zone is manually set in test mode.

4. **Warning**

Steady yellow light	At least one warning indication exists.

5. **Zone**

Steady yellow light	At least one zone or a loop unit is disabled.
Flashing yellow light	At least one zone or a loop unit is in fault condition. (Priority over disablement indication.)

6. **Alarm device**

Steady yellow light	At least one alarm device output is disabled.
Flashing yellow light	At least one alarm device output is in fault condition.

7. **Alarm delay off**

Steady yellow light	The alarm delay function is disabled.

8. **Custom indication 1-3**

Colour and pattern of Custom LED indication is defined in the system configuration.

9. **USB**

USB connection for USB memory stick to load or save data.

Part B: Operational Controls

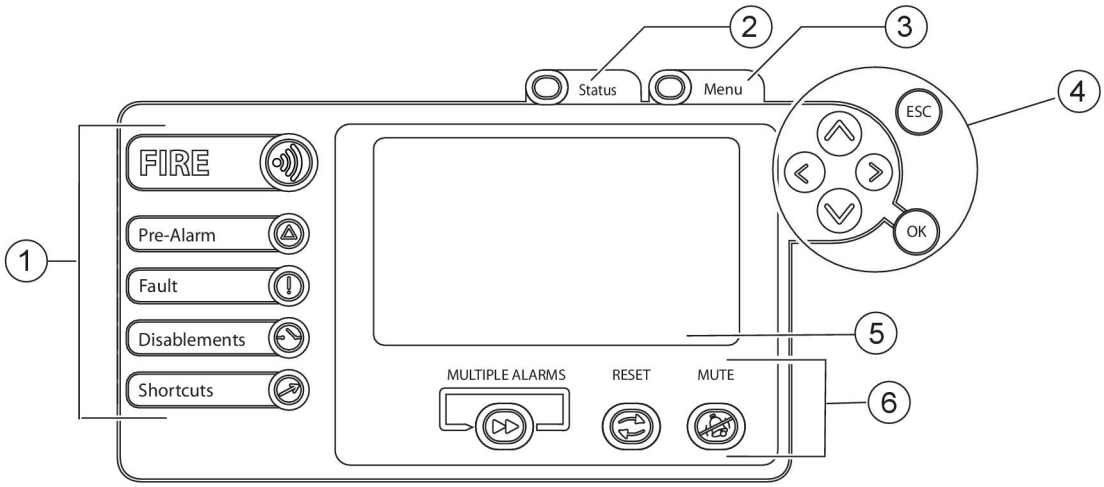


Figure 5. The operational section of the control panel

1. **Main indicators**

Fire alarm

The Fire alarm key indicates existance of a fire alarm and gives direct access to the Fire alarm list. Indications:

Flashing red light	One or more un-muted fire alarm(s) in the system.
Steady red light	All fire alarms are muted.

Pre-Alarm

Note! Only for analogue addressable systems.
The Pre-Alarm key indicates existance of a pre-alarm and gives direct access to the Pre-Alarm list. Indications:

Flashing orange light	One or more un-muted pre-alarm(s) in the system.
Steady orange light	All pre-alarms are muted.

Fault

The Fault key indicates existance of a fault and gives direct access to the Fault alarm list. Indications:

Flashing yellow light	One or more un-muted fault(s) in the system.
Steady yellow light	All faults are muted.

Disablements

The Disablements key indicates existance of a disablement and activates the Disablements menu. Indications:

Steady yellow light	At least one disabled function in the system.

Shortcuts

The Shortcut key activates the customer specific shortcut list. Indications:

Steady orange light	The alternatives in the shortcut list and the corresponding indicators (Shortcut 1, Shortcut 2 and Shortcut 3) are set in the configuration program.

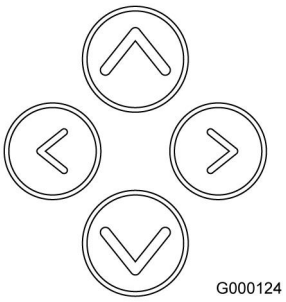
2. **Status**
   This key gives direct access to the System status summary list with Alarms (Fire and Pre-Alarms), Maintenance (Faults and Warnings) and Disablements (Active and Periodic).
   Shortcuts are:
   1. Upload the system log to USB Memory stick.
   2. Go to the maintenance menu.

3. **Menu**
   This key gives direct access to the main menu and all system functions.

4. **Navigation and Command Keys**
   The arrow keys are used to navigate menus, select different menu alternatives, and show details for list items.

Go to the previous item in the list or menu.

Go to previous menu.



Selects the chosen menu alternative.

Go to the next item in the list or menu.

ESC
The Escape key is used to go to the default menu.

OK
This key is used to select a menu alternative or to accept a function. The OK key is also in some cases used to show details for a selected list entry.

5. **Display**
   The control panel has a backlited 4.3" graphical, 480×272 pixels, 16-bit colour display.

6. **Alarm keys**

Multiple alarms
Press this key to scroll through the different alarms. The list always returns to the first fire alarm after 30 seconds of inactivity.

Reset
This green key is used to request for a reset of a selected alarm, fault or disablement.

Mute
This red key is used to acknowledge the alarm and mute the local buzzer.

Part C: Numerical Keypad

Figure 6. The keypad on the control panel.

1. **Numerical keypad**
   Keys 0 - 9
   The numerical keypad is used to enter numerical values. Keys 1–9 are also used as shortcuts when navigating in the menus.

   Erase
   This key is used to erase characters from the text display.

   Enter
   This key is used to select a menu alternative or to accept a function. The Enter key is also used to show details for a selected list entry.

   Day mode
   Increase the brightness/contrast level for the indicators and display on the panel.

   Night mode
   Decrease the brightness/contrast level for the indicators and display on the panel.

3.1.3 Guide to the Menu System

The fire detection system is menu-operated. All system functions are available from the different menus. The fire detection system is normally displaying a greeting screen. From the greeting screen press **Menu** to enter the menu system.

Default screen Installation name Project number	Menu →	1 Fault Alarms 2 Fire Alarms 3 Disablements 4 Login 5 Settings 6 Service Menu 7 History 8 Condition List

How to navigate the menu system

- Navigate in the menu alternatives with the ⌃ and ⌄ arrow keys. It is also possible to choose a menu alternative by entering the menu number.
- Select a menu alternative with the › arrow key or the OK key.
- Use the ‹ arrow key to go back to the previous menu.

In the lower part of the display the different options available for each individual menu are shown.

The numerical keypad is used to enter information, e.g. zone and detector number.

The ⌫ key erases the last character.

Table 1. Top menu alternatives

Alternatives	Description
1 Fault alarms	The menu from which fault and warning messages are listed and handled.
2 Fire alarms	Fire alarms and pre-alarms are displayed and managed from this menu. Muted alarm devices may be reactivated here.
3 Disablements	Disabled parts of the fire detection system are added, removed, or listed from this menu. (For instructions, see About Disablements, page 26.)
4 Login	Log in from this menu by entering a personal access code. For further details see section Login, page 22.
5 Settings	Use this menu to adjust system parameters, such as the dimmer level, date, time and alarm delay time. It is also possible to make a lamp test for the control panel under “Test display”.
6 Service menu	Use this menu to list and view information about the system and its components. It is also possible to make disablements of the listed units. The Service menu is described in more detail in the separate Service and Maintenance manual. Access level 2B is needed for basic functions and access level 4 is needed to perform advanced service options.
7 History	Use this menu to view previous events in the fire detection system.
8 Condition list	Use this menu to create lists of detectors that are no longer in good condition but still fully functional. The purpose of the satisfactory and poor condition lists is to give an early indication of which detectors need to be replaced in the future.

1 Fault Alarms Menu

1	▶	**Fault Alarms**
2		Fire Alarms
3		Disablements
4		Login
5		Settings
6		Service Menu
7		History
8		Condition List

1	Fault List
2	Warning List
3	Reset All Faults

Table 2. Fault alarm menu alternatives

Alternatives	Description
1 Fault List	Shows all present fault alarms.
2 Warning List	Shows all present warning messages.
3 Reset All Faults	The system will attempt to reset all present fault alarms in the Fault List.

2 Fire Alarms Menu

1		Fault Alarms
2	▶	**Fire Alarms**
3		Disablements
4		Login
5		Settings
6		Service Menu
7		History
8		Condition List

1	Fire List
2	Pre-Alarm List
3	Resound (alarm devices)
4	Reset All Fire Alarms

Table 3. Fire alarm menu alternatives

Alternatives	Description
1 Fire List	Shows all present Fire Alarms.
2 Pre-Alarm List	Shows all present Pre-Alarms.
3 Resound (alarm devices)	If the alarm devices have been silenced by pressing Mute key  , this function will restart them (if the fire alarm has not been reset).
4 Reset All Fire Alarms	The system will attempt to reset all fire alarms in the Fire List.

3 Disablements menu

1		Fault Alarms
2		Fire Alarms
3	▶	**Disablements**
4		Login
5		Settings
6		Service Menu
7		History
8		Condition List

1	New disablement (access lvl 2B)
2	List disablements
3	List periodic disablements
4	List old disablements
5	Remove all disablements
6	Alarm Delay
7	List Alarm Delays

Table 4. Disablemens menu alternatives

Alternatives	Description
1 New disablements	Adds new disablements. This requires access level 2B.
2 List disablements	Shows all active disablements in the system. A periodic disablement that is not active will not be shown in this list, but in the list periodic disablements (mentioned below). The reconnection of a disabled unit is made from this list. See section Reconnecting Disabled Items, page 30 for more details.
3 List periodic disablements	Shows all periodic disablements in the system. The removal of periodic disablements is made from this list.
4 List old disablements	This list displays the 150 previously removed disablements and allows these older disablements to be reactivated. **Hint!** This function is very useful if the same disablement is frequently needed during irregular time periods. Just mark the appropriate old disablement in the list and press 0 to reactivate it. This requires access level 2B.
5 Remove all disablements	Removes all active disablements shown in the Disablement list. **DANGER!** Periodic disablements are not permanently removed. Only the periodic disablement's active period is removed. Use alternative "3 List periodic disablements" to remove periodic disablements.
6 Alarm Delay	Disables the alarm delay function. Alarm delay is a programmable time delay between when a fire is detected and until the alarm device outputs are activated. See Disabling Alarm Delay, page 29 for more information.
7 List Alarm Delays	Shows all active alarm delays in the system. The reconnection of a disabled alarm delay is made from this list. See section Reconnecting Disabled Alarm Delays, page 30 for more details.

New disablement sub-menu

1	▶ **New disablement (access 2B)**		1	Zones
2	List disablements		2	Detectors & Manual Call Points
3	List periodic disablements	⊛	3	External Controls
4	List old disablements		4	Alarm Device (bells etc.)
5	Remove all disablements		5	Test Mode

Table 5. New disablement menu alternatives

Alternatives	Description
1 Zones	Disable entire zones for a specified time period or permanently.
2 Detectors & Manual Call Points	Disable individual detectors or manual call points for a specified time period or permanently. Note! Only for analogue addressable systems.

Alternatives	Description
3 External Control	Deactivate **1 External Controls** or **2 Alarm Transfer** . See list External Control Disablements, page 13 for more information.
4 Alarm Device (bells etc.)	Disables the outputs for alarm devices, such as audible (e.g., bells) and optical alarm devices.
5 Test Mode	Set a zone into test mode.

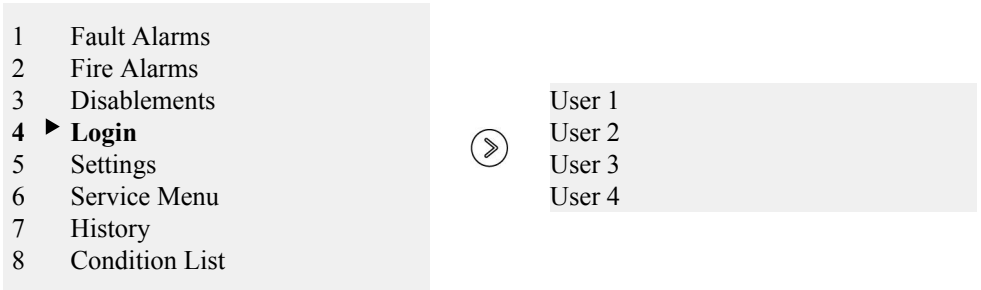
External Control Disablements

1. External Controls
   Disables outputs (all or individual groups) to external controls. This means that an alarm condition will not cause activation of the selected group.
   - All groups
     Disable all external controls (doors, fire, fault, ventilation and indication).
   - Doors
     Disable external door controls in the system.
   - Fire
     Disable external fire controls in the system.
   - Fault
     Disable external fault controls in the system.
   - Ventilation
     Disable external ventilation controls in the system.
   - Indication
     Disable external indication controls in the system.

2. Alarm Transfer
   Disables the supervised alarm transfer output, which is normally used in on-shore installations to alert the fire brigade in case of a fire alarm. Select System or Central to disable.

See also section About Disablements, page 26 for more information about the Disablements.

4 Login Menu



See Login, page 22 for more information about the Login menu alternatives.

5 Settings Menu

1 Fault Alarms
2 Fire Alarms
3 Disablements
4 Login
5 ▶ Settings
6 Service Menu
7 History
8 Condition List

1 Set Dimmer
2 Set Time
3 Set Date
4 Test Display
5 Alarm Delay Times
6 Keyboard Beep
7 Cause Effect in Test Mode

Table 6. Settings menu alternatives

Alternatives	Description
1 Set Dimmer	Use this menu to adjust the contrast level (1–9) for the display and indications on the control panel.
2 Set Time	Use this menu to set the system time. It is possible to synchronize the system clock with the ship's central time.
3 Set Date	Use this menu to set the system date. **NOTE!** Dates before year 2000 are not accepted by the fire detection system.
4 Test Display	Use this menu to activate a lamp test in order to visually verify the function of the display and all indications on the control panel.
5 Alarm Delay Times (access level 3)	Use this menu to adjust the programmable alarm delay times if no time is set in the configuration program. Time 1 is adjustable between 1 or 2 minutes. Time 2 (reset) is only used for on-shore installations. See section Disabling Alarm Delay, page 29 for more information.
6 Keyboard Beep	Use this menu to turn the keyboard beep ON or OFF.
7 Cause Effect in Test Mode (access level 2)	Use this menu to turn the Cause Effect programming ON or OFF during test mode. If set to ON, the outputs are activated as normal during test mode.

6 Service Menu

1 Fault Alarms
2 Fire Alarms
3 Disablements
4 Login
5 Settings
6 ▶ Service Menu
7 History
8 Condition List

1 System Details
2 Centrals
3 Modules
4 Zones
5 Loops
6 Configuration
7 Firmware
8 System Log
9 I/O lists

Access level 2B is needed for basic functions and access level 4 is needed to perform advanced service options.

Hint!
The Service menu is described in more detail in the separate Service and Maintenance manual.

Table 7. Service menu alternatives

Alternatives	Description
1 System Details	This menu lists the installed system's information, such as name and reference number (if defined). It also lists when the system was last configured and by which program.
2 Centrals	Use this menu to list information about the installed centrals and the modules in each central.
3 Modules	Use this menu to list information about the installed system modules. It is possible to display all details about the modules, such as installed detector loops, installed program versions, input/output status. It is also possible to print information.
4 Zones	This menu shows a list of all zones configured in the system. It is possible to list all loop units in a zone if the zone consists of addressable loop units, disable zones or loop units, and set a single fire detector in alarm condition. Installation Mode can be activated for loops and zones containing addressable loop units. Loop units affected by Installation Mode will stop reporting faults of type ‘present not configured’, ‘configured not present’ and ‘no answer’.
5 Loops	This menu shows a list of all physical loops installed in an analogue addressable system. A loop can consist of conventional or addressable fire detectors and other loop units. It is possible to add and to disable entire loops. Use Scan Loop to force a scan of the loop for new loop units. Installation Mode can be activated. Loop units affected by Installation Mode will stop reporting faults of type ‘present not configured’, ‘configured not present’ and ‘no answer’.
6 Configuration	This menu is used to configure the system as further explained in Configuration sub-menu, page 16.
7 Firmware	Use this menu to download firmware to modules, load or backup service pack, and to start or stop an automatic update.
8 System log	The System log menu contains sub-menus to save a syslog or to reset service interval. Once the System Log is copied to a USB memory stick, it can be sent to an authorised service organisation for further technical assistance. See section About the Service Menu, page 31 for further information and instructions.
9 I/O lists	I/O lists with sub-menus Input list and Output list. Use these menus to inspect or disable active inputs and outputs in the system and on loops.

Configuration sub-menu

1	System Details
2	Centrals
3	Modules
4	Zones
5	Loops
6	**Configuration**
7	Firmware
8	System Log
9	I/O lists

1	Reload configuration/Reboot this module
2	Load configuration from USB memory
3	Save configuration to USB memory
4	Save changes to configuration
5	Remove configuration
6	Synchronise system configuration
7	Reboot system (this module excluded)

Hint!
The Configuration menu is described in more detail in the Installation & Commissioning manual and the Service & Maintenance manual.

Table 8. Configuration sub-menu alternatives

Alternatives	Description
1 Reload configuration/ Reboot this module	Reload the configuration when a new updated configuration file has been downloaded to the system. The operation will reboot this control module only.
2 Load configuration from USB Memory	Download a new configuration file from a suitable USB memory stick.
3 Save configuration to USB Memory	Copy the existing configuration file to a suitable USB memory stick.
4 Save changes to configuration	**CAUTION!** It is highly recommended to backup the configuration file before continuing. Use this command to save all changes made from the control panel to the system configuration. **NOTE!** The changes are not permanently saved in the configuration file until this command is performed.
5 Remove Configuration	Select and remove files from a list of configuration files in the system.
6 Synchronize system configuration	**CAUTION!** It is highly recommended to backup the configuration file before continuing. Use this command to synchronise the configuration files in the system.
7 Reboot system (this module excluded)	The operation will reboot the system with this control module excluded. There will be a 15 seconds delay before the system restarts.
8 Synchronise the CS-modules	Use this menu to change the active configuration of the CS modules. **NOTE!** This menu alternative is intended for SIL classified systems only.

7 History Menu

1 Fault Alarms
2 Fire Alarms
3 Disablements
4 Login
5 Settings
6 Service Menu
7 ▶ History
8 Condition List

1 Fire History List
2 Fault History List
3 Disable History List
4 Common History List

Table 9. History menu alternatives

Alternatives	Description
1 Fire History List	Shows a chronological list of the last 1000 fire alarms.
2 Fault History List	Shows a chronological list of the last 1000 fault alarms.
3 Disable History List	Shows a chronological list of the last 1000 disablements.
4 Common History List	Shows a common chronological list of the last 1000 pre-alarms, fire alarms, fault alarms, disablements, warnings, and I/Os.

8 Condition List Menu

NOTE!
Only for analogue addressable systems.

1 Fault Alarms
2 Fire Alarms
3 Disablements
4 Login
5 Settings
6 Service Menu
7 History
8 ▶ Condition List

1 Satisfactory
2 Poor
Detectors not listed in these two choices are in Good condition.

The **Condition list** menu provides the means to perform a status check of the detectors in the system. Detectors that are no longer in good condition but still fully functional will be present in either of these lists, and detectors in good condition will not be present at all.

Table 10. Condition list menu alternatives

Alternatives	Description
1 Satisfactory (Lightly contaminated detectors)	This list shows detectors that still are in satisfactory condition (50-80% dirty) and fully functional. However, the environment has started to degenerate the detectors and they are no longer in good condition. Please consider to replace the detectors during the next planned maintenance work.
2 Poor (Heavily contaminated detectors)	This list shows detectors that have gone beyond satisfactory condition and entered poor condition (81-100% dirty), but are still fully functional. When the detector has gone beyond poor condition it is also shown in the fault or warning list (depending on the configuration), with the description "**130 DIRTY SENSOR**". (See also Note below). When a detector has reached poor condition it shall be replaced. It will be removed from the condition list after replacement.

NOTE!
In systems with CCP version 1.9.10 or older, dirty detectors are instead removed from the poor condition list and are only present in the warning or fault list with the description "**130 DIRTY SENSOR**".

3.2 Repeater M 4.3

3.2.1 General

The repeater panel is used to monitor functions in the fire detection system. It is possible to view and list:

- Fire alarms
- Fault alarms
- Disablements

3.2.2 Description of Keys and Indicators

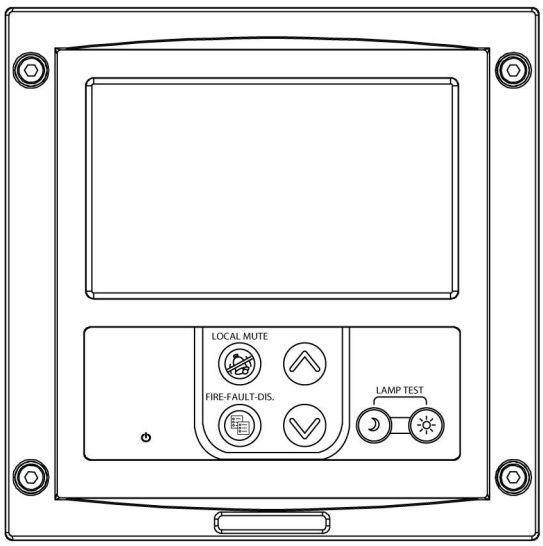


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Figure 7. Keys and indicators for the repeater panel.

Repeater panel

- **Power**

  Green steady light indicates that the power supply to the repeater panel is OK.

- **Local Mute**

  Silence the local buzzer alarm.

- **Fire - Fault - Dis.**

  Press the key to select the lists: Fire Alarm, Fault Alarm and Disablements.

- **Navigation key – previous**

  Scroll to previous item in the selected list.

- **Navigation key – next**

  Scroll to next item in the selected list.

- **Night mode**

  Decrease the brightness/contrast level for the indicators and display on the panel.

- **Day mode**

  Increase the brightness/contrast level for the indicators and display on the panel.

- **Lamp test**

  When you press the keys for Day and Night mode at the same time, all the repeater panel indicators as well as the display are lit and the buzzer is sounding – if not, they are not working correctly.

4 Operations

4.1 Access Levels

CAUTION!
To prevent un-authorised operation of the system access levels protect the different functions of the fire detection system.

Some functions in the menus will require a higher access level than the default level due to safety restrictions.

Access level 2 is the default level. After the access level has been changed to a higher level, it automatically returns to access level 2 when the control panel has not been used for 30 minutes. For special applications access level 1 can be applied. This will allow the user to only mute the local buzzer and scroll though the fire and fault lists.

Description of Access levels

There are different access levels as shown in the following table:

Table 11. Access levels

Access level	Procedure to enter level	User	Permissions
2	**Operator access level** None	Personnel trained and authorised to operate the system in case of fire or maintenance.	For viewing of fire or fault alarms: • Fire alarms have priority over fault alarms. • Possibility to mute local buzzer. • Access to the menu system • List status • Reset and muting of alarms
2B	**Operator access level** Enter access code for level 2B via menu/login.	Personnel trained and authorised to operate the system in case of fire or maintenance.	Same permissions as level 2, plus this additional permission: • Make disablements
3	**Power User access level** Enter access code for level 3 via menu/login.	Personnel trained and authorised to make changes to the configured system.	Same permissions as level 2B, plus these additional permissions: • Possibility to make changes to the configured system
4	**Service access level** Enter access code for level 4 via menu/login.	Only authorised service personnel trained by an authorised service organisation.	All functions available, including advanced service options.

Custom Specific Restrictions

NOTE!
Permissions on the different access levels can in some cases vary depending on programmed custom specific restrictions.

A Control Panel M 4.3 could be programmed to view events in the system with restricted rights to operate functions. For example a fire alarm is shown, but mute and reset are not allowed.

4.2 Login

WARNING!
To secure the functionality of the fire detection system only authorised users should be given access to disablement or test mode privileges in the system.

Each user shall be assigned to a specific access level.

To log in to the system:

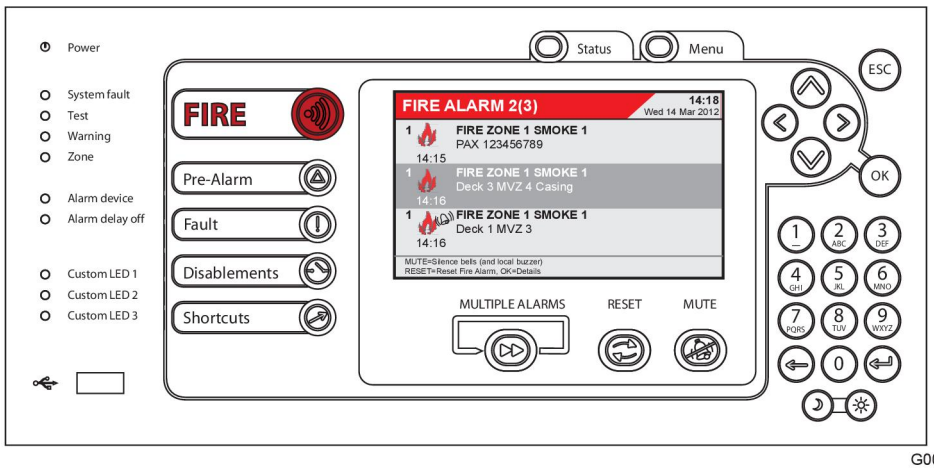
1	Go to *Menu » 4 Login* and select user.	
2	Enter the four-digit access code for the user.	The system will acknowledge if the correct code is entered.

4.3 Fire Alarm

4.3.1 Information Displayed when “Fire” is Flashing

DANGER!
In case of a fire alarm use the information viewed on the display to verify the alarm and take the appropriate actions based on local safety procedures.

The following sections describes the information displayed during a fire alarm, how to mute and reset an alarm, and the different types of alarms.



G002980

Figure 8. A fire alarm is detected in the system.

The following information is displayed in the Control Panel:

- Number of alarm(s)
- First, last and current list entry
- Zone in alarm

- Supplementary text (defined in system configuration)

Press OK for more details:

- Time of alarm
- Date of alarm

4.3.2 Mute a Fire Alarm

The Mute key has different functions depending on the current access level.

1	Press	Silences the internal buzzer and all external alarm devices*, and mutes the fire alarm indication. The fire indicator stops flashing, but remains lit until the Fire Alarm is reset.
2	Press OK for more details.	

* Programmable function of external devices, set in the Configuration program (programmed by system Cause/Effect).

4.3.3 Reset a Fire Alarm

1	Press to reset the current Fire Alarm.	**NOTE!** Alarms cannot be reset as long as the device remains in alarm condition. When reset is not possible a dialog box appears to explain why.

4.3.4 Several Alarms

If there is more than one fire alarm in the system, the indication is activated. The first and last fire alarms are always displayed in the control panel.

1	Scroll through the different fire alarms with the key or the / arrow keys.	
2	Mute and reset as above.	For detailed instructions, see Mute a Fire Alarm, page 23 and Reset a Fire Alarm, page 23.

4.3.5 Type of Fire Alarms from Conventional Zones

The fire detection system will display whether it was a single detector or a manual call point/multiple detectors that generated the fire alarm. If two or more detectors are activated in the same zone, the fire alarm will be presented as a manual call point/multiple detectors.

4.4 Fault Alarm

4.4.1 Information Displayed when “Fault” is Flashing

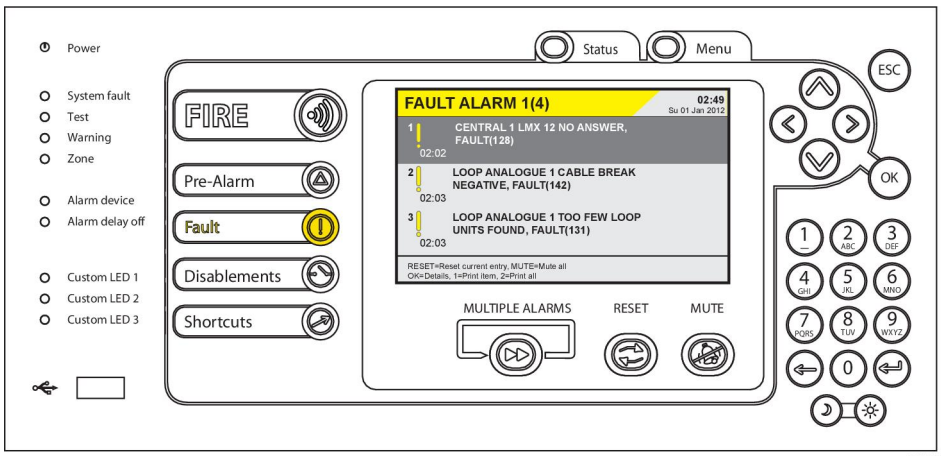
WARNING!
In case of a fault alarm use the information viewed on the display to verify and reset the fault.
Use the list of fault codes in the manual for more information about cause and remedy.
If the problem remains take the appropriate actions to restore the functionality of the fire detection system.

WARNING!
If an internal hardware or software fault has occurred it has to be restored as prompt as possible in order to secure the functionality of the complete fire detection system.

The detection of a dangerous fault shall result in either:

- a specified action to achieve or maintain a safe state; or
- the repair of the faulty system within the mean repair time (MRT). During this time the continuing safety shall be ensured by additional measures and constraints. The safety integrity provided by these measures and constraints shall be at least equal to the safety integrity provided by the FDS in the absence of any faults.

The following sections describe the information that is displayed when a fault occurs, and how to mute and reset a fault.



G002041

Figure 9. A fault is detected in the system.

The following information is displayed in the Control Panel:

- Number of detected fault(s)
- Type of fault
- Identification of the faulty loop unit or module
- Supplementary text for the faulty loop unit or module (defined in system configuration)

Press OK for more details:

- Time when the fault occurred
- Date when the fault occurred
- Supplementary text about the location of the fault (defined in system configuration)

4.4.2 Mute a Fault

1	Press to silence internal buzzer and mute all faults in the list.
2	Press OK for more details.

4.4.3 Reset a Fault

1	Press to reset the current fault alarm.	**NOTE!** If the cause of the fault alarm remains, the alarm cannot be reset. Check the fault code in the Fault Code List to solve the problem.

4.4.4 Reset a Fault from the Fault List

All faults in the system are shown in the fault list.

1	Go to the fault list under: *Menu » 1Fault Alarms » 1 Fault List*	
2	Choose the fault in the fault list and then press to reset the fault alarm.	**NOTE!** If the cause of the fault alarm remains, the alarm cannot be reset. Check the problem, solve it, and reset the fault.

4.4.5 Reset All Faults

1	Go to: *Menu » 1 Fault Alarms » 3 Reset All Faults*	
2	Press OK	The system will make an attempt to reset all faults.

4.4.6 Fault Messages

WARNING!
In case of a fault alarm use the information viewed on the display to verify and reset the fault.
If the problem remains take the appropriate actions to restore the functionality of the fire detection system.

The control panel displays a fault with information about where in the system the fault occurred and a short description of that fault.

Hint!
See the Fault Code list for further information about cause and remedy.

The fault message is also added to the fault list found under: *1 Fault Alarms » 1 Fault List*.

4.4.7 Warnings

NOTE!
The user shall monitor and act on warning messages according to the presented information about the state of the system. (Warnings are not as serious as faults and only of informative nature.)
- Perform suitable maintenance if needed.

The warnings priority level is lower than the ordinary fault alarm level.

The warning is also added to the Warning list found under: *Menu » 1 Fault Alarms » 2 Warnings*.

A warning will remain in the Warnings list until the fault condition is under the level for warnings.

4.5 Disablements

4.5.1 About Disablements

WARNING!
To secure the functionality of the fire detection system only authorised persons should be given access to disablement privileges in the system.

It is possible to disable different devices attached to the system, such as alarm devices and external control devices.

The available disablements (permanent, timer, clock and periodic) are described in the next chapter.

All disablements are presented in a disablement list.

NOTE!

The yellow Disablements indicator is lit on the control panel when at least one disablement is activated in the system and remains lit until all disablements are reconnected.

To perform a disablement you must enter access level 2B or higher.

DANGER!

When a fire detector or zone is disabled, the fire detection system will not be able to detect any occurring fire in that area. It is therefore important that disablements are minimized in terms of quantity of disabled units and duration of time.

4.5.2 Available Types of Disablements

1 ▶ **Permanent disablement**
2 Timer disablement
3 Clock disablement
4 Periodic disablement

There are four different types of disablements available.

Permanent disablement

The device is permanently disabled until it is manually enabled.

NOTE!

It is possible to limit the disablement time by defining a maximum disablement time in the configuration program.

Timer disablement

Disablement is instantaneous and lasts for the time period entered (hh:mm). Maximum disablement time is 23 hours 59 minutes. Maximum disablement time can be limited depending on rules and regulations.

Clock disablement

Enter a reconnection time. Disablement is instantaneous and the reconnection will take place next time the entered time occurs. The maximum disablement time is 23 hours 59 minutes.

Take the time entered under consideration on vehicles/trains/ships going through different time zones. If the system time is not synchronized with the vehicle/train/ship's central time, adjust the time manually or connect the system to a central clock via the serial interface.

Periodic disablement

A disablement for a certain time period during certain days of the week. Example: Disable zone 1 each Tuesday and Friday between 7.00 - 17.00.

Take the time entered under consideration on vehicles/trains/ships going through different time zones. If the system time is not synchronized with the vehicle/train/ship's central time, adjust the time manually or connect the system to a central clock via the serial interface.

4.5.3 Acknowledgement of a New Disablement

Once a new disablement is correctly entered, an acknowledgement is presented on the control panel. The Disablements key indicates with steady yellow light, use it to activate the Disablements list.

The new disablement is also added in the disablements list under: *Menu » 3 Disablements » 2 Disablement list*

4.5.4 Disabling Zones

(Access level 2B or higher)

Disabling a Conventional Zone

1	Select *Menu » 3 Disablements » 1 New disablement » 1 Zones*
2	Choose Zone (Zone number)
3	Choose disablement type (Permanent, Timer, Clock or Periodic)
4	Enter time (if Timer, Clock or Periodic was chosen in the previous step)

4.5.5 Disabling Alarm Devices

(Access level 2B or higher)

Examples of alarm devices are bells, buzzers and flash lights.

Disablements of alarm devices:

1	Select *Menu » 3 Disablements » 1 New Disablement » 4 Alarm Device (Bells etc.)*

4.5.6 Old Disablements

Use this menu to reactivate previously performed disablements.

NOTE!
Only permanent disablements can be reactivated.

1	Select *Menu » 3 Disablements » 4 List old disablements*
2	Mark the appropriate old disablement in the list and and press “0” to reactivate the disablement.

4.5.7 Disabling Alarm Delay

An alarm delay function will delay the activation of alarm devices in case of a fire alarm. The delay time is programmable.

The alarm delay may be disabled which means that there will be no delay between the fire alarm and the activation of the alarm device outputs.

1	Select *Menu » 3 Disablements » 6 Alarm Delay*	
2	Select central.	
3	Select type of delay (Permanent, Timer, Clock or Periodic)	See Available Types of Disablements , page 27 for explanation.

Set delay time (Access level 3 or higher):

NOTE!
Delay time is only possible to set if no time is set in the configuration program.

1	Select *Menu » 5 Settings » 5 Alarm Delay Times » 1 Alarm Delay Time 1 (mute)*	

Alarm Delay Time 2 (reset) is only used for special applications.

4.5.8 Disabling External Control Groups

(Access level 2B or higher)

Examples of external control groups are fans or outputs controlling fire doors.

1	Select *Menu » 3 Disablements » 1 New Disablement » 3 External Controls » 1 External Controls*	
2	Select an output category to be disabled.	All groups = all categories of doors, ventilation, etc.
3	Select System or Central. Press OK.	It is possible to disable all the external controls in the entire system or in individual centrals.
4	Press OK	

4.5.9 Disabling an Alarm Transfer Output

(Access level 2B or higher)

Disablements of the alarm transfer output, used in industrial installations to alert the fire brigade in case of a fire alarm:

1	Select *Menu » 3 Disablements » 1 New Disablement » 3 External Controls » 2 Alarm Transfer*

4.6 Reconnecting

4.6.1 Reconnecting Disabled Items

All disablements in the system are presented in the disablement list. Any reconnection is made from this list.

1	Select *Menu » 3 Disablements » 2 List disablements*
2	Choose the disablement you want to cancel.
3	Press 

4.6.2 Reconnecting Periodic Disablements

Periodic disablements in the system are presented in the periodic disablement list.

Reconnecting is made from this list:

1	Select *Menu » 3 Disablements » 3 List periodic disablements*
2	Choose the periodic disblement you want to cancel.
3	Press 

4.6.3 Reconnecting Disabled Alarm Delays

All disabled alarm delays in the system are presented in the alarm delays list. Any reconnection is made from this list.

1	Select *Menu » 3 Disablements » 7 List Alarm Delays*
2	Choose the disablement you want to cancel.
3	Press 

4.6.4 Remove All Disablements

This menu removes **all** active disablements presented in the Disablement list.

1	Select *Menu » 3 Disablements » 5 Remove all disablements*	
2	Confirm with OK to remove (reset) all active disablements in the system.	**NOTE!** Periodic disablements are not permanently removed. Only the periodic disablement's active period is removed.

4.7 Service Menu

4.7.1 About the Service Menu

(Access level 2 for basic functions, but access level 4 is needed to perform advanced service options.)

The Service menu is used for configuring the system in the commissioning phase, as well as for troubleshooting and making updates when the system is in operation. The menu has functions for loading and saving information from/to an approved USB memory stick (available from an authorised dealer).

The Service menu displays a list of the 9 service menu alternatives, as shown below.

1 ▶ **System Details**
2 Centrals
3 Modules
4 Zones
5 Loops
6 Configuration
7 Firmware
8 System Log
9 I/O lists

Please refer to the Service and Maintenance manual for detailed information about the Service menu.

4.7.2 Save the System Log to a USB Memory Stick

If you want to check the information saved in the system log you can download it from the central unit. The system log files contain information generated for evaluating the system, such as lists of system components, system software and key events.

Table 12. The following lists are included in the log

Centrals list	Key events
Disablement list	Modules list
Fault list	Periodic disablement list
Fire alarm list	Pre alarm list
History list	Warning list

The system log files can be downloaded using an approved USB memory stick (available from an authorised dealer).

CAUTION!
Do not remove the USB memory stick until the download is finished.

1	Connect the USB memory stick to the USB port on the Control M 4.3 panel.

2	Choose *Menu » 6 Service Menu » 8 System Log » 1 Save syslog*.
3	Press **OK** to save the systems log files to the USB memory stick.
4	The system will now download the system log files. Wait until this process is complete!
5	Disconnect the USB memory stick and copy the system log files to a PC. File name example: sysLog_no_YYYY-MM-DD-xxxxxx

4.7.3 How to report a fault

In case it is not possible to troubleshoot and solve a specific problem, please follow these guidelines when contacting an authorized service office.

- Describe the fault symptom, be specific
- Describe how the fault situation can be generated
- Attach a system log file (instructions for download from the Fire detection system can be found in section Save the System Log to a USB Memory Stick, page 31)
- Attach the configuration file (instructions for download from the Fire detection system can be found in the Service & Maintenance manual or in the Configuration manual)
- Attach the backbone log if applicable
- Add your contact information

5 Testing

5.1 About Testing

CAUTION!
Perform visual inspection of all fire detectors as often as needed to find detectors which have deliberately been covered (vandalised). Because a covered detector will not be able to detect a fire and the fire detection system can't detect if a detector has been covered.

CAUTION!
Check for contaminated detectors. Use the Control panel menu system to display a list showing in which condition the detectors are.

For additional information about testing, please refer to the Service and Maintenance Manual.

NOTE!
System boot-time is kept to a minimum during normal operation, but it can be extra-long after a new installation, commissioning or major maintenance work (depending on the configuration of the data definition file).

NOTE!
A warning will be displayed on the menu screen as long as the system is not running Cause/Effect, which is the two first minutes after the system has been powered up

5.2 Test Mode Overview

The system has a special test mode function which makes the testing easier.

When a zone is in test mode:

- External alarm devices and controls are by default not activated in case of a fire.
  Hint!
  This functionality can be turned off if controls are to be tested while the tested zone is in test mode.
  (*Menu » 3 Disablements » 1 New Disablement » 3 External Controls*)

NOTE!
Fire alarm from zones not in test mode will be handled normally by the fire detection system.
The zone in test mode will automatically return to normal operation after two hours.

5.3 Testing a Fire-detecting Zone

The functions of the FDS shall be tested at the interval stated in each application specific documentation.

CAUTION!
During system start-up the smoke detectors perform a 15 minutes calibration according to the level of particles in the air. No tests should be done during this period.

1	Put the zone into test mode under: *Menu » 3 Disablements » 1 New disablement » 5 Test Mode*.	Access level 2B is required.
2	Select a zone and confirm by pressing the OK key.	The Disablements, Test, and Zone/Unit indicators light to confirm that they are in test mode.

Each detector, manual call point and input in this fire zone can be tested during the next two hours. Refer to Test Mode Overview, page 33 for further information about a zone in test mode.

All alarms are listed under: *Menu » 7 History » 1 Fire History List*.

To return the tested zone to its normal condition, refer to Reset Test Mode, page 35.

CAUTION!
If the system previously had been put into regular fire detection service, a zone in test mode should be manually monitored, e.g. by a fire watch in order to maintain a tolerable risk level.

NOTE!
Use appropriate test equipment.
See section Recommended Test Equipment, page 34.

5.4 Recommended Test Equipment

Table 13. List of recommended test equipment for Fire detection systems

Product	Description
Testifire	Multi-stimulus detector tester for smoke and heat detectors
Salwico Solo 330	Smoke detector tester
Smoke Sabre	Aerosol smoke detector tester
Salwico SOLO 461	Heat detector tester
Salwico IR Test lamp	IR flame detector tester
Salwico UV Test lamp	UV flame detector test lamp
W8066	UV test lamp
Test key for manual call point	A test key is supplied with each call point

For detailed information, please refer to the data sheets for the products.

5.5 Reset Test Mode

NOTE!
After testing is completed, return the tested zone to its normal condition.
Before exiting test mode, make sure there are no detectors or manual call points in alarm condition.
The tested zone will automatically return to normal operation after two hours if no manual reset have been performed.

To reset test mode:

1	The zones in test mode are listed in the Disablement List, found under: *Menu » 3 Disablements » 2 List disablements*.
2	Choose the zone in the disablement list and then press  .

5.6 Test the Control Panel Display

With the function Test display it is possible to verify the functionality of:

- The display
- All indications on the control panel

NOTE!
The user has to verify that the display and all indications are working properly.
This function will not generate a fault alarm in case something is faulty.

1	To test the control panel display, use: *Menu » 5 Settings » 4 Test display*.
2	Verify that the display momentarily shows a test image.
3	Verify that all system indicators and operational keys momentarily lights up.

6 Appendix - Fault Code List

6.1 Fault Code List

WARNING!
In case of remedy “replace the unit” or “replace the module” – this has to be carried out as soon as possible in order to secure the functionality of the fire detection system.

Listed in the table below are all fault codes generated by system modules[1] and loop units[2] , their causes, and how an operator with knowledge of the system can classify and solve the problem.

A fault generated by a system module is often identified as:
“CENTRAL nn *Unit type* nn *Fault description* , FAULT nnn”

A loop unit fault is often identified as:
“ZONE nn *Unit type* nn *Fault description* , FAULT nnn”

Hint!
Instructions for troubleshooting and replacement can be found in the Installation manual or the Service & Maintenance manual.

1) Central components and control/repeater panels.
2) Units connected to the loop line, e.g. detectors and manual call points.

Fault Code		Unit or Module	Cause	Remedy	Failure classification
128	**NO ANSWER** *Explanation: Lost communication. The system has recognized a unit/module but lost contact.*	System modules	One module has been replaced by another type of module.	Switch to the correct module.	• Minor fault if redundant system and only one module in the redundant function. • Major fault if redundant system and one or more modules in the redundant function. • Major fault if one or more modules in a non-redundant system.
			One module address has been changed to the same address as another module on the same backbone (a secondary fault appears).	Check address of the modules.	
			Defect module.	Replace the module.	
			Cable break, short circuit or wrong electrical connection of the internal communication bus (BBI to BBE).	Locate the cable break, short circuit or check the electrical connections.	
		Loop units	The loop unit has electrically been disconnected from the loop.	Connect the loop unit.	• Minor fault if only one detector within an area covered by other detectors. • Major fault if two or more detectors within the same area.
			The loop unit has been replaced by another type of loop unit, or the loop unit ID has been changed.	Check that the correct loop unit is installed.	
				Check that the ID switch for an I/O ICxx unit is set correct.	
			One loop unit address has been set to the same address as another loop unit on the same loop (a secondary fault appears).	1. Check address of the units. 2. Rescan or restart the loop.	
			Defect unit.	Replace the unit.	
			Cable break or short circuit in a loop (a secondary fault appears).	Locate the cable break or short circuit.	

Fault Code		Unit or Module	Cause	Remedy	Failure classification
129	**SENSOR FAULT**	Loop units	The detector has a faulty sensor element.	Replace the unit.	Major fault
			The smoke detector is exposed to strong airflow.	Protect the detector from the airflow or consider repositioning the detector.	
			Input on a sub-loop has a removed or faulty device, an open circuit, or a cable break.	• Check the device on the sub-loop. • Check the end of line component. • Locate the cable break.	
			There are two loop units with the same address on the loop.	1. Check address of the units. 2. Rescan or restart the loop.	
130	**DIRTY SENSOR**	Smoke detectors	The detector has a dirty (contaminated) sensor element.	Replace the detector.	Minor fault (or Service fault). The fault code is presented before the contamination level becomes critical for the risk of spurious alarm or no alarm. The remedy shall still be performed.
131	**TOO FEW LOOP UNITS FOUND**	Loop M X	Fewer loop units found than configured. Loop units not correctly installed or addressed.	Check the loop configuration and electrical connections.	Major fault. Detector association missing for internal control.
				1. Check address of the units. 2. Rescan or restart the loop.	
			Missing answer from one or more units.	Check the address (possible double address). Otherwise replace the unit.	
132	**TOO MANY LOOP UNITS FOUND**	Loop M X	More loop units found than configured.	Check the loop configuration and electrical connections.	Major fault. Detector association missing for internal control.
			Loop units not correctly installed.	1. Check address of the units. 2. Rescan or restart the loop.	
133	**IN1 CABLE BREAK**	Loop I/O units with inputs	There is a cable break on input 1.	Check that the cable between input and end of line resistor is complete.	Major or Minor fault depending on project specific function.
134	**IN2 CABLE BREAK**	Loop I/O units with inputs	There is a cable break on input 2.	Check that the cable between input and end of line resistor is complete.	Major or Minor fault depending on project specific function.

Fault Code		Unit or Module	Cause	Remedy	Failure classification
135	**EXT 24V FAIL**	Charger M Loop units with external power	External 24V power source missing or the local power supply unit is defective.	1. Measure the voltage from the power source. • If voltage OK, change loop unit. • If voltage NOT OK, change the DC/DC. 2. If problem not solved contact an authorized service office.	Major fault.
136	**FEEDBACK FAULT**	Loop I/O units with inputs	There is a fault in the feedback between the loop unit and the externally connected device (for example, a door or a damper).	Check the cable for the feedback from the connected device to the loop unit, for instance the door/damper.	Major or Minor fault depending on project specific function.
			External load is missing.	Check the cable and the external load.	
137	**POSITION FAULT**	Loop I/O units with specific IDs	A supervised unit (for example, a door or damper) is in the wrong position.	Check for abnormal conditions.	Major or Minor fault depending on project specific function.
138	**LOOP SHORT CIRCUIT**	CM 4.3 CM 2.2 I/O M 70	A short circuit in the detector loop cable or conventional zone.	Locate the short circuit.	• Major fault if no short circuit isolators on the loop. • Major fault if loop with short circuit but not for non-affected areas.
		Loop unit with short circuit isolator	A short circuit in the detector loop cable.	Locate the short circuit.	Major fault.
139	**LOOP A SHORT CIRCUIT**	Loop M X	Short circuit on the A-side of a detector loop.	Locate the short circuit.	• Major fault if no short circuit isolators on the loop. • Major fault if loop with short circuit but not for non-affected areas.
140	**LOOP B SHORT CIRCUIT**	Loop M X	Short circuit on the B-side of a detector loop.	Locate the short circuit.	• Major fault if no short circuit isolators on the loop. • Major fault if loop with short circuit but not for non-affected areas.

Fault Code		Unit or Module	Cause	Remedy	Failure classification
141	**CABLE BREAK POSITIVE**	Loop M X	A cable break on the positive conductor on the Loop M X has been detected.	Locate the cable break.	• Minor fault if in no combination with other faults. • Major fault if in combination with other faults.
142	**CABLE BREAK NEGATIVE**	Loop M X	A cable break on the negative conductor on the Loop M X has been detected.	Locate the cable break.	• Minor fault if in no combination with other faults. • Major fault if in combination with other faults.
143	**COMMUNI-CATION ERROR** *Explanation: The communication with a loop unit is deficient.*	CM 4.3 CM 2.2 CM X	A serial protocol has communication problems.	1. Check the connection between the module and the other end connected via the serial protocol. 2. Contact an authorized service office.	• Minor fault if in no combination with other faults • Major fault if in combination with other faults i.e. Fault 128.
		Loop units	Faulty loop unit.	Replace the loop unit.	
			Interference on loop cable or loop unit from external source.	1. Locate interference source. 2. If not possible to solve the problem, contact an authorized service office.	
			There are two loop units with the same address on the loop.	1. Check address of the units. 2. Rescan or restart the loop.	
144	**LOOP UNIT TYPE CHANGED**	Loop units	The type of loop unit found in the loop is different from the original type configured.	1. Change configuration. 2. Contact an authorized service office.	Major fault.
			A loop unit has been incorrectly addressed during a replacement.	1. Check address of the units. 2. Rescan or restart the loop.	

Fault Code		Unit or Module	Cause	Remedy	Failure classification
145	**UNKNOWN TYPE OF LOOP UNIT FOUND** *Explanation: The type of loop unit found is not corresponding to the configuration file.*	Loop units	The Loop M X cannot identify the type of the affected loop unit.	Replace the unit.	Major fault.
			Wrong type of detector has been installed.	1. Install the correct type. 2. Rescan or restart the loop.	
146	**TIMER STUCK**	Loop based timers	A timer loop unit has been active for more than 12 hours.	Check the status of the loop unit.	Major or Minor fault depending on project specific function.
149	**SHORT CIRCUIT**	CM 4.3 CM 2.2 I/O M 70 I/O M 700	Short circuit has been detected on an output to the affected module.	1. Locate the short circuit. 2. Reset the fault.	Major fault.
		Loop units	Short circuit has been detected on external cabling to the loop unit.	Locate the short circuit on the external cabling to the loop unit.	
150	**VALVE CLOSED**	Loop I/O units with specific IDs	External equipment indicates that the valve is closed.	1. Open the valve. 2. Contact an authorized service office.	Major or Minor fault depending on project specific function.
152	**PRESENT NOT CONFIGUR-ED**	System modules	The affected system module is not in the system configuration file.	1. Check the address of the system module. 2. Check the system configuration file. 3. Contact an authorized service office.	Minor fault.
		Loop units	The affected loop unit is not in the system configuration file.	1. Check the address of the loop unit. 2. Check the system configuration file. 3. Contact an authorized service office.	
155	**EARTH FAULT POSITIVE**	Charger M Loop M X	There is an earth fault on the positive conductor.	Locate the earth fault.	Minor fault.
		Loop units	A power loop unit has detected an earth fault on the positive conductor from the power supply.	Locate the earth fault on the external power supply to the loop unit.	

Fault Code		Unit or Module	Cause	Remedy	Failure classification
156	**EARTH FAULT NEGATIVE**	Charger M Loop M X	There is an earth fault on the negative conductor.	Locate the earth fault.	Minor fault.
		Loop units	A power loop unit has detected an earth fault on the negative conductor from the power supply.	Locate the earth fault on the external power supply to the loop unit.	
157	**FUSE FAULT**	ChangeOver M Ext	A fuse has been blown.	Replace the fuse.	Minor fault.
		Loop unit	A fuse in a power loop unit has blown.	Contact an authorized service office.	
158	**BATTERY CABLE / FUSE FAULT**	Charger M	A battery fuse has been blown, or a cable to the battery is broken.	Replace fuse or restore the cable.	Major or Minor fault depending on project specific function.
		Loop units	There is a problem with the battery connected to the power loop unit.	1. Check the connection to the battery. 2. Consider replacing the battery.	
159	**CABLE BREAK / SHORT CIRCUIT**	CM 4.3 CM 2.2 RM 4.3 Charger M I/O M 70 I/O M 700 Loop M X	A cable break or short circuit has been detected.	Restore the cable.	Major fault.
		Loop I/O units with inputs	Input on a loop unit has an cable break or short circuit.	• Check the end of line component. • Locate the cable break.	
160	**CABLE OVERLOAD**	I/O M 700	Too high current on the output.	Check external load.	Major fault.
		Loop M X	Too high current on the loop line.	Contact an authorized service office.	
		Loop units	The loop unit is reporting too high current.	Check external load.	
161	**POWER FAULT**	Loop units	There is a problem with the power supply to the power loop unit.	1. Check the connection between the loop unit and the power supply. 2. Contact an authorized service office	Major or Minor fault depending on project specific function.
164	**BATTERY CHARGER**	Charger M	The battery charger (Charger M) is unable to charge the battery.	The battery charger (Charger M) is unable to charge the battery.	Minor fault.

Fault Code		Unit or Module	Cause	Remedy	Failure classification
165	**EXTERNAL FAULT** *Can be generated by customized defined fault. See Custom text for the particular fault.*	CM 4.3 CM 2.2 RM 4.3 Charger M I/O M 70 I/O M 700	External equipment is indicating a fault.	Check the external equipment.	Major or minor fault. See project specific system description.
167	**CHECKSUM EEP** *Only applicable for a redundant controlled loop with two Loop M X modules*	Loop M X	The booting sequence was not completed in a correct way.	Rescan or restart the loop.	Minor fault.
168	**RESTARTED**	System modules	The module has restarted.	If restarts happen repeatedly without known reason, contact an authorized service office.	Minor fault.
169	**TOO LONG BOOT TIME**	System modules	The module has been in the validating or configuring states for too long.	1. Restart the module. 2. Contact an authorized service office.	Minor fault.
170	**EXTERNAL LOAD**	CM 4.3 CM 2.2 I/O M 70	There is too high external load on a conventional zone.	Check the load and reduce if possible.	Major fault.
171	**EXTERNAL POWER SOURCE**	CM 4.3 CM 2.2 I/O M 70	Unexpected voltage detected in a conventional zone.	Located and remove the source.	Major fault.
172	**LOW POWER SUPPLY PSU 1**	Charger M	Low voltage on the primary 28VDC power supply to the internal system modules.	1. Measure the voltage from the power source. • If voltage OK, change module. • If voltage NOT OK, change or adjust the DC/DC. 2. Contact an authorized service office.	Major fault.
173	**LOW POWER SUPPLY PSU 2**	Charger M	Low voltage on the secondary 28VDC power supply to the internal system modules.	1. Measure the voltage from the power source. • If voltage OK, change module. • If voltage NOT OK, change or adjust the DC/DC. 2. Contact an authorized service office.	• Minor fault if power sources are redundant and not from the same source. • Major fault if power from the same power source.

Fault Code		Unit or Module	Cause	Remedy	Failure classification
175	**LOW POWER SUPPLY OPERATING**	Loop M X	The incoming 24 VDC supply to the internal circuit boards is too low.	1. Measure the voltage from the power source. • If voltage OK, change module. • If voltage NOT OK, change or adjust the DC/DC. 2. Contact an authorized service office.	Major fault.
176	**SYSTEM CONFIGURATION FAULT**	CM 4.3 CM 2.2 CM X RM 4.3	The configuration file is corrupt.	1. Download the configuration file again. 2. Contact an authorized service office.	Major fault.
			An error has occurred during downloading of the configuration file.		
			The configuration file is saved in an incompatible version of the CCPConf.	Open configuration file in the correct version of CCPConf and resave the configuration file. Which version of CCPConf used depends on the version of the firmwares installed in the CCP modules.	
177	**LOW PRESSURE**	Loop I/O units with specific IDs	External equipment indicates low pressure.	Check the pressure on the supervised unit.	Major or Minor fault depending on project specific function.
180	**MAINS POWER**	Charger M ChangeOver M Ext	The main power supply is lost.	Check the main power supply.	Major fault.
181	**INTERNAL FAULT**	CM 4.3	The connection between the main processor and the processor handling the keyboard input has been lost.	Contact an authorized service office.	Major fault.
		Charger M	The module is leaking power. The supply and consumption differ greatly.		
		Loop M X	The Loop M X has failed to schedule a loop unit it considers to be in working condition for more than 30 minutes.		

Fault Code		Unit or Module	Cause	Remedy	Failure classification
183	**NO ANSWER CH 1 BACKBONE**	System modules	The module has stopped answering on channel 1 on the backbone bus.	Contact an authorized service office.	• Minor fault if in no combination with other faults. • Major fault if in combination with other faults.
184	**NO ANSWER CH 2 BACKBONE**	System modules	The module has stopped answering on channel 2 on the backbone bus.	Contact an authorized service office.	• Minor fault if in no combination with other faults. • Major fault if in combination with other faults.
185	**NO POLL FROM MASTER**	CM 4.3 CM 2.2 CM X RM 4.3	The module hasn't received any communication from the backbone master in the last 30 seconds.	Check system status for the configured master.	Major fault.
188	**CABLE FAULT**	Loop units	A short circuit or cable break has been detected on an I/O port on a loop unit.	Check the line or device connected to the I/O port.	Major or Minor fault depending on project specific function.
196	**INCOMPATIBLE MODULES**	System modules	The protocol version of a module (slave and/or controller) is not compatible with the central master version.	The fault is resettable once all incompatible modules have reported a compatible version. Alternatively they must be removed or disabled.	Major fault.
209	**WRONG TYPE OF LOOP UNIT FOUND**	Loop units	The type of loop unit found is different from the type configured.	1. Change the loop unit. 2. Rescan or restart the loop.	Minor fault.
210	**CAUSE / EFFECT ERROR**	CM 4.3 CM 2.2 CM X	Fault detected in the configuration file.	Contact an authorized service office.	Major fault.
212	**SYNCHRONI-SATION SIGNAL**	System modules	The system fails to synchronize with the affected module.	Contact an authorized service office.	Major fault.

Fault Code		Unit or Module	Cause	Remedy	Failure classification
213	**CONFIG NOT SYNCHRO-NIZED**	CM 4.3 CM 2.2 CM X RM 4.3	The configuration file in the system is not the same in all modules.	Synchronise the configuration file between all panel.	Major fault.
			Central X Module Y settings in configuration file compared to DIP-settings are not OK.	Check configuration and DIP-settings.	
		Charger M	The DIP-settings of the Charger M are incorrect compared to configuration file.	Check configuration and DIP-settings.	
214	**CURRENT LIMIT EXCEEDED**	Charger M	The Charger M is delivering a higher current than the maximum allowed current limit to the affected Bus/Output.	1. Check the number of modules configured. 2. Check the external load.	Major fault.
			The Charger M is consuming a higher current than the maximum allowed current limit from the affected PSU/Battery.		
215	**CHARGING CURRENT EXCEEDED**	Charger M	The battery connected to the affected Charger M is charged with a higher current than allowed.	Charge the battery with an external charger.	Major fault.
216	**INCOMPA-TIBLE FIRMWARE**	Charger M ChangeOver M Ext I/O M 70 I/O M 700 Mux M 16 Relay M 8	The firmware in a module does not comply with the modules hardware version. The fault might occur during firmware update.	1. Try to reset the fault. 2. If not possible to reset try to update firmware again. (Might demand for system reboot.) 3. Contact an authorized service office.	Major fault.
217	**HIGH VOLTAGE PSU 1**	Charger M	The voltage delivered from PSU 1 to the affected Charger M module is too high.	1. Measure the voltage from the power source. • If voltage OK, change module. • If voltage NOT OK, change or adjust the DC/DC. 2. Contact an authorized service office.	Major fault.

Fault Code		Unit or Module	Cause	Remedy	Failure classification
218	**HIGH VOLTAGE PSU 2**	Charger M	The voltage delivered from PSU 2 to the affected Charger M module is too high.	1. Measure the voltage from the power source. • If voltage OK, change module. • If voltage NOT OK, change or adjust the DC/DC. 2. Contact an authorized service office.	• Minor fault if power sources are redundant and not from the same source. • Major fault if power from the same power source.
219	**FUSE FAULT PSU 1**	Charger M	The fuse protecting the PSU 1 voltage input is broken.	1. Check the fuse. • If fuse OK, change module. • If fuse NOT OK, change the fuse (or change the module if LRU). 2. Contact an authorized service office.	Major fault.
220	**FUSE FAULT PSU 2**	Charger M	The fuse protecting the PSU 2 voltage input is broken.	1. Check the fuse. • If fuse OK, change module. • If fuse NOT OK, change the fuse (or change the module if LRU). 2. Contact an authorized service office.	• Minor fault if power sources are redundant and not from the same source. • Major fault if power from the same power source.
221	**PSU1 PRESENT NOT CONFIG-URED**	Charger M	A PSU is connected to the PSU 1 input on the affected Charger M module, but the Charger M module is not configured to have a PSU connected to PSU 1 input.	1. Check the electrical connections according to the drawings. 2. Check the configuration file. 3. Contact an authorized service office.	Minor fault.
222	**PSU2 PRESENT NOT CONFIG-URED**	Charger M	A PSU is connected to the PSU 2 input on the affected Charger M module, but the Charger M module is not configured to have a PSU connected to PSU 2 input.	1. Check the electrical connections according to the drawings. 2. Check the configuration file. 3. Contact an authorized service office.	Minor fault.

Fault Code		Unit or Module	Cause	Remedy	Failure classification
223	**INTERNAL VOLTAGE LOW**	Charger M	The voltage level internally in the Charger M is at least 1 volt below the voltage delivered from the PSUs. Without battery charge, the system shuts down at 18.5 VDC. With battery charge, the system shuts down at 21 VDC.	Contact an authorized service office.	Major fault.
224	**INTERNAL VOLTAGE HIGH**	Charger M	The voltage level internally in the Charger M is at least 1 volt above the voltage delivered from the PSU:s. Without battery charge, the system starts up at 20.0 VDC. With battery charge, the system starts up at 25.5 VDC.	Contact an authorized service office.	Major fault.
225	**XFIRE SIGNAL**	CM 4.3 CM 2.2 CM X Charger M ChangeOver M Ext I/O M 70 I/O M 700 Loop M X Relay M 8	When the affected module measures the X-Fire signal in the backbone, the voltage level of the signal is below 4 volts.	1. Check backbone signals for cable breaks. 2. Contact an authorized service office.	Major fault.
226	**PRIMARY SYSTEM BUS**	CM 4.3 CM 2.2 CM X	No activity has been registered on the primary system bus within 30 seconds by the master (module with address 1) in the affected central.	1. Check the electrical connections according to the drawings. 2. Contact an authorized service office.	• Minor fault if communication is redundant. • Major fault if communication is not redundant.
227	**SECONDARY SYSTEM BUS**	CM 4.3 CM 2.2 CM X	No activity has been registered on the secondary system bus within 30 seconds by the slave (module with address 2) in the affected central.	1. Check the electrical connections according to the drawings. 2. Contact an authorized service office.	• Minor fault if communication is redundant. • Major fault if communication is not redundant.

Fault Code		Unit or Module	Cause	Remedy	Failure classification
228	**NO ANSWER SYSTEM BUS**	CM 4.3 CM 2.2 CM X	The affected module has not responded within 30 seconds on primary/secondary system bus.	1. Check the electrical connections according to the drawings. 2. Replace the module. 3. Contact an authorized service office.	Major fault.
229	**OVER-HEATED**	Charger M	The battery or Charger M is too hot.	1. Check cabinet and battery temperature. 2. Check the battery condition. 3. Contact an authorized service office.	Major fault.
230	**LOW VOLTAGE CH 1 BACKBONE**	CM 4.3 CM 2.2 CM X RM 4.3 ChangeOver M Ext I/O M 70 I/O M 700 Loop M X Mux M 16 Relay M 8	Too low voltage detected on the backbone bus power supply, channel 1.	1. Measure the voltage from the power source. • If voltage OK, change module. • If voltage NOT OK, change or adjust the DC/DC. 2. Contact an authorized service office.	Major fault.
231	**LOW VOLTAGE CH 2 BACKBONE**	CM 4.3 CM 2.2 CM X RM 4.3 ChangeOver M Ext I/O M 70 I/O M 700 Loop M X Mux M 16 Relay M 8	Too low voltage detected on the backbone bus power supply, channel 2.	1. Measure the voltage from the power source. • If voltage OK, change module. • If voltage NOT OK, change or adjust the DC/DC. 2. Contact an authorized service office.	Major fault.
232	**INVALID APPLICATION**	Charger M ChangeOver M Ext I/O M 70 I/O M 700 Loop M X Mux M 16 Relay M 8	The bootloader in the affected module cannot start the application due to a corrupted firmware. This fault might occur during a firmware upgrade.	1. Try to reset the fault. 2. If not possible to reset try to update firmware again. (Might demand for system reboot.) 3. Contact an authorized service office.	Major fault.
			The module has a higher protocol version than the central master.	The fault is resettable once the module is downgraded.	

Fault Code		Unit or Module	Cause	Remedy	Failure classification
233	**RELAY**	Relay M 8	A relay is broken or in a state that damages the relay. (The voltage over the relay coil is too high.)	Replace the module.	Major fault.
234	**NO ANSWER EXTENSION BUS**	RM 4.3 MN400	The affected module is not answering on the extension bus where it is connected.	1. Check for cable breaks on the extension bus. 2. Contact an authorized service office.	Major or Minor fault depending on project specific function.
236	**WRONG TYPE OF MODULE FOUND**	System modules	The type of module found is different from the type configured.	1. Check the address of the module according to electrical drawings. 2. Contact an authorized service office.	Major fault.
238	**FLOW FAULT**	Aspirating smoke detector	No external power to the aspiration (ASP) unit.	Check the power supply to the aspiration detector. (Green control LED inside aspiration box shall be lit when power OK.) • If voltage OK and Fan not running, see "Fan broken" below. • If voltage NOT OK, change or adjust the DC/DC.	Major fault.
			The fan in an aspiration detector does not work correctly. (Fault generated by the Loop M X). NOTE: Critical error which can cause the detector to not detect a fire alarm.	Check in the aspiration box if a red LED is lit at the same time as the green. • If yes, change the aspiration box. • If no, change the smoke detector inside the aspiration box.	
239	**GA FAULT**	CM 4.3 CM 2.2 CM X RM 4.3 Charger M I/O M 70 I/O M 700 Relay M 8	The voltage level of the GA signal in the backbone is below 4 volts. (Fault generated by modules which have GA-morse configured for any of its outputs) NOTE: Critical error which can cause the GA functionality from working.	1. Check that Charger M puts out a monitoring voltage on the backbone 2. Contact an authorized service office.	Major fault.

Fault Code		Unit or Module	Cause	Remedy	Failure classification
241	**DEVICE WRITE FAULT**	Loop units	A write operation into the loop unit's internal EEPROM memory failed.	Replace the loop unit.	Major or Minor fault depending on project specific function.
242	**SERVICE TIME**	CM 4.3 CM 2.2 CM X	The system has not been serviced for a period of time.	Contact an authorized service office.	Major fault.
255	**ILLEGAL**	System modules	Internal system error.	Contact an authorized service office.	Major fault.
		Loop units			

7 Appendix - Definitions and Abbreviations

7.1 Definitions and Abbreviations

Definitions and abbreviations for the fire detection system.

Active high	By active high it means that the output is normally not energized in normal condition and when system is not energized. By active high on input it means that the input is normally not energized. This is the NO contact on a relay.
Active low	By active low it means that the output is normally energized in normal condition and system running. By active low on input it means that the input is normally energized. This is the NC contact on a relay.
Alarm condition	The state of the system when a fire or gas has been detected.
Alarm delay	When activated the activation of alarm devices will be delayed for a preset time (normally 2 minutes).
Alarm device	Device that is activated in case of fire, for example audible and optical alarms like bells, sirens and flashlights.
Alarm Transfer Output	A supervised output for signalling that a fire has occurred. The Alarm Transfer Output is usually used in onshore systems for alerting the fire brigade.
APF	Application Program File.
Application program file	A file holding the application parameters for the FDS.
ASP detector	Aspiration detector.
Backbone Bus External (BBE)	The main bus outside a central cabinet used for communication between modules and stretched central parts. It consists of two redundant RS485 channels, two 24 VDC power lines and the Basic Backup (BBU) signal and Synchronisation Signal (SYNC).
Backbone Bus Internal (BBI)	The main bus inside a central cabinet used for communication between modules. It consists of two redundant RS-485 channels, two 24 VDC power lines and the Basic Backup (BBU) signal and Synchronisation Signal (SYNC).
Backbone segment	A Backbone bus may be split in several segments. Power feeding can be separate for each segment by using one Charger M per segment. Communication can be isolated between segments by using Isolator modules.
Basic Backup Signal (BBU)	A signal in the Backbone bus that is used for transmitting the central's alarm status. The signal is only used when a module in managed mode loses communication with its controller module.
BER	Bit Error Rate
BusCon M 20	A Bus Connector with 20 connectors in the flat-cable. This unit is used to connect the Control M 4.3 to the backbone bus and also has the common fire and fault outputs.
Cause/Effect	The Cause/Effect program defines how the inputs and outputs of the system should act.
CCP	Consilium Common Platform. General modules which create a system for Consilium products.
CCP platform	An umbrella name for all the modules and devices that can be connected together, e.g. “the Control M 4.3 module is a member of the CCP platform”.
Central	A Central is a complete system that can operate autonomously; monitor its detectors and inputs, activate its outputs and display its faults and alarms. If connected to other centrals, it exchanges information with the other centrals via the System bus, thus allowing all centrals to act as one system. Each central can only have one Backbone bus.
Central cabinet	Enclosure to contain a complete or part of a central.
Charger M	The Charger Module. Can connect two PSU’s and a battery and feeds the power channels on the backbone bus.

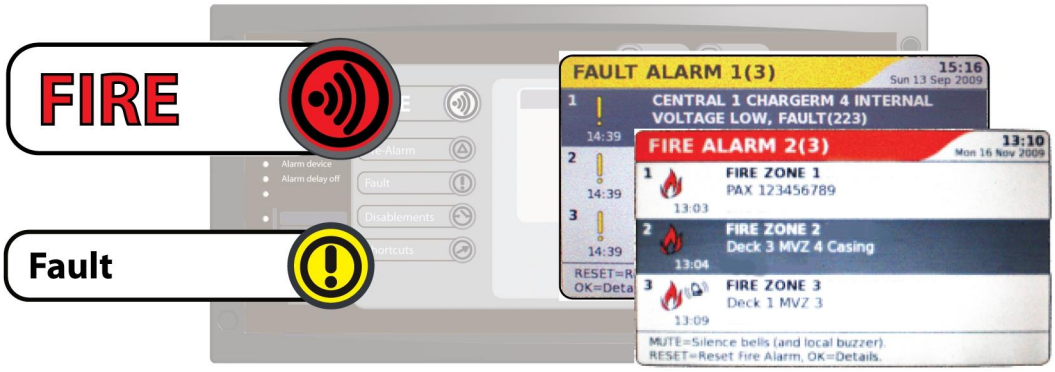
Compact central	Central cabinet including basic functionality of Fire Detection System such as: Control panel, Power supply, Battery backup, basic I/Os and at least one analogue addressable loop. The cabinet supplies limited expansion possibilities.
Configuration File	A file holding the configurable parameters for the FDS.
Control module	The Control M 4.3, the Control M 2.2 and the Control M X can all act as Controller modules, i.e. be in controller mode.
Control panel	The Control M 4.3 and Control M 2.2 can act as a Control panel, i.e. they have an HMI and the rights to manipulate and supervise the system.
Controller mode	Control modules can run in Controller mode, i.e. being Master or Hot Standby Master within a central. Control modules can also be in managed mode, that is being a module that is managed by the master. All other modules are always running in managed mode.
Controller module	A Control module that is in Controller mode (master or hot standby) in a central or system.
Control M 2.2	A Control Panel with a 2.2” graphical colour display used to manage and supervise a system.
Control M 4.3	Control Module with a 4.3” display, a keyboard and all the mandatory indications required to comply with EN 54.
Control M X	Control Module, a control module without a display, keyboard or mandatory indications.
CR	It is a heat detector class. The C means fixed alarm temperature at 84ºC. The R means it also gives alarm for RoR.
CS	Heat detector classification in EN 54-7; ‘C’ class indicates a static response temperature of 84°C and ‘S’ that the detector will not respond below 80°C.
DCS	Distributed Central System (see also Stretched central).
Detector	A device capable of detecting smoke, heat, flames or gas.
DIP switch	Dual in-line package switch. Used to set address etc. on loop units and modules.
Disablement	Disablement of devices such as a Zones or Detectors. Alarms from disabled devices will be inhibited.
EMC	Electromagnetic Compatibility.
EMI	Electromagnetic Interference.
EN 54	The European product standard for fire detection and fire alarm systems.
ESD System	Emergency Shut Down System, embedded system taking care of safety procedures in case of emergency, for example shut down of fire doors, ventilation etc.
Ex	Ex can mean different things depending on when it is mentioned. Examples: ‘Ex proof’ means ‘Explosion Proof’, ‘Ex area’ means ‘Hazardous Area’ which is an area where the atmosphere might be explosive. ‘Ex certified’ means both ATEX and IECEx certification.
Ex-classification	The protection type used in a hazardous area; e.g. Ex d.
Extension bus	An additional (RS485) bus used inside a central for intra-central communication. The Extension bus is typically used for connecting Repeater modules (that does not require redundant communication and power) and should not be confused with the Backbone bus.
External communication	Communication to external entities is called external communication, using for example MODBUS, NMEA or TCMS protocols.
External control	Outputs used to control external equipment, for example fire doors.
Fault condition	The state of the system when a fault is detected.

FDS	Fire Detection System.
Firmware	Embedded software.
FSK	Frequency Shift Keying.
GA-auto	Automatically generated signal according to a pre-defined pattern (e.g. 7 short 1 long signal) for alarm devices or the PA system.
GA-Morse	Signal pattern generated manually via the GA button.
GA	General Alarm, common activation of alarm devices and activation of the PA system.
GDS	Gas Detection System.
GRP	Glass-Reinforced Plastic.
Heavy duty manual call point	A heavy duty manual call point is made of GRP, metal or similar material and it has a high level of corrosion resistance.
Hot Standby mode	Controller modules in Hot Standby mode can take over the responsibilities of the Controller module managing a central.
I/O	Input/output.
I/O 70	An Input/Output type providing a different function depending on the configuration of the system. The programmable functions are: • General Input • Fault Input • Conventional Fire Alarm Zone • Output (24 VDC/70 mA)
I/O 700	An Input/Output type providing a different function depending on the configuration of the system. The programmable functions are: • General Input • Fault Input • Output (24 VDC/700 mA)
I/O Module	A module with inputs and/or outputs. I/O modules always run in Managed mode, that is they must be managed by a Controller module.
I/O pin or I/O signal	An I/O pin or an I/O signal is a logical signal, compare to terminal.
IDA	The IDA communication protocol.
Inter-central communication	Communication between centrals is called inter-central communication.
Interface channel	A communication channel used to interface the systems with external devices. Interface channels can be configured to communicate on different protocols.
Internal power supply	Output power from PSU.
Intra-central communication	Communication within a central is called intra-central communication. This communication is between modules.
IP	Ingress Protection - rating used to specify the environmental protection (enclosure) of electrical equipment.
IS	Intrinsically Safe.
Isolator M	Isolator Module; used to distribute a part of a FDS.
ISS	Integrated Safety System.
Loop	The same as a loop-line.
Loop cable	A cable which the FDS uses to power and communicate with the loop units. The loop begins and ends in the loop module in the FDS.

Loop module	The piece of hardware within the FDS which powers and communicates with the loop units connected to its loop-line.
Loop unit	Fire detectors, gas detectors, manual call points and other devices that can be connected to the Loop.
Loop-line	A common name for the cable, loop devices and other equipment connected to a loop module.
Loop-line IS	A part of the loop-line protected by a galvanic isolator.
LRU	A Line-Replaceable Unit (LRU) is a modular component that is designed to be replaced quickly at an operating location.
Managed mode	The opposite of Controller mode. All modules that are managed by a Controller module are in Managed mode.
MCP	Manual Call Point.
MCS	Multi Central System. A system consisting of more than one central.
MFZ	Main Fire Zone.
Mode of operation	Modules in the system can take on different roles. Connected to the Backbone bus they can be in: • Central Controller Mode (Master or Hot Standby) • Central Managed Mode Modules connected to the System bus can be in: • System Controller Mode (Master or Hot Standby) • System Managed Mode
Module	A module that is a part of the platform, where it can be used to build centrals. Modules within the platform generally supply a Backbone bus interface. Controller modules also have a System bus Interface.
Module address	Module addresses are set via DIP switches on the modules.
Mute	Acknowledge and silence the local buzzer and in some cases the alarm devices.
N/A	Not Applicable.
OEM	Original Equipment Manufacturer.
PA	Public Addressing.
Power output	Output providing power supply, normally used to power external devices.
Pre-Alarm condition	A condition preceding the Alarm condition to give early warning for potentially dangerous situations like a smouldering fire.
Programmable output	Output which signal behaviour is configurable via the Configuration program.
PSU	Power Supply Unit.
Rate of Rise	Rate of Rise functionality by using C/E commands for setting of a different alarm threshold and temperature rise threshold for heat detectors.
Redundancy	Refers to the quality or state of being redundant, that is exceeding what is necessary or normal. In the system the term is used to describe backup functionality like in Hot Standby Controller modules.
Redundant loop	Redundant loop means loop module redundancy on one single loop-line between two loop modules.
Relay	Electrically operated switch output, normally providing C/NO/NC contacts for connection of signal receiver.
Repeater panel	The main attribute for Repeater panels is that they can show information but not affect the central (or system) they belong to. The Repeater M 4.3 is a Repeater panel.

RS-485	Serial communication interface used for external communication and BackBone bus. Is a standard defining the electrical characteristics of drivers and receivers for use in balanced digital multipoint systems.
Safe State	Modules enter 'safe state' when they detect system faults. Modules in Safe State put their I/O in a predefined state and stop all communication in order to avoid disturbing system integrity.
Salwico Language	A text based interpreting language for making logical cause effect expressions developed by Consilium.
SCI	Short Circuit Isolator.
SCM	Software Configuration Management.
SCS	Single Central System.
SMig system	Salwico Safety Management interactive graphics, a PC-based software package providing graphical presentation and control of the system.
Spur	Branch from a loop-line without return.
Stretched central (DCS)	A central that is physically distributed to two or more physical locations. One location may or may not supply power to another location (segmented) and two locations may or may not have isolated communication lines.
Sub-loop	It is possible to connect sub-loop units to some loop units using a sub-loop cable. The cable is however not a loop. One end is connected to the loop unit and the other end is connected to the sub-loop unit.
Sub-loop unit	A device which cannot be connected directly to the loop. A sub-loop unit can be a switch or a relay contact will be used to send a fire or fault alarm to the FDS.
Synchronization signal	A signal in the Backbone bus that is used for transmitting synchronization signal used by system modules to synchronize there behaviour.
System	A system consists of a number of loop units and one or more centrals.
System bus	The communication bus used for connecting multi-central systems. The System bus is used for inter-central communication but can also be used for external communication. If inter-central communication redundancy is required, the system bus will consist of a primary and a secondary System bus.
TBD	To Be Done, To Be Decided/Determined.
Terminal	A Terminal is a physical point of connection, compare I/O pin.
Test condition	Detectors put in the Test condition (or test mode) are inhibited from generating the Alarm condition but the alarms are displayed on the Control panels to prove that the tested detectors are operational.
USB	Universal Serial Bus, a communications bus that may be used to connect flash memories, keyboards, mice or other devices.
Warning Condition	The state of the system when a warning is detected. Warnings are not as serious as faults and only of informative nature, for example in case of a lightly contaminated detector.
Zone	A group of detectors located in a geographical area.

8 Quick Guide for Control Panel M 4.3



If Fire or Fault is Flashing

Follow the instructions displayed on the screen and take the appropriate actions.

Note! Only the main actions are described below. Further instructions for the control panel can be found in the Operations chapter in the User Guide.

Mute

1 Press to silence the internal buzzer and mute the alarm indication.

Note! Pressing the MUTE button may inhibit outgoing alarm functions and silence bells and PA system. Ensure proper actions are taken to verify the cause of alarm.

2 Press OK for more details on the screen.

Reset

1 Press to reset the current alarm.

Note! Alarms cannot be reset if the alarm condition remains.

Examples of Disablement

Disabling a Conventional Zone

1 Select *Menu* > *3 Disablements* > *New disablement* > *1 Zones*.

2 Choose zone (Zone number).

3 Choose disablement type (Permanent, Timer, Clock, or Periodic).

4 Enter time (if Timer, Clock, or Periodic was chosen in the previous step).

Reconnecting Disabled Items

All disablements in the system are presented in the disablement list. Any enablement is made from this list.

1 Select *Menu* > *3 Disablements* > *2 Disablement list*.

2 Choose the disablement you want to cancel.

3 Press .

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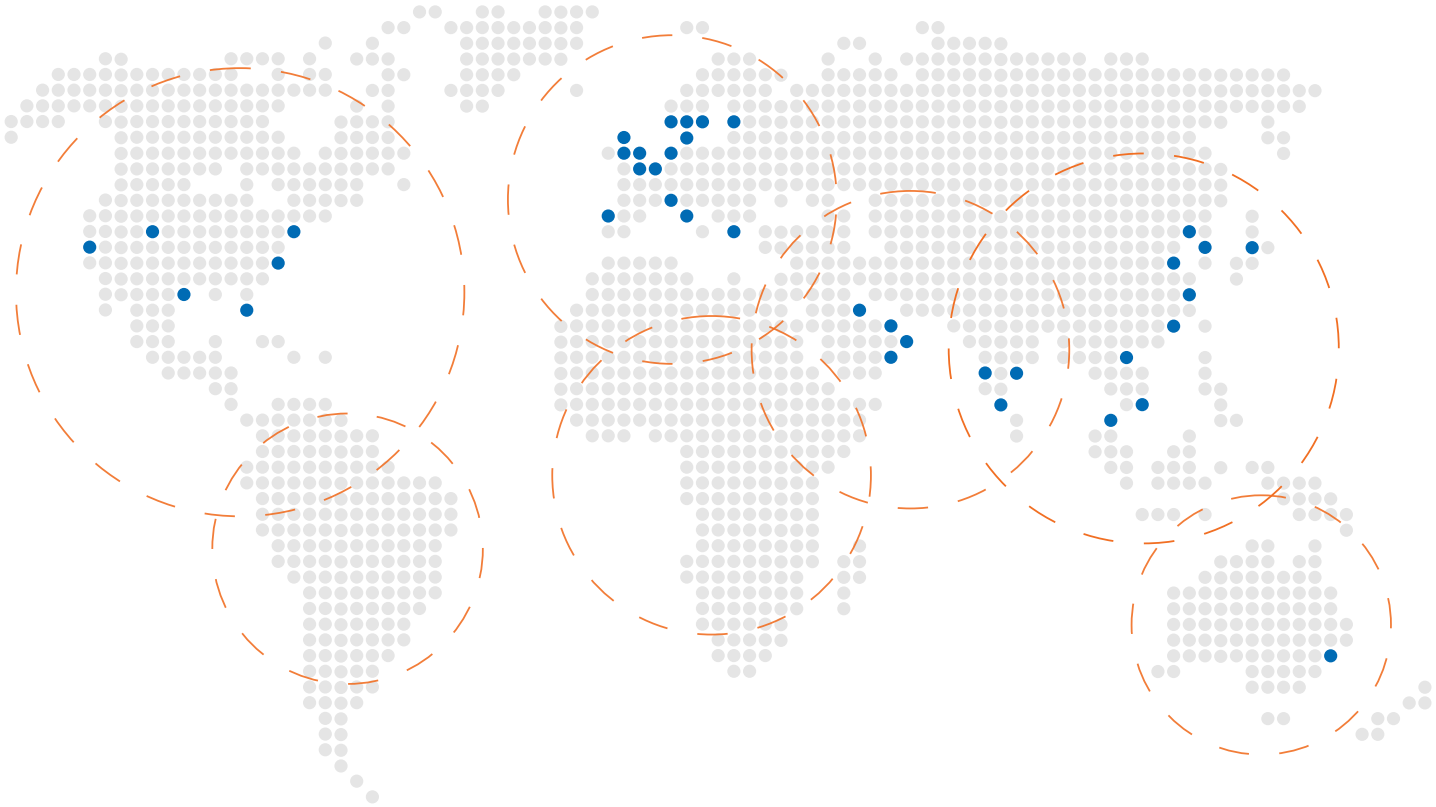

FOR ALL THOSE MOMENTS
WHEN SAFETY MATTERS

Consilium is a producer of safety and safety-related technologies for the marine, oil and gas, transport and building sectors. Our commitment goes beyond the products: We protect the lives of mothers and fathers, sisters and brothers, colleagues and friends. With representation in more than 25 countries in all time zones, we are always close to you.

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