

Fire Alarm System

Salwico NSAC-1

User's Guide

The contents of this document are subject to revision without notice due to continued progress in methodology, design and manufacturing. Consilium Marine assumes no legal responsibility for any error or damage resulting from the usage of this document.

Consilium Marine AB

P.O.Box 8763

SE-402 76 GÖTEBORG

Sweden

Telephone +46 (0)31 710 77 00

Telefax +46 (0)31 710 78 00

E-mail cmab.got@consilium.se

Third Edition, January 2004

Document number S-4-010.939

Article no.: 070068

© 2002, Consilium Marine AB

SE-402 76 Göteborg, Sweden

Table of contents

1	GUIDE TO THIS MANUAL.....	1
1.1	MANUAL CONTENTS	1
2	FIRE ALARM	2
2.1	SILENCING ACOUSTIC ALARMS	3
2.2	REACTIVATING ACOUSTIC ALARMS	3
2.3	RESETTING FIRE ALARMS.....	3
2.4	FIRE ALARM LIST	4
2.5	FIRE ALARM INDICATION	5
2.6	PRINTOUTS	5
3	GAS ALARM.....	6
3.1	SILENCING ACOUSTIC ALARMS	6
3.2	REACTIVATING ACOUSTIC ALARMS	6
3.3	RESETTING GAS ALARMS	6
3.4	GAS ALARM LIST	7
3.5	GAS ALARM INDICATION.....	7
3.6	PRINTOUTS	8
4	PREALARM.....	9
4.1	SILENCING ACOUSTIC ALARMS	9
4.2	REACTIVATING ACOUSTIC ALARMS	9
4.3	PREALARM LIST	10
4.4	PREALARM INDICATION.....	11
4.5	PRINTOUTS	11
5	FAULT	12
5.1	FAULT INDICATION.....	12
5.2	SILENCING ACOUSTIC ALARMS	12
5.3	FAULT LIST	13
5.4	RESETTING FAULTS	13
5.5	PRINTOUTS	13
6	GETTING ACQUAINTED WITH THE SYSTEM - THE CONTROL PANEL	14
6.1	FIRE PANEL	14
6.2	OPERATOR PANEL	17
7	GETTING ACQUAINTED WITH THE SYSTEM - THE MENU SYSTEM	18
7.1	OVERVIEW.....	18
7.1.1	Display Structure.....	18
7.1.2	Choosing Menu Alternative.....	18
7.2	MENU TREE.....	19
8	VIEWING AND PRINTING INFORMATION.....	22
8.1	DISCONNECTION LISTS	22
8.1.1	Disconnections –This list shows all successful disconnections. All listed disconnections are still active, i.e. the disconnection time has not yet expired. From this list the operator can make	

	<i>reconnections. A reconnection overrides the disconnection. The only way to reconnect a unit which has been disconnected indefinitely is from this location in the menu.</i>	22
8.2	FAULT LIST	23
8.3	FIRE ALARM LIST	23
8.4	GAS ALARM LIST	25
8.5	HISTORY LIST	26
8.6	INPUT LIST	26
8.7	LOOP UNIT LIST ("MORE INFO")	27
8.8	NODE LIST	28
8.9	OUTPUT LIST	28
8.10	PREALARM LIST	29
8.11	INPUT, OUTPUT AND MISCELLANEOUS LISTS	30
8.12	ZONE LIST	30
8.12.1	Printouts	30
9	DISCONNECTION	34
9.1	HOW TO MAKE A DISCONNECTION - STEP BY STEP	34
9.1.1	Normal Disconnection	35
9.1.2	Periodic Disconnection	36
9.2	DISCONNECT INPUT	37
9.3	DISCONNECTION LISTS	38
9.4	DISCONNECT NODE	38
9.5	DISCONNECT OUTPUT	39
9.6	RECONNECT	39
10	TEST	38
10.1	TESTING ZONES AND LOOP UNITS	38
10.2	INDICATOR TEST	39
11	SET/RESET	40
11.1	SET OUTPUT DELAY OFF	40
11.2	SET DETECTOR SENSITIVITY	40
11.3	SET FIRE	41
11.4	SET LANGUAGE	41
11.5	SET DATE/TIME	41
11.6	SET INPUTS, OUTPUTS AND MISCELLANEOUS	41
11.6	SET INPUTS, OUTPUTS AND MISCELLANEOUS	42
11.7	SET NUMBER OF LOOP UNITS	42
11.8	SET OUTPUTS (MANUAL ACTIVATION OF OUTPUT)	43
11.9	RESET	44
12	PRIVILEGE AND ACCESS LEVELS, DETECTORS, AND NODES	45
12.1	PRIVILEGE LEVELS	45
12.2	ACCESS LEVELS	45
12.3	DETECTOR AND MANUAL CALL POINT TYPES	45
12.4	NODES	45
12.5	LINE UNITS	45
13	APPENDIX A: FAULT MESSAGES	46
14	APPENDIX B: DEFINITIONS	48

15 APPENDIX C: ADDING, CHANGING AND REMOVING LOOP UNITS IN A ZONE 50

1 Guide to this Manual

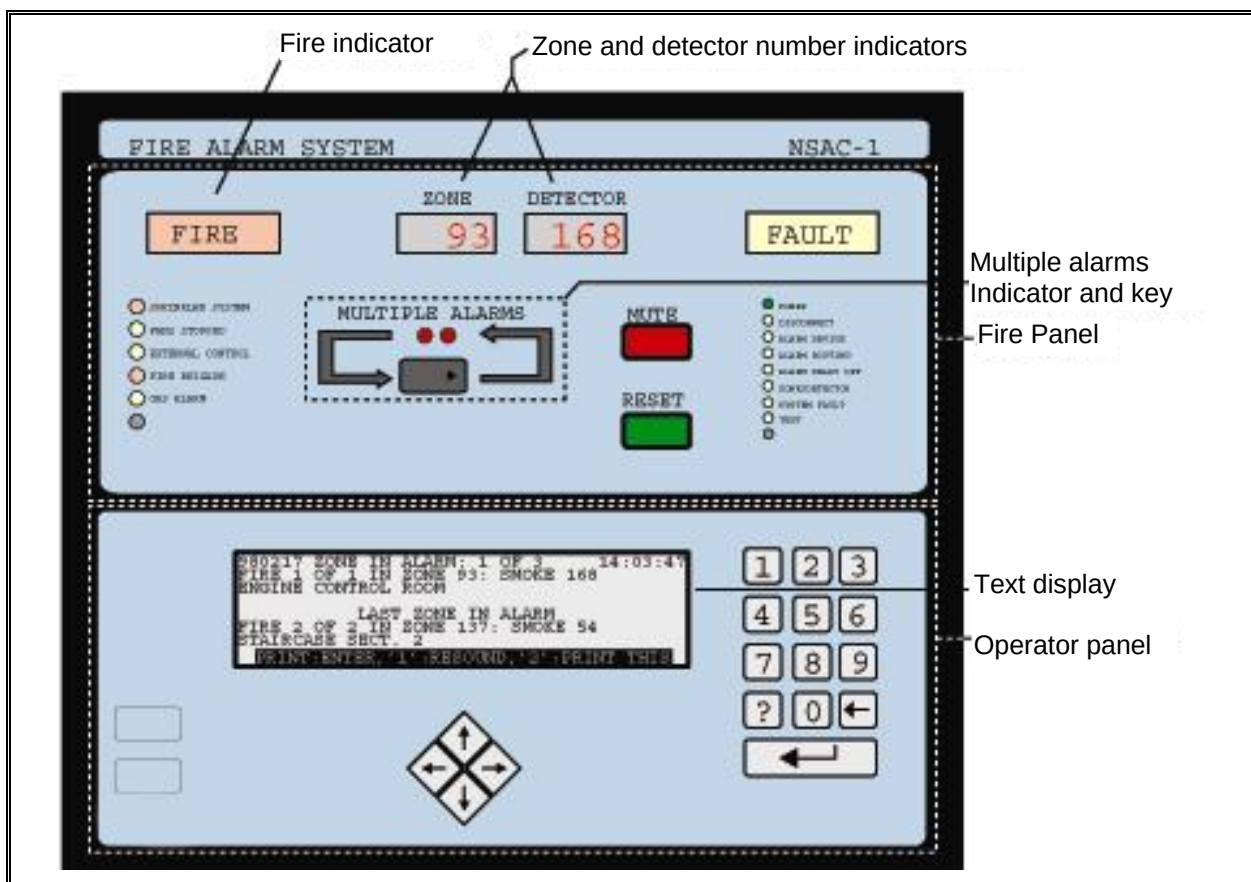
1.1 Manual Contents

This manual describes how to operate the NSAC-1 fire detection system.

- The chapters “Fire Alarm” on page 2 , “Gas Alarm” on page 6, “Prealarm (Sensor Delay)” on page 9, and “Fault” on page 12 describe how to operate the system in a fire or gas leakage and in case of a prealarm or fault
- In the chapter “Getting Acquainted with the System - The Control Panel” on page 14, the operator interface’s controls and indicators are described. This part of the User’s Guide can be seen as the operator’s reference.
- The menu system is covered in the chapter “Getting Acquainted with the System - The Menu System” on page 18.
- The functions view and print are covered in “Viewing and Printing Information” on page 24.
- Disconnections, as well as reconnections are dealt with in “Disconnection” on page 34.
- How to test equipment and functions is covered in “Test” on page 38.
- How to set and reset equipment and various functions is described in “Set/Reset” on page 40.
- The chapter “Privilege and Access Levels, Detectors, and Nodes” on page 45 describes different concepts related to Fire detection.
- “Appendix A: Fault Messages” on page 47 is a list of possible faults, their reasons and remedies. “Appendix B: Definitions” on page 49 is a glossary for terms associated with fire alarms which are used in this manual. “Appendix C: Adding, Changing and Removing Loop Units in a Zone” on page 51 shows how to add and remove loop units in a zone.
- There is also an index at the end of the manual.

2 Fire Alarm

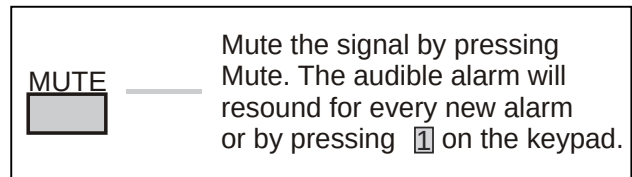
As soon as a fire is detected, the control panel enters the fire alarm condition. This is indicated both on the fire panel and the operator panel by means of visible and audible indicators. Following each fire alarm the proper alarm devices and other outputs controlling fans, doors etc. will be activated and the corresponding indicator on the fire panel will be lit. The fire indicator will flash and the zone and detector indicators will show which zone and detector are in alarm. The buzzer will sound intermittently. The **MULTIPLE ALARM INDICATORS** will flash if there are more than one zone in alarm. In this case, the location of the alarms can be viewed by pressing the **MULTIPLE ALARM BUTTON**.



The Control Panel

2.1 Silencing Acoustic Alarms

When the fire alarms are muted, i.e. the mute button is pressed, the buzzer will be silenced. Any activated alarm device will also be turned off. NOTE: The control panel must have privilege level C to mute acoustic alarms, see further section 12.1, Privilege Levels.



The Mute Button

2.2 Reactivating Acoustic Alarms

Pressing **1** on the numerical keypad when viewing the fire alarm list will resound the acoustic alarms.

NOTE: The control panel must have privilege level C to reactivate acoustic alarms, see further section

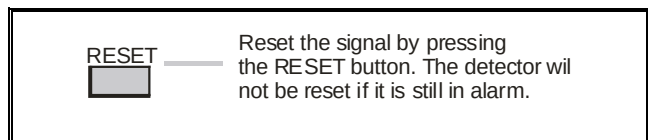
12.1, Privilege Levels.

2.3 Resetting Fire Alarms

By pressing  the fire alarm displayed in the zone number and detector number indicators will be reset, which is the same alarm displayed on the first field on the text display.

The reset operation will only be successful if the fire alarm condition has disappeared. If the operation is not successful this will be reported.

NOTE: The control panel must have privilege level C to reset a fire alarm, see further section 12.1, Privilege Levels.



The Reset Button

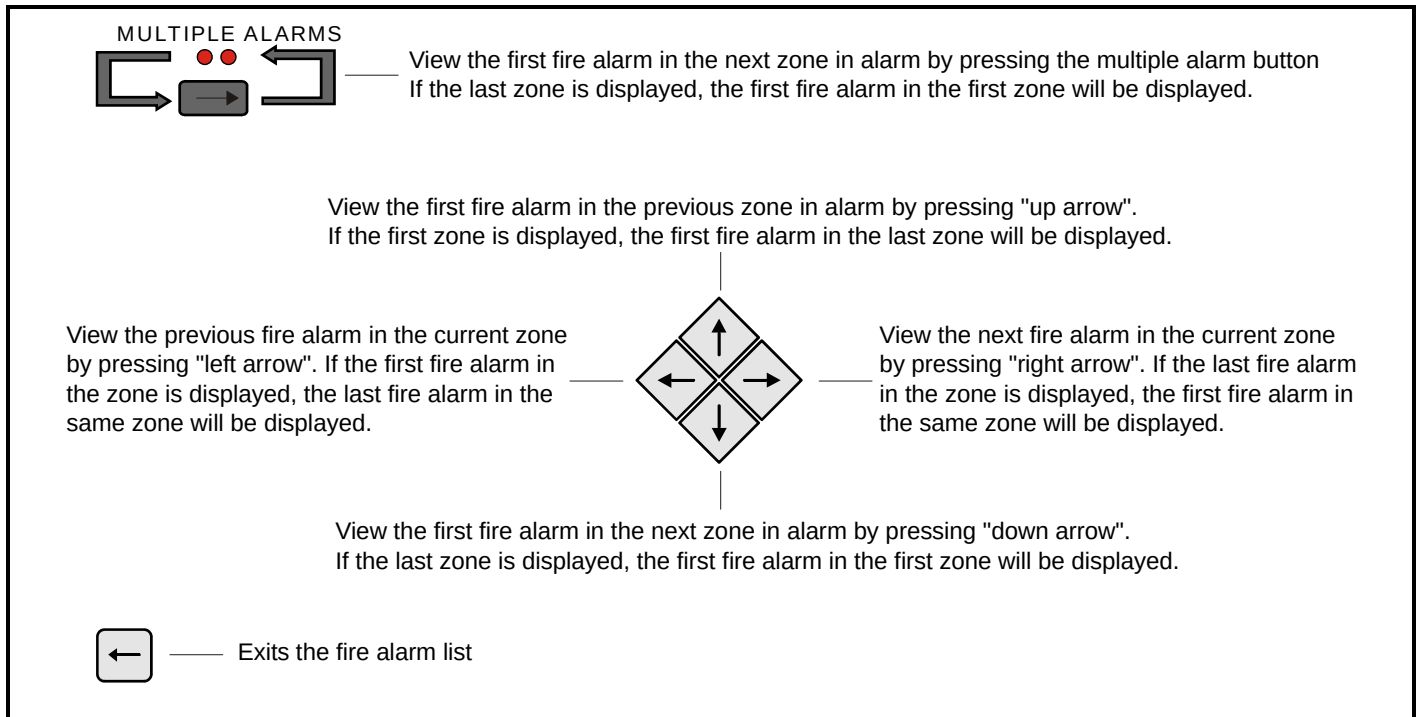
2.4 Fire Alarm List

The Fire Alarm List shows all the fire alarms in the system. When a control unit receives a fire alarm, this is always displayed. If there are one or more fire alarms in the system the first zone in alarm is displayed again if the control panel is idle for more than 20 s. The first 200 reported alarms will be listed.

The fire alarm menu comes up automatically, but if you have left it, the way to it is:

- Go to the top level of the menu system and press 
- Choose SUPERVISION. Press 
- Choose EVENTS. Press 
- Choose FIRE. Press 

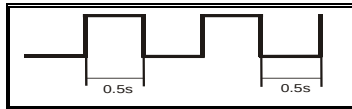
All fire alarms are kept in a scrollable list. For a description of the usage of the MULTIPLE ALARM BUTTON and the arrow keys see below.



Viewing the Fire Alarm List

2.5 Fire Alarm Indication

In the case of multiple alarms starting at the same time in different zones, the **MULTIPLE ALARMS INDICATOR** will start flashing. To acknowledge the alarm press . This will silence the alarm. Each new fire alarm from a detector will cause the buzzer to sound.



The Intermittent Audible Fire Alarm

The first alarm will be displayed on the zone and detector number indicators. To see the next zone in alarm, press the **MULTIPLE ALARMS BUTTON**. The text display will also display the alarms, but in a slightly different way. The top three lines on the large display will show the first fire alarm detected or the currently listed one. The next field will always display the last fire alarm from the last zone that caused a fire alarm. It is thus simple to trace a fire spreading into new zones.

Shows the order of the zone in alarm and the total number of zones in alarm.

Shows the order of the alarm in the zone viewed and the total number of alarms in the zone as well as the type of unit in alarm (smoke detector).

Description text of the unit in alarm.

The last alarm from the last zone in alarm and the type of unit in alarm (smoke detector).

Description text of the last unit in alarm.

By pressing  you will print a list of the current fire alarms,  will print the present message and  will resound.

```

980217 ZONE IN ALARM: 1 OF 3      07:30:14
FIRE 1 OF 1 IN ZONE 1: SMOKE 1
CREW'S QUARTERS
                LAST ZONE IN ALARM
FIRE 2 OF 2 IN ZONE 137: SMOKE 7
STAIRCASE SECT. 1
PRINT:ENTER, '1':RESOUND, '2':PRINT THIS
          
```

Fire Alarm Indication

2.6 Printouts

To get a printout of the fire list, press  when given the option in the menu. This will give you a list of the zones and detectors in fire alarm. The list will be in chronological order, not by zones but by

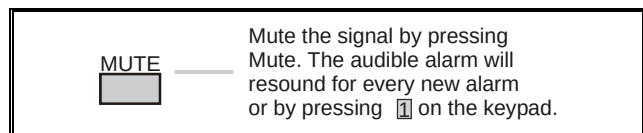
detectors. The first 200 fire alarms will be printed out. To get a printout of the present fire alarm, press .

3 Gas Alarm

As soon as gas is detected, the control panel enters the gas alarm condition. This is indicated both on the fire panel and the operator panel by means of visible and audible indicators. Following each gas alarm the proper alarm devices and other outputs controlling fans, doors etc. are activated and the corresponding indicator on the fire panel is lit. The gas indicator flashes and the zone and detector indicators show which zone and detector are in alarm, unless there is a fire alarm in the system. The buzzer sounds intermittently.

3.1 Silencing Acoustic Alarms

When the gas alarms are muted, i.e. the mute button is pressed, the buzzer will be silenced. Any activated alarm devices will also be turned off. NOTE: The control panel must have privilege level C to mute acoustic alarms, see further section 12.1, Privilege Levels.



The Mute Button

3.2 Reactivating Acoustic Alarms

Pressing 1 on the numerical keypad when viewing the gas alarm list will resound the acoustic alarm.

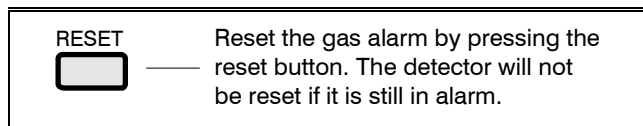
NOTE: The control panel must have privilege level C to reactivate acoustic alarms, see further section 12.1, Privilege Levels.

3.3 Resetting Gas Alarms

By pressing  the gas alarm displayed in the first field on the text display will be reset, which is the same alarm displayed on the zone and detector indicator.

The reset operation will only be successful if the gas alarm condition has disappeared. If the operation is not successful this will be reported.

NOTE: The control panel must have privilege level C to reset a gas alarm, see further section 12.1, Privilege Levels.



The Reset Button

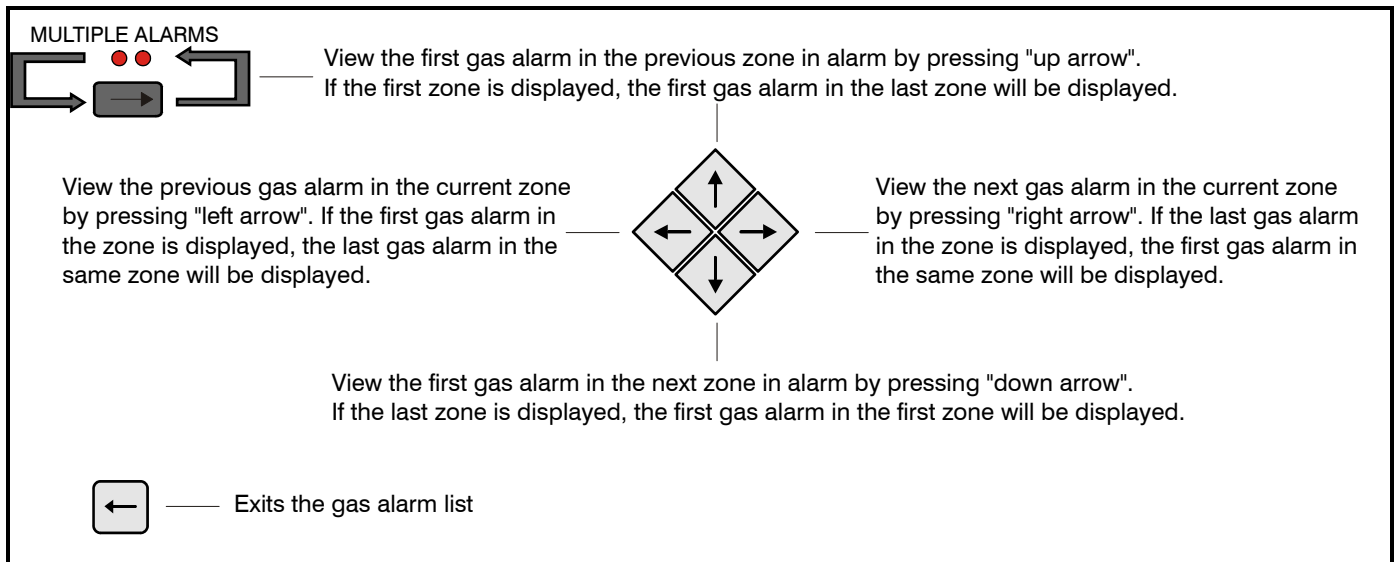
3.4 Gas Alarm List

The gas alarm list is identical to the fire alarm list except that it shows gas alarms instead of fire alarms. The gas alarm list menu comes up automatically, but if you have left it or if there are fire alarms, the way to it is:

- Go to the top level of the menu system and press 

- Choose SUPERVISION. Press 
- Choose EVENTS. Press 
- Choose GAS. Press 

Below is a description of how to view gas alarms.

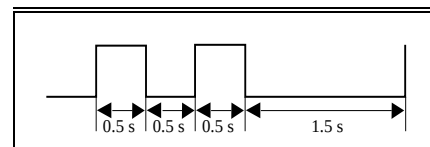


Viewing the Gas Alarm List

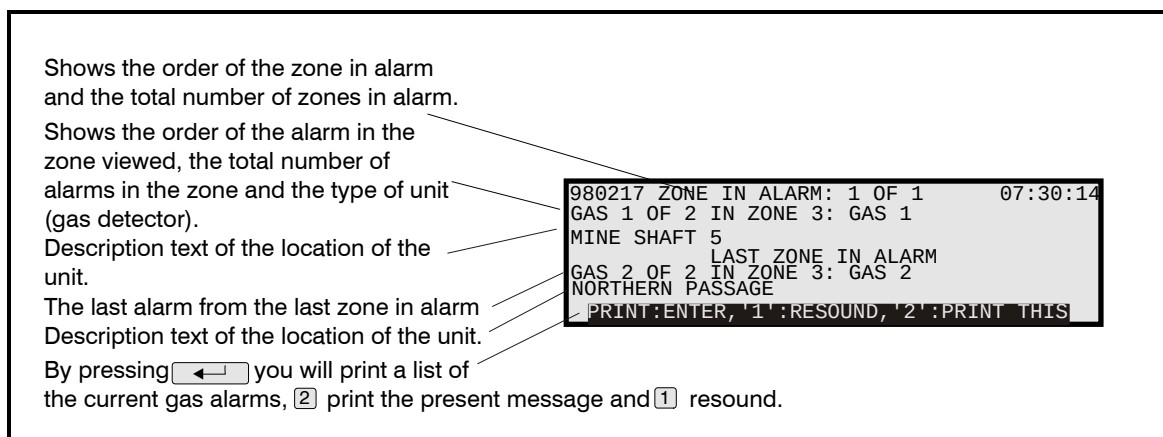
3.5 Gas Alarm Indication

When a gas alarm occurs, the gas alarm indicator will light up and the buzzer will give an intermittent signal.

The following illustration describes the gas alarm display. Please note that the alarms in the figure are gas, not fire. Also note that gas alarms only come from gas detectors.



The Intermittent Audible Gas Alarm



Gas Alarm Indication

3.6 *Printouts*

To get a printout of the gas alarm list, press  when given the option in the menu. This will give you a list of the zones and detectors in gas alarm. The list will be in chronological order. The first 100 gas alarms will be printed out. To get a printout of the present gas alarm, press .

4 Prealarm

A prealarm occurs when a fire detector or manual call point is near a fire alarm condition but the level of the detected state is not enough to cause an alarm. When the control unit receives a prealarm it shows the prealarm list unless there are fire alarms in the system. The buzzer will sound intermittently unless there are fire alarms in the system.

The prealarms cannot manually be removed from the list but are removed either when the signal is changed to a real fire alarm or the fire detector is returned to a normal condition. The same detector

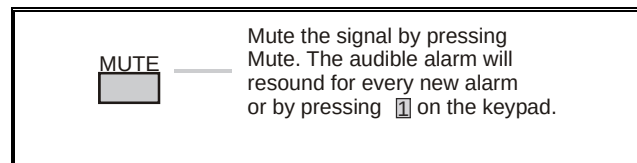
can not therefore be shown in the fire alarm list and the prealarm list at the same time.

The audible signal can be muted.

4.1 Silencing Acoustic Alarms

When the prealarms are muted, i.e. the mute button is pressed, the buzzer will be silenced. Any activated alarm devices will also be turned off.

NOTE: The control panel must have privilege level C to mute acoustic alarms, see further section 12.1, Privilege Levels.



The Mute Button

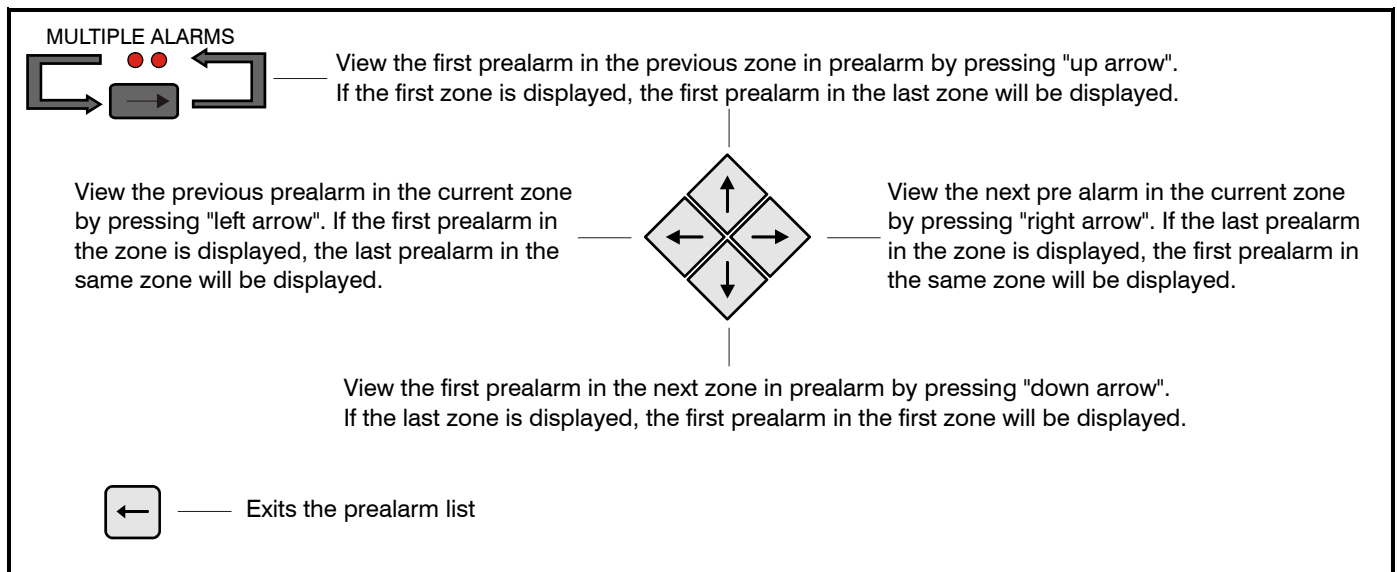
4.2 Reactivating Acoustic Alarms

Pressing 1 on the numerical keypad when viewing the prealarm list will resound the acoustic alarm.

NOTE: The control panel must have privilege level C to reactivate acoustic alarms, see further section 12.1, Privilege Levels.

4.3 Prealarm List

The first 20 prealarms will be listed. Below are instructions for viewing the prealarm list.



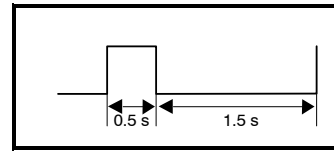
Viewing the Prealarm List

The prealarm list menu comes up automatically, but if you have left it or if there are fire or gas alarms, the way to it is:

- Go to the top level of the menu system and press
- Choose SUPERVISION. Press .
- Choose EVENTS. Press .
- Choose PREALARM. Press .

4.4 Prealarm Indication

In the event of a prealarm, the text display will light up and the buzzer will give an intermittent signal. The following illustration describes the prealarm display. Please note that the alarms in the figure are prealarms. The information has the same format as the fire alarm list.



The Intermittent Audible Prealarm

```

990708 ZONE IN ALARM: 1 OF 1
PREAL 1 OF 2 IN ZONE 1: SMOKE 1
DINING ROOM
LAST ZONE IN ALARM
PREAL 3 OF 3 IN ZONE 8: DET 2
SAUNA
PRINT, '1' RESOUND, '2' PRINT THIS
          
```

Shows the zone that is currently viewed, and the total number of zones in prealarm or sensor delay.

Shows the order of the prealarm and the total number of prealarms in the zone. It also shows the unit and the address.

Description text of the location of the unit shown on the second row.

Similar to the second row, but this row always displays the last prealarm or sensor delay in the last zone in alarm.

By pressing you will print a list of the current prealarms, **2** print the present message and **1** resound.

Prealarm Indication

4.5 Printouts

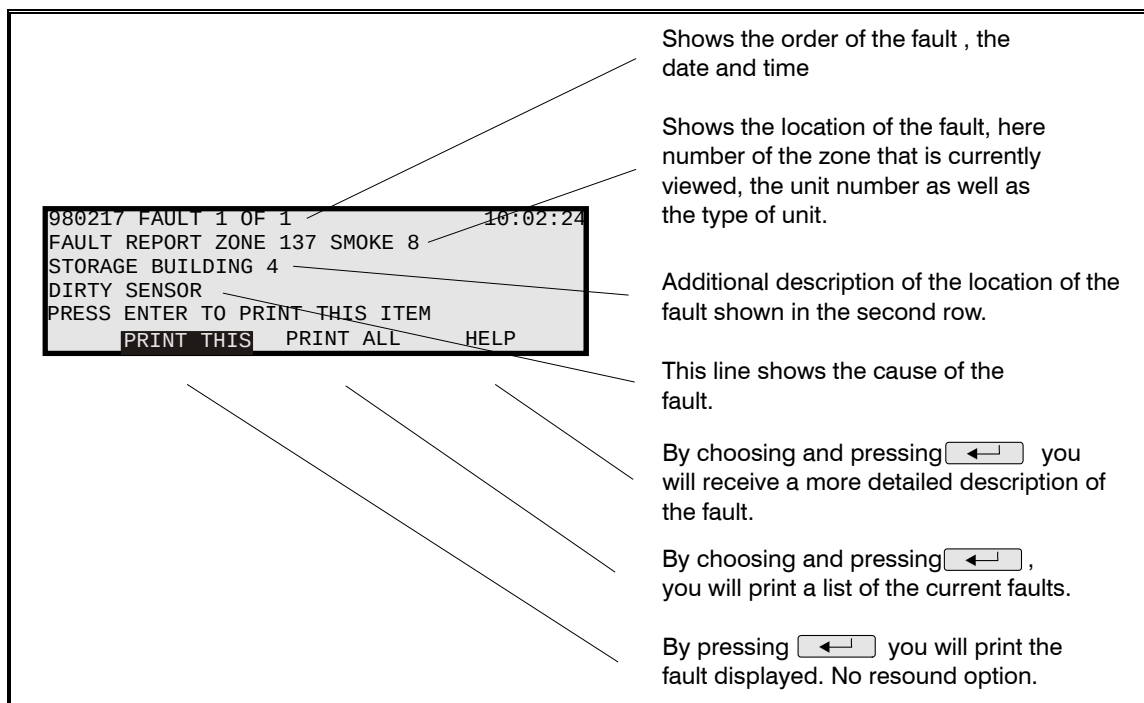
To get a printout of the prealarm list, press when given the option in the menu. This will give you a printout of the prealarms so you can find the sites where there is a prealarm and attend to the condition there. The printed list will show the prealarms in chronological order, not listed by zone but by detector. The first 20 prealarms will be listed. To get a printout of the present prealarm, press **2**

5 Fault

When a fault is detected, the control panel will enter the fault condition. This will be indicated on both the operator panel (the text display) and the fire panel (The fault indicator will light up). There will also be a continuous audible signal from the buzzer. However if there is a fire or gas alarm or prealarm at the same time then this signal will be heard, and the information on the operator panel will be suppressed and reflect the corresponding alarm status instead. The proper outputs will be activated as well.

5.1 Fault Indication

Each newly detected fault will cause the buzzer to sound. The last fault will be displayed on the top four lines on the text display. The text display will light up, showing the following information:



The diagram shows a text display with the following content:

```

980217 FAULT 1 OF 1 10:02:24
FAULT REPORT ZONE 137 SMOKE 8
STORAGE BUILDING 4
DIRTY SENSOR
PRESS ENTER TO PRINT THIS ITEM
PRINT THIS PRINT ALL HELP
  
```

Callouts explain the information:

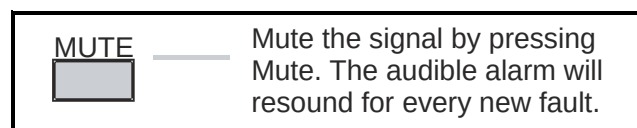
- Shows the order of the fault , the date and time
- Shows the location of the fault, here number of the zone that is currently viewed, the unit number as well as the type of unit.
- Additional description of the location of the fault shown in the second row.
- This line shows the cause of the fault.
- By choosing and pressing  you will receive a more detailed description of the fault.
- By choosing and pressing  , you will print a list of the current faults.
- By pressing  you will print the fault displayed. No resound option.

Fault Indication

5.2 Silencing Acoustic Alarms

When the faults are muted, i.e.  is pressed, the buzzer will be silenced. Any activated alarm devices will also be turned off.

NOTE: The control Panel must have privilege level C to mute acoustic alarms, see further section 12.1, Privilege Levels.



MUTE  Mute the signal by pressing Mute. The audible alarm will resound for every new fault.

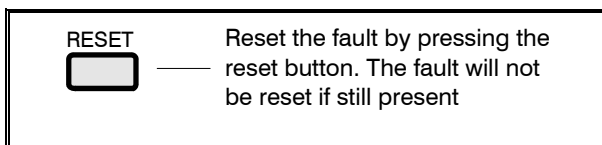
The Mute Button

5.3 Fault List

The fault list shows all the current faults in the system. They are listed in chronological order. The last 200 faults will be listed. Step through the list using  and .

5.4 Resetting Faults

By pressing  the fault displayed on the text display will be reset. The reset operation will only be successful if the fault condition has disappeared.



The Reset Button

If there is a fire alarm, gas alarm or prealarm at the same time as the fault condition, the corresponding alarm list will be displayed. In order to enter the fault list in case an alarm list is displayed, move up one level in the menu structure, by pressing , then

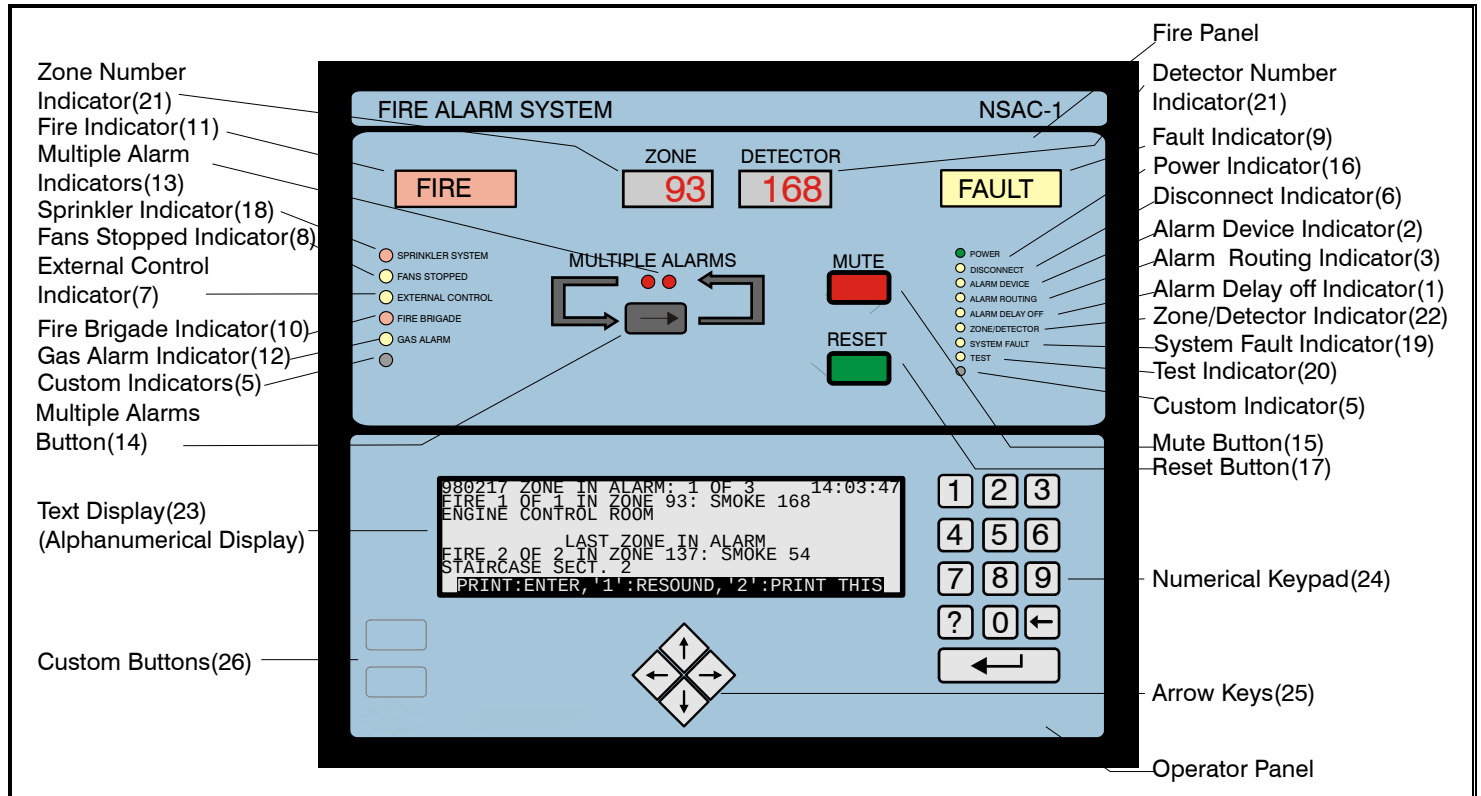
choose the faults menu, by pressing  followed by , and the fault list will be displayed. If the control panel is idle for 20 seconds, the fire alarm list will be displayed again. To obtain a list of possible faults, see “Appendix A: Fault Messages” on page 46

5.5 Printouts

To get a printout of the fault list, press  when given the option PRINT ALL in the menu. This will give you a printout of the faults so you can find the sites where there is a fault and attend to the condition there. The first 200 faults will be listed. To print the fault currently displayed, press  when given the option PRINT THIS.

6 Getting Acquainted with the System - The Control Panel

This chapter will introduce the operator interface: the control panel. It will describe all buttons and indicators on the panel.



6.1 Fire Panel

The fire panel is the upper part of the control panel. It gives basic information regarding fire alarms, prealarms, faults, disconnected units and other system conditions. There is also a possibility to mute and reset fire alarms and faults.

1 Alarm Delay Off Indicator

This indicator will indicate that the alarm delay function is disconnected. In this case the fire alarm bells and other external signals, including signals to the fire fighting unit, will be activated at the same time as the alarm in the control unit. Yellow light.

2 Alarm Device Indicator

A flashing indicator will indicate a fault related to acoustic alarms (output of type BELL), and a continuous light will indicate that at least one device is disconnected. Yellow light.

3 Alarm Routing Indicator

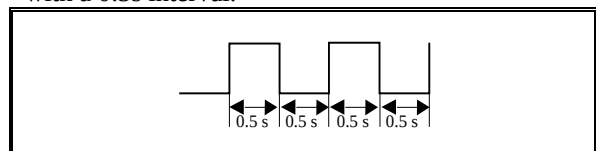
A flashing indicator will indicate a fault related to alarm routing outputs (of type FIRE), and a continuous light will indicate that at least one alarm routing output is disconnected. The alarm routing

output is supervised output to the fire brigade. Yellow light.

4 Buzzer

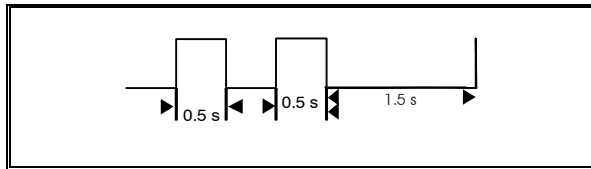
The buzzer will sound when there are fire, pre-alarms or faults that are not muted.

- In case of fire, the buzzer is turned on and off with a 0.5s interval.

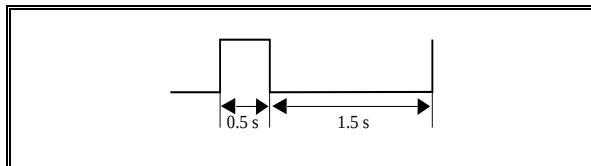


The Intermittent Audible Fire Alarm

- In case of a gas alarm the buzzer will give a signal as shown below. The fire alarm signal has priority over the gas alarm signal.



- In case of a prealarm the buzzer will be on for 0.5s at 1.5s intervals. The fire alarm signal and the gas alarm signal have priority over the prealarm signal.



The Intermittent Audible Prealarm

- If the system shows a fault, the buzzer will give a continuous signal. The fire alarm signal and the prealarm signal have priority over the fault signal.

5 Customer Indicators

These indicators can be used according to specific customer requirements. Yellow light.

6 Disconnect Indicator

This is a general indicator showing that at least one node, output, input, loop unit (See “**Loop Unit**” on page 48.), zone or function in the system is disconnected. Alarms will not be given from a disconnected detector or zone. Yellow light.

7 External Control Indicator

Indicates that an unspecified external function has been started. This function is for the most part the closing or opening of fire doors and the opening of smoke hatches. Yellow light.

8 Fans Stopped Indicator

Indicates that at least one output (of type VENT) controlling the stopping of fans has been activated. Yellow light.

9 Fault Indicator

This yellow indicator, located in the top right corner of the panel, is lit when there is a fault in the system.

10 Fire Brigade Indicator

Indicates that the output (of type FIRE) controlling the transmission of fire alarms to the fire brigade has been activated. Red light.

11 Fire Indicator

This red indicator located in the top left corner of the panel flashes as long as there is at least one unmuted fire alarm in the system. When the alarm is muted, the light will be steady

12 Gas alarm Indicator

This indicator is lit when there is at least one gas alarm in the system.

13 Multiple Alarm Indicators

A flashing indicator shows if there are two or more zones with detected fire alarms, gas or prealarms. Red light.

14 Multiple Alarm Button

This button is used to scroll through the zones in alarm. Each time the button is pressed the next zone in alarm will be shown on the zone and detector indicator and the text display. The first detected fire, gas or pre-alarm in each zone will be displayed. To look through all the alarms in each

zone, use  or . (See “Fire Alarm List” on page 4).

15 Mute Button

This button is pressed in order to silence fire, gas, pre-alarms or faults.

16 Power Indicator

This indicator shows that the control panel is powered. In case of a mains power supply failure the system is automatically switched over to stand-by-power, so that the system can continue working. Green light.

17 Reset Button

This button should be pressed after having dealt with the source of the alarm. This will restore the function of the unit(s) affected. If the unit is not reset, a message will appear in the text display explaining why. If the text display shows the fault list, the corresponding fault will be reset. If the text shows the gas alarm list, the corresponding gas alarm will be reset. Otherwise the fire alarm which is indicated by the zone and detector indicator will be reset.

18 Sprinkler System Indicator

Indicates that at least one output (of type SPRINKLER) controlling a sprinkler system has been activated. Red light.

19 System Fault Indicator

Indicates that the system may not fulfil all specified functions properly. Yellow light.

20 Test Indicator

Indicates that at least one zone is in test state. In other words a fire alarm, gas alarm or prealarm from zone in question will not activate any alarm devices or other outputs. Yellow light.

21 Zone Number Indicator and Detector Number Indicator

If there is a detected fire alarm, gas alarm or prealarm in the system these indicators will show the zone and detector number of the device that

caused the first alarm. If the alarm list is scrolled, the following device's number will be displayed, and so on. If the control panel is idle for 25 seconds, the first alarm will be displayed again. The zone and detector indicators can be activated without the fire indicator flashing. In this case, there is a prealarm or gas alarm at the corresponding zone number and detector address. If the zone indicator is activated and the detector

number indicator shows , a conventional detector in the zone is indicating an alarm. (See Zones in "Appendix B: Definitions" on page 48).

22 Zone/Detector Indicator

A flashing indicator indicates a fault related to a loop unit or zone, and a continuous light that a loop unit or zone is disconnected. Yellow light.

24 Numerical Keypad

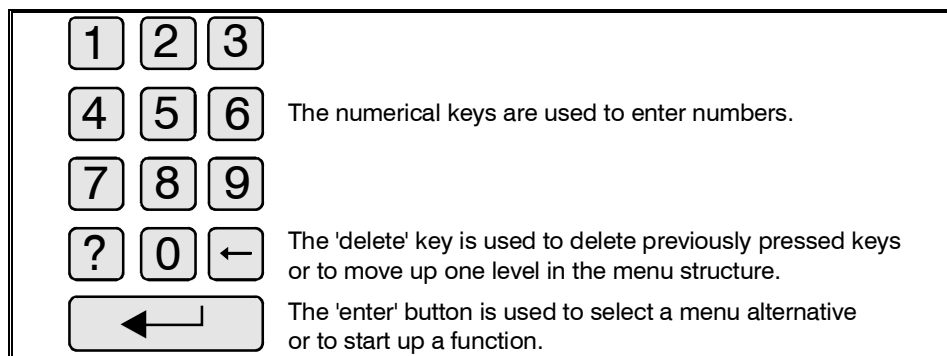
The numerical keypad is used to enter numerical information into the system. There is also an enter,

23 Text Display

The text (alphanumeric) display is used to guide the operator when using the system and also to display status information. The NSAC-1 is a menu operated system. The menus are shown on the text display.

The bottom line is always the menu line. Above this line there is a help line which describes the selected menu. The guidance line gives information about the displayed menu. This is the basic appearance of the display which is always used except when displaying lists.

delete and help key, with functions as described below.

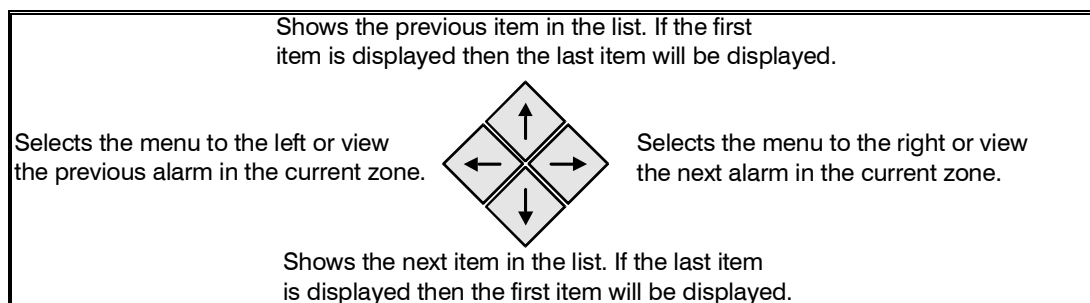


Numerical Keypad

25 Arrow Keys

The arrow keys are used to move sideways in the menu system and to scroll lists such as fire alarm,

gas alarm, prealarm, fault and history.



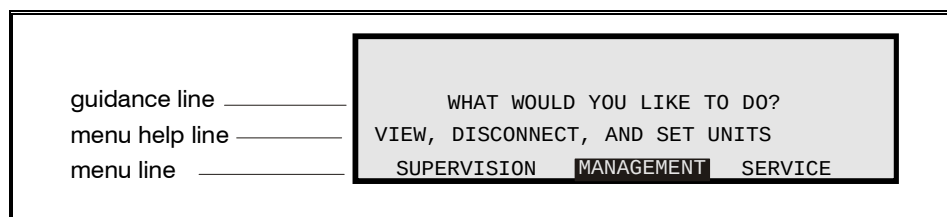
Arrow Keys

26 Customer Keys

The two custom buttons in the lower left corner are used according to customer requirements and can be used for example to implement shortcuts to frequently used functions. The control functions of these buttons are implemented through LPC programming.

6.2 Operator Panel

The operator panel is the lower part of the control panel. It consists of a text display, a numerical keypad, arrow keys and two customer specific buttons.

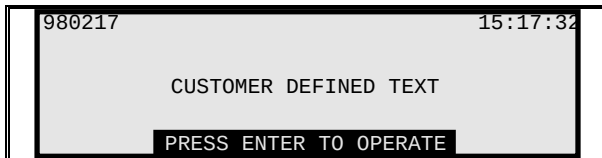


Text Display

7 Getting Acquainted with the System - The Menu System

7.1 Overview

The menu system is structured in a hierarchical way. This means that it has one top level. The top level for NSAC-1 looks as the figure below. This menu is the first that is shown when a successful system start up has been performed.



The Top Level Menu

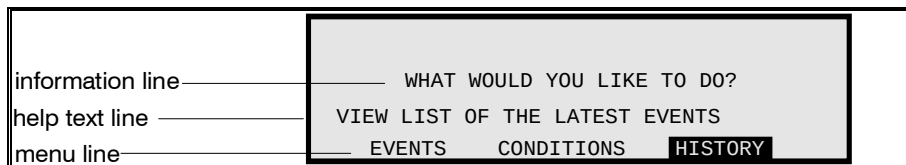
Each menu level consists of sub-menus, and these menus consists of other sub-menus and so on until the bottom level is reached. The top level consists of one submenu. To go to the top menu level, press repeatedly so as to get higher up in the menu

hierarchy.

7.1.1 Display Structure

The menu system is displayed on the text display. The appearance of each menu follows a pattern which is recognised throughout the entire menu system.

The information line gives information of the actual menu which is displayed. The help text line gives a description to the selected menu alternative. This text changes depending on which menu alternative is selected. Some menus, such as lists, do not follow this structure. These menus are described separately in “Fire Alarm” on page 2, “Gas Alarm” on page 6, “Prealarm” on page 9, and “Fault” on page 12..



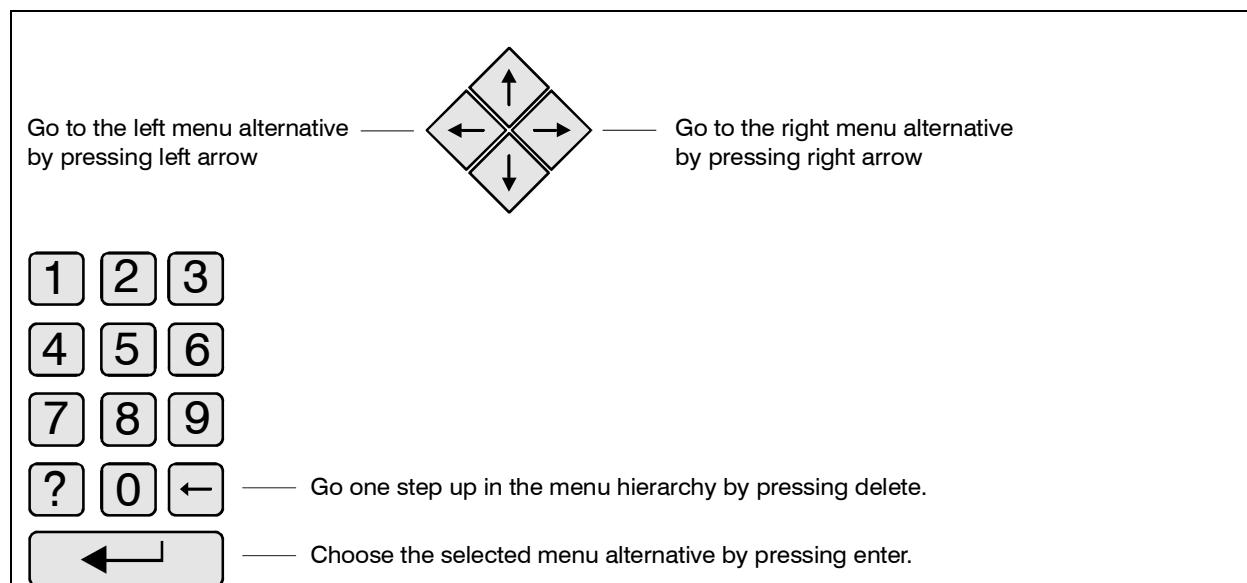
Display Structure

7.1.2 Choosing Menu Alternative

The menu line consists of menu alternatives, unless there are no alternatives for the menu concerned. If

there are two or more alternatives the operator can choose one of them. The chosen one is shown in inverted text.

s



Choosing the Menu Alternative

Doc no.

Revised:

Revised by:

Approved by:

Valid from:

Revcode:R3

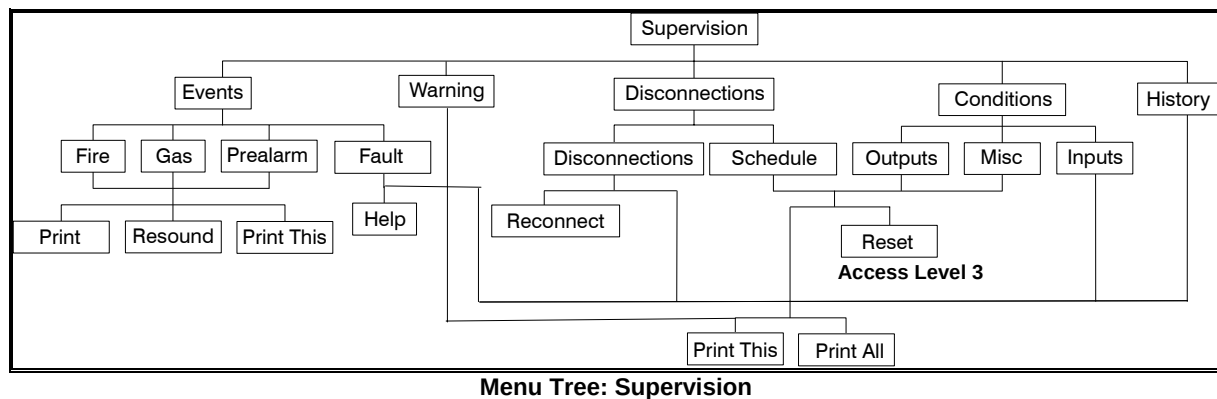
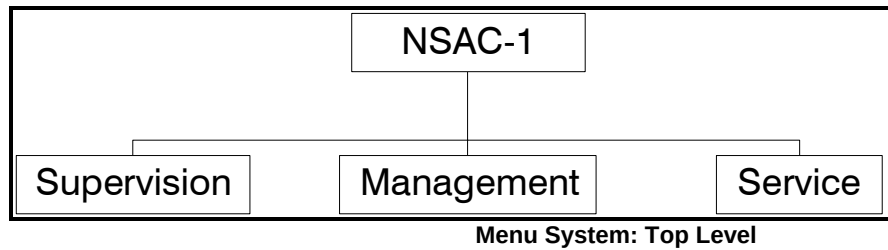
BM

CS

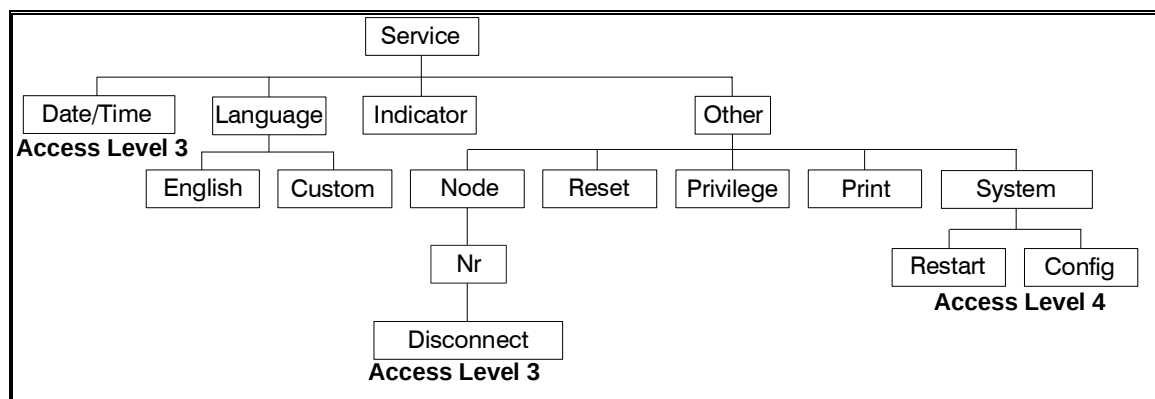
2/3/04

7.2 Menu Tree

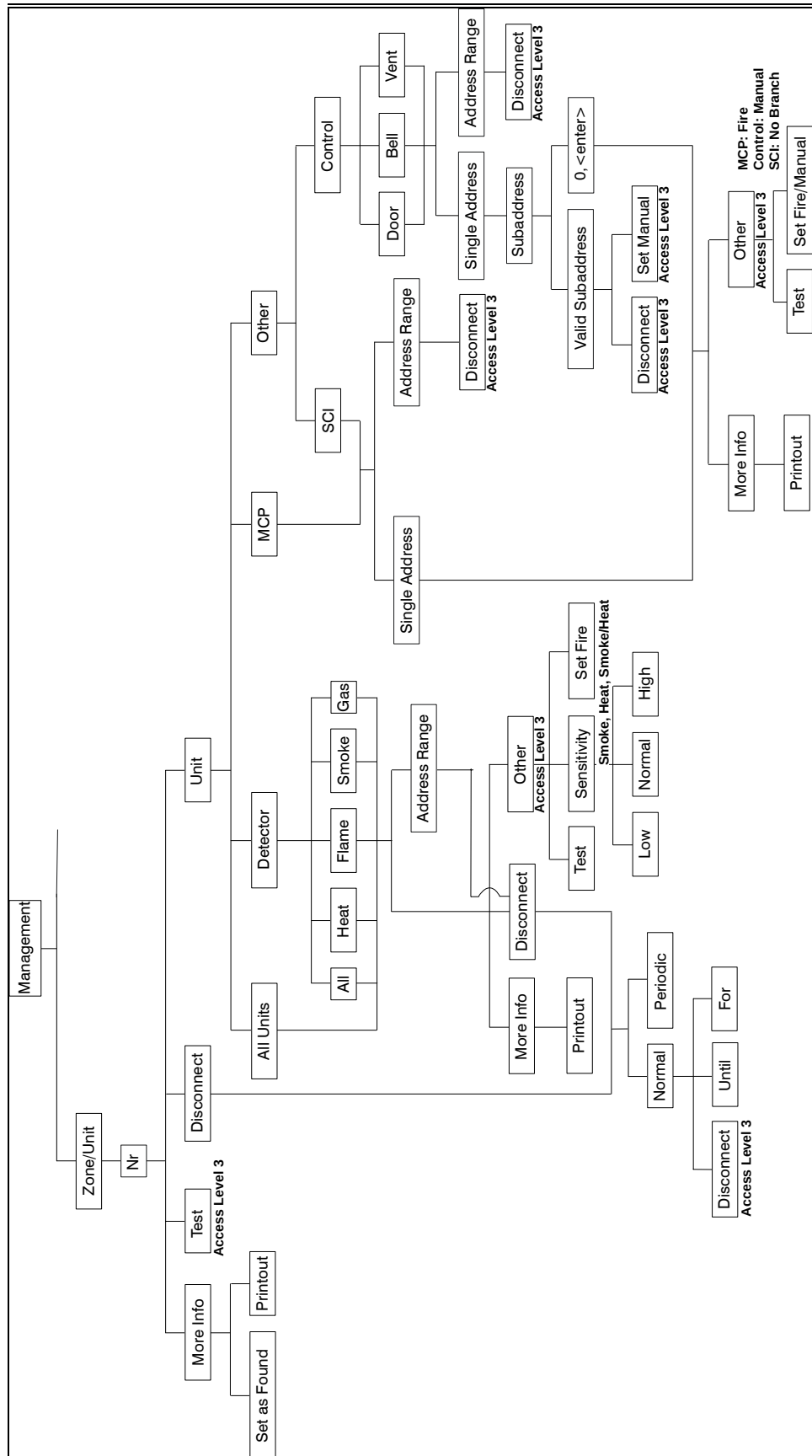
The menu is divided into three parts:



- SUPERVISION - accessing lists showing current alarms and disconnections as well as the last 200 changes in status. This is where reconnections are made.

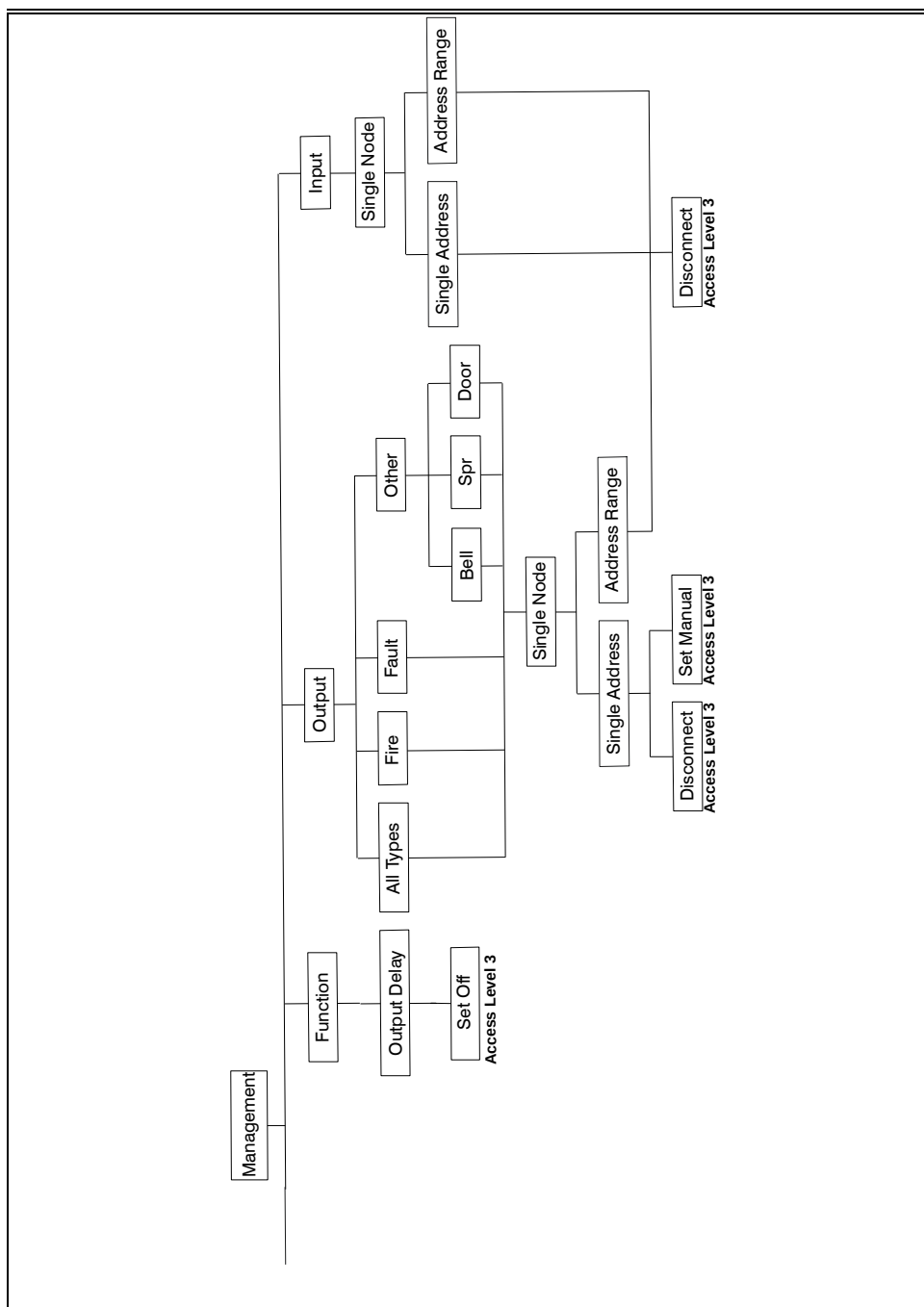


- SERVICE - disconnecting nodes, setting language & date/time, making indicator tests and resetting the system.



Menu Tree: Management

- The menu tree is continued on the next page.



.Menu Tree: Management (cont.)

- MANAGEMENT - where disconnections are made.

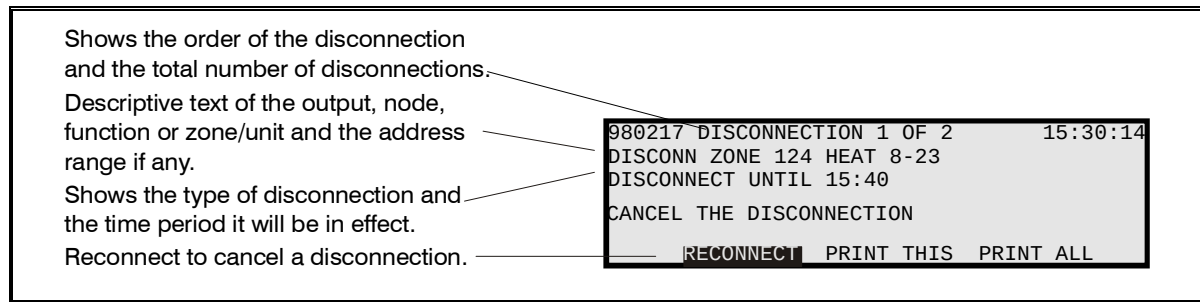
8 Viewing and Printing Information

A large amount of information can be shown on the text display and printed. The most common material consists of lists of alarms, prealarms and faults. There are also lists of disconnections, set outputs, and various system functions which are set off. Lists of zones, history and units in a given zone can also be viewed and printed.

8.1 Disconnection Lists

There are two disconnection lists: the DISCONNECTIONS and the SCHEDULE lists. They correspond to the two different kinds of disconnections the NSAC-1 system allows: normal and periodic disconnections, see further chapter 9, Disconnection.

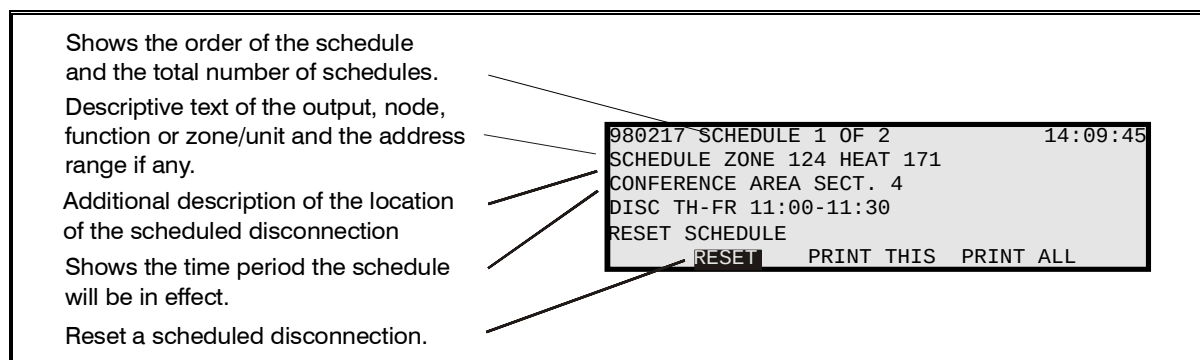
8.1.1 Disconnections – This list shows all successful disconnections. All listed disconnections are still active, i.e. the disconnection time has not yet expired. From this list the operator can make reconnections. A reconnection overrides the disconnection. The only way to reconnect a unit which has been disconnected indefinitely is from this location in the menu.



The Disconnection Display

8.1.2 Schedules – This list shows all scheduled periodical disconnections. The only way to remove a scheduled periodical disconnection is

to reset it from this location in the menu. This list can hold up to ten scheduled disconnections, see further chapter 9, Disconnection.



The Schedule Display

- Go to the top level of the menu system and press .
- Choose SUPERVISION in the top menu. Press .
- Choose DISCONNECTIONS in the first submenu. Press .
- Choose either DISCONNECTIONS or SCHEDULE in the second submenu. In both cases, you will be given the option to execute PRINT ALL, i.e. to print the entire DISCONNECTIONS or SCHEDULE list. Choose it and press .

Step through the lists using  and .

8.1.3 Printouts – To print either a list of disconnections or a list of scheduled disconnections, choose PRINT ALL and press .

when viewing the the list. To print the currently displayed disconnection or scheduled disconnection, choose PRINT THIS and press .

8.2 Fault List

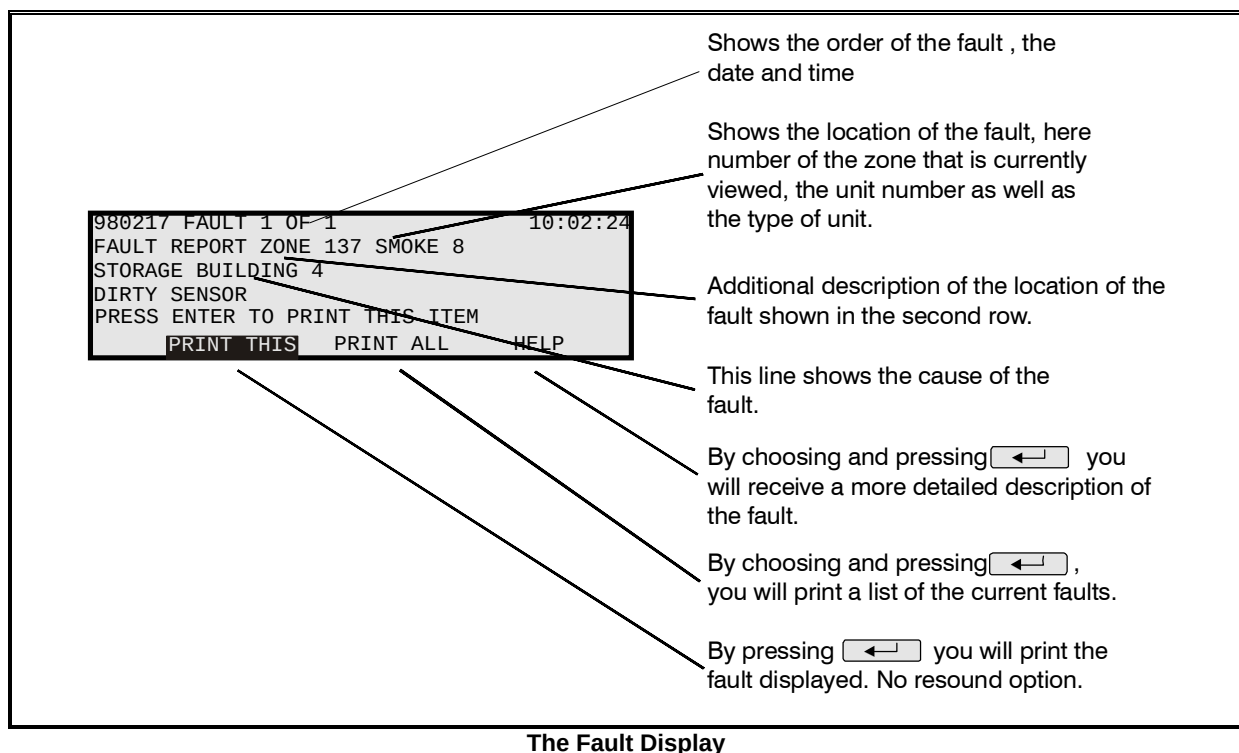
The fault list shows all the current faults in the system. They are listed in chronological order. The first 200 faults will be listed. Step through the list using  and .

The fault list menu comes up automatically, but if you have left it or if there are fire or gas alarms or prealarms, the way to it is:

- Go to the top level of the menu system and press .
- Choose SUPERVISION. Press .
- Choose EVENTS. Press .
- Choose FAULT. Press .

8.2.1 Printouts – To get a printout of the fault list, press  after selecting the option PRINT ALL. This will give you a printout of the faults so you can find the sites where there is a fault and attend to the condition there. The first 200 faults will be listed. To get a printout of the currently displayed fault, press  after selecting the option PRINT THIS.

8.2.2 Description of the Fault Display–The following figure describes the fault display.



The Fault Display

8.3 Fire Alarm List

The Fire Alarm List shows all the fire alarms in the system. When a control unit receives a fire alarm, this is always displayed. If there are one or more fire alarms in the system the first zone in alarm is displayed if the control panel is idle for more than 20 s. The first 100 reported alarms will be listed.

The fire alarm menu comes up automatically, but if

you have left it, the way to it is:

- Go to the top level of the menu system and press .
- Choose SUPERVISION. Press .
- Choose EVENTS. Press .
- Choose FIRE. Press .

All fire alarms are kept in a scrollable list. This list can be scrolled either by pressing the multiple alarms button or by pressing  and .

By pressing the multiple alarms button the first detector of the next zone in alarm will be displayed. If the currently displayed zone is the last one then the first zone in alarm will be displayed instead. To look through all the alarms in the same zone, press

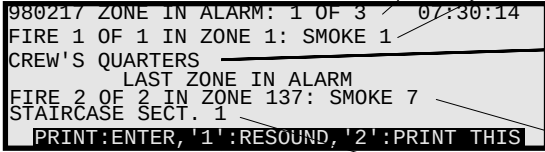
 or . See “Fire Alarm” on page 2.

8.3.1 Description of the Fire

Alarm Display – The information on the second row is always duplicated to the fire panel, that is: the two displays showing zone number and detector address. The operator can only affect the first three rows. This is done with the arrow buttons described “Fire Alarm List” on page 4. Observe that the last fire alarm in the last zone in alarm is

not necessarily the last detected fire alarm. If the last alarm occurs in a zone that is not the last zone in alarm, these rows are not affected. The bottom row is normally the menu line.

8.3.2 Printouts—To get a printout of the fire alarm list, press  when given the option in the menu. This will give you a list of the zones and detectors in fire alarm. The list will be printed in chronological order. The first 100 fire alarms will be printed out. To get a printout of the currently displayed fire alarm, press .



The screenshot shows a fire alarm display with the following text:

```
980217 ZONE IN ALARM: 1 OF 3 07:30:14
FIRE 1 OF 1 IN ZONE 1: SMOKE 1
CREW'S QUARTERS
LAST ZONE IN ALARM
FIRE 2 OF 2 IN ZONE 137: SMOKE 7
STAIRCASE SECT. 1
PRINT:ENTER, '1':RESOUND, '2':PRINT THIS
```

Annotations point to specific parts of the display:

- Shows the zone that is currently viewed, and the total number of zones in alarm.
- Shows the order of the alarm and the total number of fire alarms in the zone. It also shows the detector type and the address.
- Description text of the location of the fire detector showed on the second row.
- Similar to the second row, but this row always displays the last fire alarm in the last zone in alarm.
- Description text of the location of the fire detector shown on the row above.

The Fire Alarm Display

8.4 Gas Alarm List

The gas alarm list is identical to the fire alarm list except that it shows gas alarms instead of fire alarms. The first 100 gas alarms will be listed. Step through the zone list using  and . To look through all the alarms in the same zone, press  or . See “Gas Alarm” on page 6.

The gas alarm list menu comes up automatically, but if you have left it or if there are fire alarms, the way to it is:

- Go to the top level of the menu system and press . Choose **SUPERVISION**. Press .
- Choose **EVENTS**. Press .
- Choose **GAS**. Press .

8.4.1 Printouts – To get a printout of the gas alarm list, press  when given the option in the menu. This will give you a list of the zones and detectors in gas alarm. The list will be printed in chronological order. The first 100 gas alarms will be printed out. To get a printout of the currently displayed gas alarm, press .

8.4.2 Description of the Gas Alarm Display

– The following illustration describes the gas alarm display. Please note that the alarms in the figure are gas, not fire. Also note that gas alarms only come from gas detectors.

Shows the order of the zone in alarm and the total number of zones in alarm.

Shows the order of the alarm in the zone viewed and the total number of alarms in the zone, the detector type and address.

Descriptive text of the location of the gas detector.

The last alarm from the last zone in alarm

Descriptive text of the location of the gas detector.

By pressing  you will print a list of the current gas alarms,  print the present message and  resound.

```

980217 ZONE IN ALARM: 1 OF 1      00:10:02
GAS 1 OF 2 IN ZONE 3: GAS 1
CARGO DECK
                        LAST ZONE IN ALARM
GAS 2 OF 2 IN ZONE 3: GAS 2
CARGO DECK
PRINT:ENTER, '1':RESOUND, '2':PRINT THIS
          
```

The Gas Alarm Display

8.5 History List

To view a list of the last 100 changes in status, either a fire alarm, prealarm, fault or system fault, an alarm being reset, a disconnection or reconnection, a test or a system function being set/reset:

- Go to the top level of the menu system and press .
- Choose SUPERVISION. Press .
- Choose HISTORY. Press .

You can look through the last 100 changes in status by pressing forth them using  and . If a new change in status occurs after 200 changes, the first item in the list disappears.

8.5.1 Printouts – If you want to print a history list, choose PRINT ALL and press  when viewing history. To print the currently displayed event, choose PRINT THIS and press .

8.5.2 Description of the History Display – The following illustrates the history display.

Shows the date, the order of the event, the total number of events and the time

Shows the type of event and the address if any.

Descriptive text of the unit involved.

Shows a description of the event.

```

980217 EVENT 13 OF 100      11:20:21
FAULT NODE 50
LC1
CONFIGURED NOT PRESENT
PRESS ENTER TO PRINT THIS ITEM
PRINT THIS      PRINT ALL
          
```

8.6 Input List

To view the inputs in a node, use the following procedure:

- Choose MANAGEMENT. Press .
- Choose INPUT. Press .
- Choose SINGLE NODE. Press .
- Enter a single address. Press .

```

NODE 4 IN 3
BASEMENT
INACTIVE
DISCONNECT
DISCONNECT
          
```

You may scroll through the inputs by pressing  and .

8.7 Loop Unit List (“More Info”)

To find extensive information about loop units in a zone, MORE INFO can be chosen. An example will be given where information about a heat detector is viewed and printed:

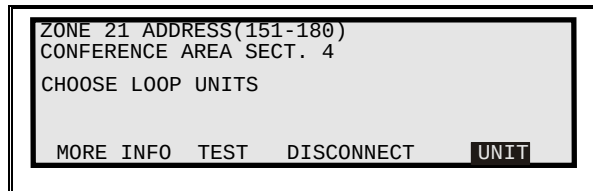
- Go to the top level of the menu system and press .
- Choose MANAGEMENT and press .
- Choose ZONE/UNIT and press .
- Write the number of the zone you wish to view. Press .



ZONE 21

PRESS ENTER WHEN READY

- Choose UNIT and press .

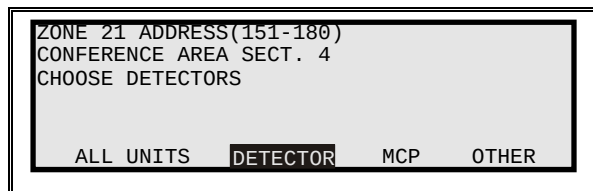


ZONE 21 ADDRESS(151-180)
CONFERENCE AREA SECT. 4
CHOOSE LOOP UNITS

MORE INFO TEST DISCONNECT **UNIT**

By pressing  or , you can view the next or previous zone.

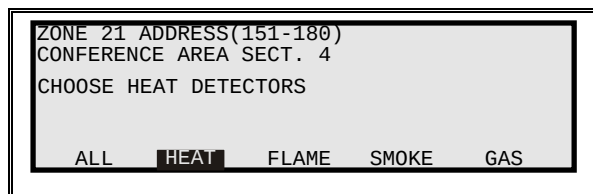
- Choose DETECTOR and press .



ZONE 21 ADDRESS(151-180)
CONFERENCE AREA SECT. 4
CHOOSE DETECTORS

ALL UNITS **DETECTOR** MCP OTHER

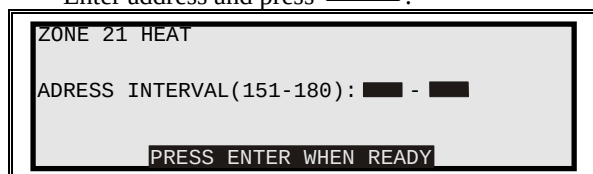
- Choose HEAT and press .



ZONE 21 ADDRESS(151-180)
CONFERENCE AREA SECT. 4
CHOOSE HEAT DETECTORS

ALL **HEAT** FLAME SMOKE GAS

- Enter address and press .

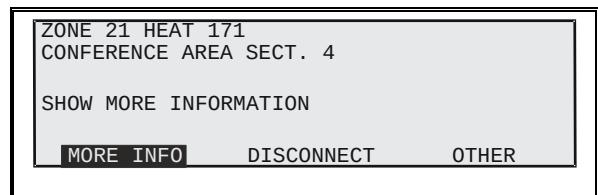


ZONE 21 HEAT

ADDRESS INTERVAL(151-180): -

PRESS ENTER WHEN READY

- Choose MORE INFO and press  .

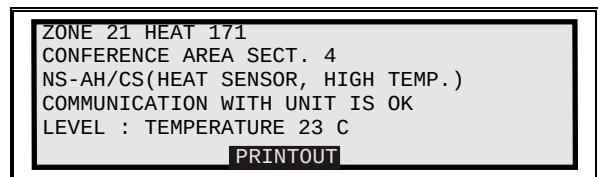


ZONE 21 HEAT 171
CONFERENCE AREA SECT. 4

SHOW MORE INFORMATION

MORE INFO DISCONNECT OTHER

- The following information will be shown. If you wish to obtain a printout of the information regarding the whole zone, press .



ZONE 21 HEAT 171
CONFERENCE AREA SECT. 4
NS-AH/CS(HEAT SENSOR, HIGH TEMP.)
COMMUNICATION WITH UNIT IS OK
LEVEL : TEMPERATURE 23 C

PRINTOUT

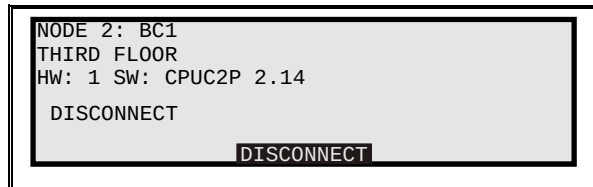
Only zones that are configured and present are shown. Inputs and outputs cannot be seen if not configured.

8.8 Node List

To view a node, use the following procedure:

- Choose SERVICE. Press .
- Choose OTHER. Press .
- Choose NODE. Press .

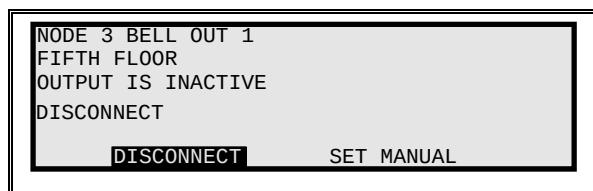
Some information regarding the node is displayed here, such as the type of node, custom text, the hardware version and the software version.



8.9 Output List

To view a list of the outputs in a node, use the following procedure:

- Choose MANAGEMENT. Press .
- Choose OUTPUT. Press .
- Choose ALL TYPES. Press .
- Choose SINGLE NODE. Press .
- Enter a single address. Press .



You may scroll through the outputs by pressing  and .

8.10 Prealarm List

A prealarm occurs when a fire detector is near a fire alarm condition. When the control unit receives a prealarm it shows the prealarm list unless there are alarms in the fire alarm list. Prealarms cannot manually be removed from the list but are removed either when the signal is changed to a real fire alarm or the fire detector is returned to a normal condition. The same detector can't therefore be shown in the fire alarm list and the prealarm list at the same time. The first 100 prealarms will be listed. Step through the list using  and . See "Prealarm" on page 9.

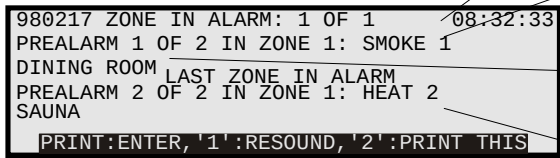
The prealarm list menu comes up automatically, but if you have left it or if there are fire or gas alarms, the way to it is:

- Go to the top level of the menu system and press .
- Choose SUPERVISION. Press .
- Choose EVENTS. Press .
- Choose PREALARM. Press .

8.10.1 Printouts – To get a printout of the prealarm list, press  when given the option in the menu. This will give you a printout of the prealarms so you can find the sites where there is a prealarm and attend to the condition there. The printed list will show the prealarms in chronological order. The first 100 prealarms will be listed. To get a printout of the currently displayed prealarm, press .

8.10.2 Description of the Prealarm Display

The information has the same format as the fire alarm list. The way to view the different prealarms is identical to the procedure described "Fire Alarm List" on page 25. The only thing that differs is the menu lines. The prealarm signal cannot be reactivated. To find the prealarm list choose SUPERVISION in the top level menu, EVENTS in the first submenu and PREALARM in the second submenu.



The screenshot shows a terminal display with the following text:

```

980217 ZONE IN ALARM: 1 OF 1 08:32:33
PREALARM 1 OF 2 IN ZONE 1: SMOKE 1
DINING ROOM LAST ZONE IN ALARM
PREALARM 2 OF 2 IN ZONE 1: HEAT 2
SAUNA
PRINT:ENTER, '1':RESOUND, '2':PRINT THIS
  
```

Annotations point to specific parts of the display:

- Shows the zone that is currently viewed, and the total number of zones in prealarm. (Points to "1 OF 1")
- Shows the order of the prealarm and the total number of prealarms in the zone. It also shows the detector and the address. (Points to "PREALARM 1 OF 2")
- Description text of the location of the detector showed on the second row. (Points to "DINING ROOM")
- Similar to the second row, but this row always displays the last prealarm in the last zone in alarm. (Points to "LAST ZONE IN ALARM")

The Prealarm Display

8.11 Input, Output and Miscellaneous Lists

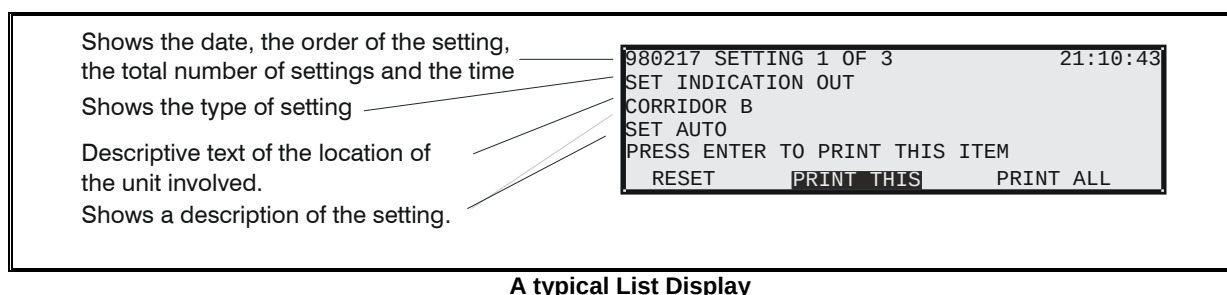
There are several other lists holding information about the system's status. The INPUT LIST holds information about all set inputs, the OUTPUT LIST holds information about all set outputs, the MISCELLANEOUS LIST holds information of system functions set off and zones in test mode. To view any of these lists, use the following procedure:

- Go to the top level of the menu system and press .
- Choose SUPERVISION and press .
- Choose CONDITIONS and press .

- Choose either one of INPUT, OUTPUT or MISC LIST and press .

8.11.1 Printouts – To get a printout of all items in any of the lists, choose PRINT ALL while viewing the list. Press . To print the item currently displayed, choose PRINT THIS and press .

8.11.2 Description of a typical List Display – The following figure illustrates a typical item of any of the lists.:



A typical List Display

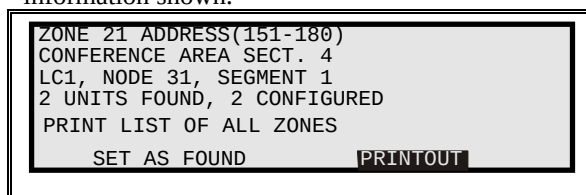
8.12 Zone List

To get a list of zones configured with information regarding the number and type of units in the zone, use the following procedure:

- Go to the top level of the menu system and press .
- Choose MANAGEMENT and press .
- Choose ZONE/UNIT and press .
- Write the number of a zone. Press .
- Choose MORE INFO and press .
- While in this place in the menu, you can scroll through all zones pressing  and .

8.12.1 Printouts

By choosing PRINTOUT at any zone and pressing  you will get a list of all the zones with the information shown.



9 Disconnection

The following functions will be found under the top-level menu called **MANAGEMENT**. The main functions under this menu are making disconnections and getting information about units. There are two kinds of disconnections: normal and periodic. Normal disconnections are either permanent or for a limited period of time. Periodic disconnections are scheduled to take place regularly at known times for a known period of time. There can at most be ten schedules stored at the same time. These are displayed in the Schedule List, see further 8.1.2, Schedule List. It is also possible to adjust the configuration of loop units to the number connected at the time.

The following parts of the system can be disconnected indefinitely or for a time period:

- **Outputs**, individually or all - Outputs can be disconnected so as not to function in case of fire alarms. Outputs are fire alarm bells, flashing signs and signals to fire fighting units or the Fire Brigade.
- **Inputs**
- **Detectors** (See “How to Make a Disconnection - Step by step” on page 32.) may be disconnected for various reasons, an example being rooms

that are occupied during office hours and do not need smoke detectors during this time. Another reason for disconnecting a detector or a manual call point may be to maintain or replace the unit. Disconnecting a malfunctioning detector will stop the fault signal it sends to the control panel. All addressable loop units may be disconnected (See “Privilege and Access Levels, Detectors, and Nodes” on page 44).

- **Nodes** can be disconnected. See “Nodes” on page 48.

9.1 How to Make a Disconnection - Step by step

The following example will show you how to make a loop unit disconnection, both normal and, where such is applicable, periodical. The example describes a disconnection of one heat detector in zone 21, address 171, until 16.00 in the normal case, and on Tuesdays, 09.00 - 09.30 in the periodical case.

- Go to the top level of the menu system.

980217 15:17:32
CUSTOMER DEFINED TEXT
PRESS ENTER TO OPERATE

Press .

- Choose **MANAGEMENT**.

WHAT WOULD YOU LIKE TO DO?
VIEW, DISCONNECT, TEST AND SET UNITS
SUPERVISION **MANAGEMENT** SERVICE

Press .

- Choose **ZONE/UNIT**.

WHAT WOULD YOU LIKE TO DO?
CHOOSE ZONE, LOOP UNIT
ZONE/UNIT FUNCTION OUTPUT INPUT

Press .

- Write the number of the zone you wish to disconnect, in this example 21.

ZONE
PRESS ENTER WHEN READY

Press .

- Choose **UNIT**.

ZONE 21 ADDRESS(151-180)
CONFERENCE AREA SECT. 4
CHOOSE LOOP UNITS
MORE INFO TEST DISCONNECT **UNIT**

Press .

- Choose DETECTOR.

```

ZONE 21 ADDRESS(151-180)
CONFERENCE AREA SECT. 4
CHOOSE DETECTORS

ALL UNITS  DETECTOR  MCP  OTHER
  
```

Press .

Had you chosen OTHER there would have been a choice between SCI (Short-Circuit Isolators) and CONTROL. In case of choosing CONTROL there would have been a choice between DOOR, BELL and VENT.

- Choose HEAT.

```

ZONE 21 ADDRESS(151-180)
CONFERENCE AREA SECT. 4
CHOOSE HEAT DETECTORS

ALL  HEAT  FLAME  SMOKE  GAS
  
```

Press .

- Write the number of the detector(s) you wish to disconnect, in this case 171.

```

ZONE 21 HEAT
ADDRESS INTERVAL(151-180):  - -
PRESS ENTER WHEN READY
  
```

If you have chosen an address interval, and you want to enter an address with less than three digits, enter the starting address, press  and proceed to enter the end address. You may also put zeros before the start address. The range is 1 to 254. If you want to disconnect one single address then you can enter only the starting address or enter the same end address as the starting address. The range of the chosen detectors must be within the limits of the zone chosen, in this case zone 21. Enter the start address and the end address if applicable, then press .

As we have chosen a single address, the options available now are MORE INFO, DISCONNECT and OTHER. Choose DISCONNECT.

```

ZONE 21 HEAT 171
CONFERENCE AREA SECT. 4
DISCONNECT

MORE INFO  DISCONNECT  OTHER
  
```

Press .

- Here the example is split into two branches: NORMAL and PERIODIC disconnections. Choose the leftmost alternative, NORMAL..

```

ZONE 21 HEAT 171
CONFERENCE AREA SECT. 4
ENTER A NORMAL DISCONNECTION

NORMAL  PERIODIC
  
```

Press .

9.1.1 Normal Disconnection

- Choose one of the three choices DISCONNECT, UNTIL and FOR.

```

ZONE 21 HEAT 171
CONFERENCE AREA SECT. 4
DISCONNECT UNTIL A CERTAIN TIME

DISCONNECT  UNTIL  FOR
  
```

Here is a description of the three alternatives:

UNTIL - Enter reconnection time. The reconnection will take place the next time the entered time occurs, and this results in 23h and 59m being the maximum time.

FOR - Enter the duration of the disconnection. The maximum time is 23h and 59m

DISCONNECT - The disconnection will be permanent, or until a manual reconnection from the disconnection list which is described in "Appendix B: Definitions" on page 48 is made. To make this disconnection you need the access code to level 3.

- Depending of what you have chosen the display will look differently. In our example we choose UNTIL and the display will look as follows.

```

ZONE 21 HEAT 171
CONFERENCE AREA SECT. 4
ENTER RECONNECTION TIME: ■:■
PRESS ENTER WHEN READY
  
```

- Enter the desired time, in our case 16.00, and press . Note: if you had chosen DISCONNECT, this menu will not appear.

```

ZONE 21 HEAT 171
CONFERENCE AREA SECT. 4
DISCONNECT UNTIL 16:00
DISCONNECT
DISCONNECT
  
```

Press to execute the disconnection.

9.1.2 Periodic Disconnection

- Move upwards in the menu to the position where NORMAL disconnection was selected, by pressing thrice. Now, instead, choose PERIODIC.

```

ZONE 21 HEAT 171
CONFERENCE AREA SECT. 4
ENTER A PERIODICAL DISCONNECTION
NORMAL PERIODIC
  
```

Press .

- The scheduled disconnection in this example was Tuesdays, 09.00 - 09.30. Choose TU.

```

ZONE 21 HEAT 171
CONFERENCE AREA SECT. 4
FIRST DAY IN PERIOD
MO TU WE TH FR SA SU
  
```

Press .

- Choose TU again.

```

ZONE 21 HEAT 171
CONFERENCE AREA SECT. 4
DISC TU
LAST DAY IN PERIOD
MO TU WE TH FR SA SU
  
```

Press .

- Enter the start time of the disconnection, 09.00.

```

ZONE 21 HEAT 171
CONFERENCE AREA SECT. 4
DISC TU-TU
DISCONNECT FROM TIME: ■:■
PRESS ENTER WHEN READY
  
```

Press .

- Enter the stop time of the disconnection, 09.30

```

ZONE 21 HEAT 171
CONFERENCE AREA SECT. 4
DISC TU-TU 09:00
DISCONNECT AT TIME: ■:■
PRESS ENTER WHEN READY
  
```

Press .

- At this point the menu will look like this:

```

ZONE 21 HEAT 171
CONFERENCE AREA SECT. 4
DISC TU-TU 09:00-09:30
INSERT THE SCHEDULE
INSERT
  
```

Press to insert the schedule. If the disconnection was not successful, you will receive an error message, which describes the reason why the disconnection could not be performed. If the disconnection was successful, the disconnection is inserted in the disconnection list and the disconnect indicator is lit. All types of disconnections can be reconnected from the disconnection list, even if the duration time of the disconnection has not yet expired. See “Reconnect” on page 36.

9.2 Disconnect Input

Inputs can be disconnected using the following procedure:

- Go to the top level of the menu system and press .
- Choose MANAGEMENT and press .
- Choose INPUT and press .

- Choose SINGLE NODE and press .
- Enter a SINGLE ADDRESS or an ADDRESS RANGE. Press .
- Choose DISCONNECT and press .
- Enter the access code for level 3.

For reconnections see “Reconnect” on page 36.

9.3 Disconnection Lists

9.3.1 Disconnections – This list shows all successful disconnections. All disconnections on the list are still active, that is the disconnection time hasn't expired. From this list the operator can make reconnections. A reconnection overrides the disconnection. The only way to reconnect a unit that has been disconnected indefinitely is from this list.

- Go to the top level of the menu system and press .
- Choose SUPERVISION in the top menu. Press .
- Choose CONDITIONS in the first submenu. Press .

- Choose DISCONNECTIONS in the second submenu. There you will be given the option to execute PRINT ALL, i.e. to print the entire list.

Choose it and press .

Step through the list using  and .

9.3.2 Schedule List – This list shows all scheduled periodical disconnections. The only way to remove a scheduled periodical disconnection is to reset it from this location in the menu.

9.3.3 Printouts – To print a list of disconnections, choose PRINT ALL and press  when viewing disconnections. To print the currently displayed disconnection, choose PRINT THIS and press .

Shows the order of the disconnection and the total number of disconnections.

Descriptive text of the output, node, function or zone/unit and the address range if any.

Shows the type of disconnection and the time period it will be in effect.

Reconnect to cancel a disconnection.

```

980217 DISCONNECTION 1 OF 2      15:18:09
DISCONN ZONE 21 HEAT 171
DISCONNECT UNTIL 16:00
CANCEL THE DISCONNECTION
RECONNECT  PRINT THIS  PRINT ALL
          
```

The Disconnection Display

9.4 Disconnect Node

A node is a component in the LFNet™, a circuit board, with an address. For more information on this, see the NSAC-1 Fire Alarm System Reference Manual.

To disconnect a node, use the following procedure:

- Go to the top level of the menu system and press .
- Choose SERVICE and press .
- Choose OTHER and press .
- Choose NODE and press .

```

NODE 2: BC1
BASE CARD, THIRD FLOOR
HW: 1 SW: CPUC2P 2.14
DISCONNECT
DISCONNECT
          
```

Some information regarding the node is displayed here, such as the type of node, custom text, the hardware version and the software version.

- Press .
- Enter the access code for level 3.

For reconnections see “Reconnect” on page 36.

9.5 Disconnect Output

Outputs can be disconnected using the following procedure:

- Go to the top level of the menu system and press .
 - Select MANAGEMENT. Press .
 - Choose OUTPUT. Press .
 - Choose OTHER (if this type of output is meant to be set, otherwise choose a different option). Press .
 - Choose BELL (if this type of output is meant to be set, otherwise choose a different option). Press .
- Had OTHER not been chosen in the last step,

then this step would have been skipped.

- Choose SINGLE NODE. Press .
- Enter a SINGLE ADDRESS or an ADDRESS RANGE. Press .
- Choose DISCONNECT. Press .
- Enter the access code for level 3 and press .

For reconnections see “Reconnect” on page 36.

9.6 Reconnect

A list shows all successful disconnections. All disconnections on the list are still active, that is the disconnection time has not yet expired. From this list the operator can make reconnections. A reconnection overrides the disconnection. The only way to reconnect a unit which has been disconnected without specifying a time period is from this list.

- Go to the top level of the menu system and press .
- Choose SUPERVISION. Press .
- Choose DISCONNECTIONS. Press .

To scroll through the disconnections and find the one you wish to disconnect, use  and .

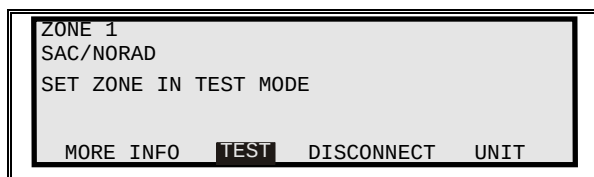
- You will be given the option RECONNECT the highlighted disconnection from the list. Press .

10 Test

10.1 Testing Zones and Loop Units

10.1.1 Zone Testing – A test of the detectors and manual call points should be made when installing the system to make sure they are functioning properly. To make these tests, set the fire zone in test mode and test the alarm with testing equipment, taking turns for each detector and manual call point in the zone, and then proceed to the next fire zone and so on until the whole system is tested. Your testing must be limited to one zone.

- Go to the top level of the menu system and press .
- Choose MANAGEMENT and press .
- Choose ZONE/UNIT and press .
- Write the number of a zone. Press . While in this place in the menu, you can scroll through all zones pressing  and .



- Choose TEST and press .
- Enter the access code for level 3 and press .

During test mode the following will happen:

- The detectors and manual call points in the zone tested will blink.
- If an alarm is given, the detector or manual call point affected will light up continuously.

- After a short period of time, the detector or manual call point will be automatically reset by the system. The fire indication in the detector or manual call point will also be reset.
- The changes will be recorded as the system automatically resets these test alarms.
- The tested zone will return to normal mode automatically after one hour.

During the test period, all other zones but the one being tested will function normally, giving alarms and fault warnings as needed. “Reset” on page 43 shows how to return to normal mode manually.

10.1.2 Testing Individual Units –

Detectors and MCP’s can be tested individually from the control unit.

- Choose MANAGEMENT and press .
- Choose ZONE/UNIT and press .
- Write the number of a zone. Press . While in this place in the menu, you can scroll through all zones pressing  and .
- Choose UNIT and press .
- Choose ALL UNITS, DETECTOR or MCP and press (In case you chose DETECTOR, choose also any type you wish to test.)
- Enter a single address and press .
- Choose OTHER and press .
- Enter the access code for level 3 and press .
- Choose TEST and press . The unit test is effectuated. If any fault is detected it will be added to the fault list and indicated both optically and acoustically.

Other units can also be tested in a similar fashion.

10.2 Indicator Test

In order to make an indicator test:

- Go to the top level of the menu system and press .
- Select SERVICE. Press .
- Choose SYSTEM. Press .

- Choose INDICATOR TEST and press  to confirm.

During this test, all indicators and numbers will light up and the acoustic signal will sound off if the control panel is functioning properly.

11 Set/Reset

This chapter treats how to alter the state of various system functions.

11.1 Set Output Delay Off

Use the following procedure to set Automatic Control off:

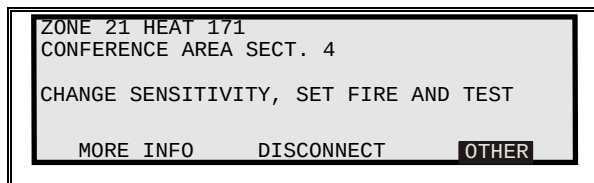
- Go to the top level of the menu system and press .

- Choose MANAGEMENT and press .
- Choose FUNCTION and press .
- Choose OUTPUT DELAY and press .
- Enter access code for level 3 and press .
- Choose SET OFF. Press .

11.2 Set Detector Sensitivity

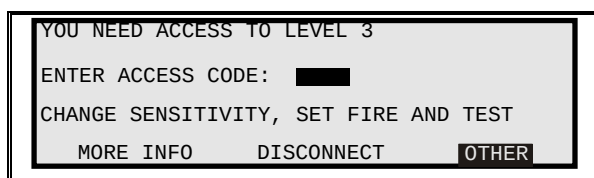
The sensitivity of smoke, heat and smoke/heat detectors can be adjusted from the control unit. The following procedure should be followed to alter the sensitivity of the detector:

- Go to the top level of the menu system and press .
- Choose MANAGEMENT and press .
- Choose ZONE/UNIT and press .
- Write the number of the zone in which you wish to alter the sensitivity of the detector. Press .
- Choose UNIT and press .
- Choose DETECTOR and press .
- Choose SMOKE and press .
- Write the number of the detector in which you wish to adjust the sensitivity. Press .



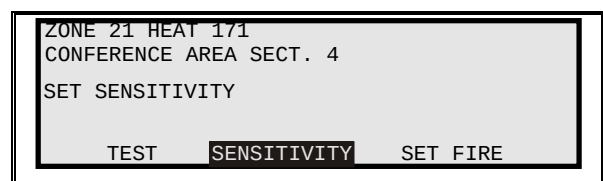
ZONE 21 HEAT 171
CONFERENCE AREA SECT. 4
CHANGE SENSITIVITY, SET FIRE AND TEST
MORE INFO DISCONNECT OTHER

- Choose OTHER and press .
- Now you must enter the access code for level 3.



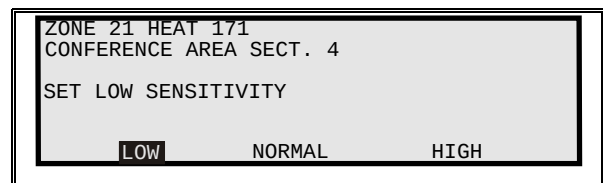
YOU NEED ACCESS TO LEVEL 3
ENTER ACCESS CODE: XXXX
CHANGE SENSITIVITY, SET FIRE AND TEST
MORE INFO DISCONNECT OTHER

Press .



ZONE 21 HEAT 171
CONFERENCE AREA SECT. 4
SET SENSITIVITY
TEST SENSITIVITY SET FIRE

- Adjust the sensitivity of the detector by choosing one of LOW, NORMAL or HIGH, and press .



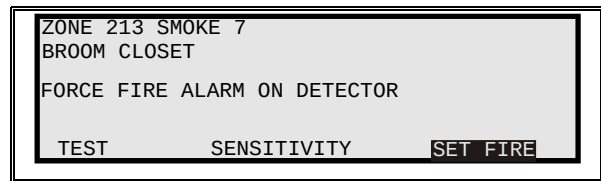
ZONE 21 HEAT 171
CONFERENCE AREA SECT. 4
SET LOW SENSITIVITY
LOW NORMAL HIGH

11.3 Set Fire

Use the following procedure to set fire alarm on a detector from the control unit:

- Go to the top level of the menu system and press .
- Choose MANAGEMENT and press .
- Choose ZONE/UNIT and press .
- Write the number of the zone you wish to view. Press .
- Choose UNIT and press .
- Choose any unit except OTHER and press .
- Enter a single address and press .

- Choose OTHER and press .
- Enter the code to access level 3 and press .



- Choose SET FIRE and press .

11.4 Set Language

Use the following procedure to set the language used by the NSAC-1 fire detection alarm system:

- Go to the top level of the menu system and press .
- Select SERVICE. Press .

- Select LANGUAGE. Press .
- Select the language required. The language can be either English or a customer defined optional language. .

11.5 Set Date/Time

Use the following procedure to set the time and date:

- Go to the top level of the menu system and press .
- Select SERVICE. Press .
- Select DATE/TIME and press  Enter the code for access level 3 and press .
- Fill in the date: YYMMDD which stands for Year, Month and Day, will appear on the screen.

You should fill out the last two digits in the year number, the number of the month (in case of the month number being less than 10, type 0 before the number. For example April would be 04, November 11), and the day of the month (also here type a zero before day numbers less than 10). Press .

- Fill in the time: HHMM, which stand for Hours and Minutes, will appear on the screen. The time format is 24 hours, which means 5 p.m. should be entered as 17:00. In both cases type a zero before numbers less than 10. Press .

11.6 Set Inputs, Outputs and Miscellaneous

The INPUT, OUTPUT and MISCELLANEOUS lists contain information about: set inputs (INPUT), outputs (OUTPUT) and if there are any system functions set off and if there are any zones in test mode (MISCELLANEOUS).

To view any of these lists, use the following procedure:

- Go to the top level of the menu system and press .

- Choose SUPERVISION and press .
- Choose CONDITIONS and press .
- Choose either of the INPUT, OUTPUT or MISC LIST and press .

Printouts – To get a printout of all set items, choose PRINT ALL. Press  To print the item currently displayed, choose PRINT THIS and press .

11.7 Set Number of Loop Units

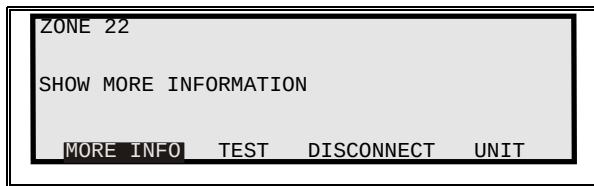
At times you may need to add detectors without having to reconfigure the system. A simple way to do this is to set the number of loop units as found by the system. To set the number of loop units to the ones found connected, do as follows:

- Go to the top level of the menu system and press .
- Choose MANAGEMENT and press .
- Choose ZONE/UNIT and press .
- Write the number of the zone you wish to reconfigure.

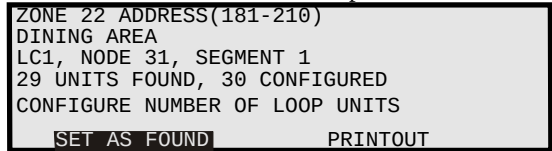


Press .

- Choose MORE INFO and press .

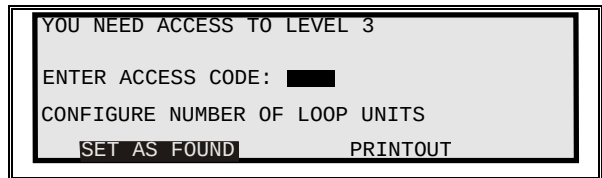


- Here you can scroll through to different zones by pressing  and . Choose SET AS FOUND in the desired zone and press .



.Note: Please make sure that the number of units is correct before pressing .

- Now you must enter the access code for level 3.



Press .

- Having done this, the number of loop units in the zone will be configured to be the number that are installed at the moment.
- The fault shown in the list can now be reset. t. See “Resetting Faults” on page 13.

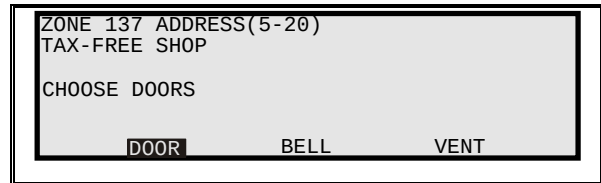
11.8 Set Outputs (Manual Activation of Output)

11.8.1 Outputs directly connected to nodes

–Use the following procedure to set outputs not connected through loops:

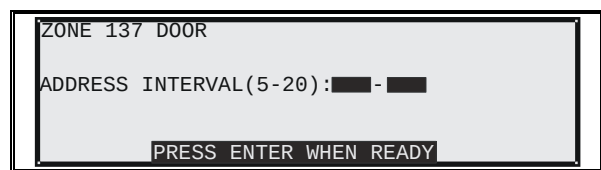
- Go to the top level of the menu system and press .
- Select MANAGEMENT. Press .
- Choose OUTPUT. Press .
- Choose OTHER (if this type of output is meant to be set, otherwise choose a different option). Press. .
- Choose BELL (if this type of output is meant to be set, otherwise choose a different option). Press. .
- Had OTHER not been chosen in the last step, then this step would have been skipped.
- Choose SINGLE NODE. Press .
- Enter address and press  Enter access code to level three and press .
- Choose SET MANUAL. Press .

- Choose DOOR.



Press .

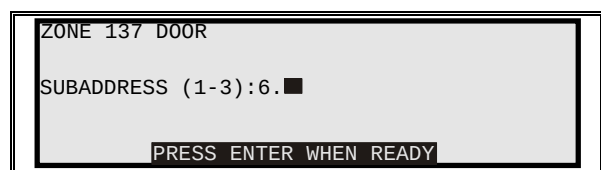
- Enter address.



Press .

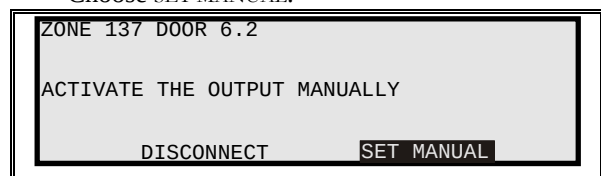
If you have chosen an address interval, enter the start address and the end address, then press . The range is 1 to 254. If you want to set one single address then you may enter just the starting address or enter the same end address as the starting address. The input field is three digits wide. If you want to enter an address with less than three digits you must put zeros before. The range of the chosen detectors must be within the limits of the zone chosen.

- Enter subaddress.



Press  (even if no subaddress has been given).

- Choose SET MANUAL.

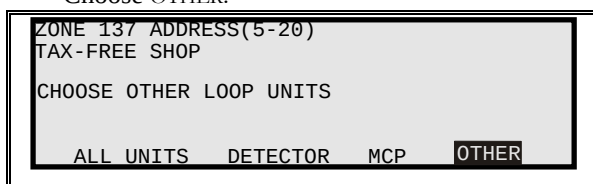


Press .

- Enter the access code for level three.

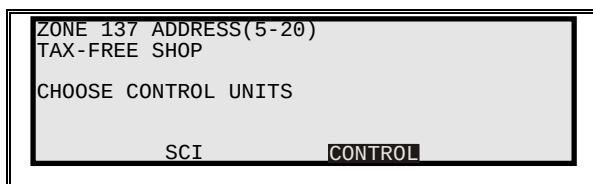
11.8.2 Outputs in zones – Use the following procedure to set outputs connected through loops.

- Go to the top level of the menu system and press .
- Choose MANAGEMENT and press .
- Choose ZONE/UNIT and press .
- Write the number of the zone you wish to view. Press .
- Choose UNIT and press .
- Choose OTHER.

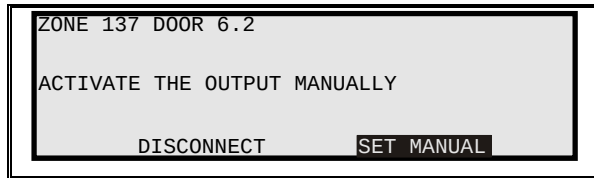


Press .

- Choose CONTROL.



Press .



Press .

11.9 Reset

To manually reset previously set outputs, zones in test mode, and system functions set off, use the following procedure:

- Go to the top level of the menu system and press .
- Choose SUPERVISION and press .
- Choose CONDITIONS and press .

- Choose either one of the OUTPUT LIST or the MISC LIST depending on what is to be reset and press .
- Look through the list by pressing  and .
- Choose RESET and press  when the appropriate setting comes up.

Automatically set outputs and inputs cannot be reset.

12 Privilege and Access Levels, Detectors, and Nodes

12.1 Privilege Levels

There are three privilege levels in the NSAC-1 Alarm system: A, B and C. These levels determine whether a control unit in the system can display information about and/or operate another unit. The levels are as follows:

- a. Privilege Level A: No display and no operation of unit.
- b. Privilege Level B: Display, but no operation of unit.

- c. Privilege Level C: Display and operation of unit.

Example: An alarm system has two control units: one with privilege level B and one with privilege level C with regard to all other units in the system. The unit with privilege B will display all events, e.g. alarms, taking place in the system, but cannot react to them, e.g. mute an alarm. The unit with privilege C can do both, i.e. both display and react to any events in the system.

12.2 Access Levels

In the NSAC-1 Alarm system, there are different levels of access. The ability to change the system

depends on the training and authority of the user. The following access levels are defined.

Access level	Procedure to enter level	Personnel to enter the access level
1	None, door is closed.	General public, safety personnel.
2	Open door.	Personnel trained and authorised to operate the system in situation of fire alarm, fault and testing, or to disconnect detectors.
3	Open door, enter access code to level 3 (different from the access code to level 4)	Personnel trained and authorised to change the number of detectors in a zone
4	Open door and enter access code to level 4 (different from the access code to level 3).	Service personnel trained and authorised by Nittan System AB to change all site specific data, hardware and firmware in the units.

12.3 Detector and Manual Call Point Types

The following types of units can be reported:

- Smoke - Smoke Detector
- Heat - Heat Detector
- SD/HD - Smoke and Heat Detector
- Flame - Flame Detector
- GAS - Gas Detector
- MCP - Manual Call Points (Fire Buttons)
- DET - Generic (unspecified) fire detector

12.4 Nodes

Addressable units connected to LFNet(See “Appendix B: Definitions” on page 48).

12.5 Line Units

Short-Circuit Isolators, Input units and Output units are called line units.

13 Appendix A: Fault Messages

If the system shows a fault, you will get one of the following messages:

- | | |
|---|---|
| <p>1 Addr. Not Allowed – The specified address is not permitted.</p> <p>2 Bad Battery Condition – A bad battery is detected.</p> <p>3 Busy Executing – The unit specified is busy executing an order.</p> <p>4 Cable A Short Circuit – Short circuit in loop side A.</p> <p>5 Cable B Short Circuit – Short circuit in loop side B.</p> <p>6 Node Cable Short Circuit – Short circuit on cable.</p> <p>7 Cable Break – A cable break has been detected.</p> <p>8 Cable Break Positive – A positive cable break has been detected.</p> <p>9 Cable Break Negative – A negative cable break has been detected.</p> <p>10 Cable Overload – There is an overload in the cable.</p> <p>11 Charging Loss – The battery charger is unable to charge the battery.</p> <p>12 Communication Error – The communication with the unit is deficient.</p> <p>13 Configuration Fault – Fault in system configuration.</p> <p>14 Configured Not Present – Node/unit is configured but not present.</p> <p>15 Dirty Sensor – The detector has a dirty sensor element.</p> <p>16 Disconnect – This unit is disconnected.</p> | <p>17 Feedback Fault – There is no response from the door-holding relay.</p> <p>18 Position Fault – The door is in the wrong position.</p> <p>19 Double Address – Two detectors sharing the same address.</p> <p>20 Earth Fault Positive – Positive voltage to earth.</p> <p>21 Earth Fault Negative – Negative voltage to earth.</p> <p>22 Ext 24 V Fail – External 24V power source missing.</p> <p>23 External fault – External equipment has indicated fault</p> <p>24 Fuse Fault – A fuse in the unit has blown.</p> <p>25 Fuse Fault Battery – A battery fuse has blown.</p> <p>26 High Current On Node – There is high current in the loop cable.</p> <p>27 IN 1 Cable Break – There is a cable break on input 1.</p> <p>28 IN 2 Cable Break – There is a cable break on input 2.</p> <p>29 Int. Not Allowed – The specified interval is not permitted.</p> <p>30 List Full – The list containing this kind of event is already full.</p> <p>31 Loop Cable Short Circuit – A short circuit in the loop cable.</p> |
|---|---|

- 32 Loop Power Loss** – The loop voltage is missing.
- 33 Node Short Det Loss** – Short circuits cannot be detected.
- 34 No Answer** – Lost communication. The system has recognized a unit but lost contact with it due to some interference.
- 35 Not Disconnected** – The unit specified is not disconnected.
- 36 Not Initiated** – The specified unit has not yet been initiated or configured.
- 37 Not In One Zone** – First and last addresses must be in the same zone.
- 38 No Unit On Address** – There is no unit on the specified address.
- 39 On Emergency Power** – Emergency power is being used.
- 40 Order Not Allowed** – The specified order is not permitted.
- 41 Present Not Configured** – Node/unit is present but not configured.
- 42 Power Fault** – The power supply is lost.
- 43 Sensor Fault** – The detector has a faulty sensor element.
- 44 Sensitivity Change** – This unit is already set to a different sensitivity than normal.
- 45 Timer Stuck** – The Timer is stuck.
- 46 Too Many Orders** – No space left to store more orders.
- 47 Too Few Units Found** – Fewer loop units found than configured.
- 48 Too Many Units Found** – More loop units found than configured.
- 49 Type Not Allowed** – The specified type is not permitted.
- 50 Unit In Fire Alarm** – The specified unit is still in a condition of fire alarm.
- 51 Unit Not In Zone** – The unit with the specified address is not in the specified zone.
- 52 Unknown Type Of Unit** – The type of unit specified is still unknown to the system.
- 53 Wrong Type Of Unit** – The type of unit specified is different from the type configured.
- 54 Zone Not Allowed** – The zone specified is not permitted.
- 55 Earth detection fault**
- 56 Valve Closed**
- 57 Cable Short Circuit**
- 58 Low Pressure**
- 59 Fault on Actuator 1, 2**

14 Appendix B: Definitions

- 1 Access Levels** — The different degrees of accessibility to the system. The accessibility of the control panel varies according to the authority of the person about to use it. The different access levels are described in “Privilege and Access Levels, Detectors, and Nodes” on page 44.
- 2 Addressable Units** — A unit in the alarm system that can be controlled separately by the control panel.
- 3 Buzzer** — The part of the control unit that gives the audible signal in case of a fire alarm, gas alarm, prealarm/sensor delay or fault.
- 4 Control and Indicating Equipment (c.i.e.)** — The control unit.
- 5 Control Panel** — The part of the control unit which is accessible to the user. It can be seen through the glass pane, and accessed with a special key. It contains fire alarm and fault warning indicators, mute and reset keys as well as arrow keys, a numerical keypad and a text display.
- 6 Control Unit** — The NSAC-1 central component of the fire alarm system which contains the control panel.
- 7 Disconnection** — A disconnection of a system component prevents fire alarms, gas alarms, prealarms or faults from a loop unit, signals from inputs and signals to outputs.
- 8 External Signals** — Signals in the fire alarm system outside of the control unit, by devices such as flashing lights, fire alarm bells and door controls.
- 9 Fault Condition** — A signal that is given by the control panel in the event of a fault in the system or one of its components.
- 10 Fire Alarm** — A signal caused by a fire, received by the control panel and shown by flashing lights and an intermittent audible signal.
- 11 Fire Panel** — The upper part of the control panel.
- 12 I/O Unit** — An addressable input and/or output unit.
- 13 LNet™ (Local Fire Net)** — The means of communication between nodes. See Fire Alarm System NSAC-1 Reference

Manual.

- 14 Loop** — A part of the fire alarm system which connects the control unit with addressable detectors and manual call points.

- 15 Loop Unit** — Loop units are units that are connected in a loop. Loop units are divided into three categories, fire detectors, manual call points (fire buttons) and line units.

A loop is used to connect modules with detectors and manual call points, which are also referred to as loop units. There are two types of loop units:

- Analogue - addressable detectors, manual call points and other line units.
- Conventional - nonaddressable detectors, manual call points and other line units.

Each of these types can be connected to the fire alarm system with an appropriate circuit board (conventional detectors can also be connected through an interface unit.)

- 16 Line Unit** — Line units are I/O units and short-circuit isolators.

- 17 MCP** —Manual Call Point, an external “fire button” which is used to sound the fire alarm and is connected to the system.

- 18 Nodes** — Addressable system modules connected to LNet™. Below is a list of some of the available nodes:

Control Unit - The control unit has the following functions:

- The ability to mute and reset fire alarms, gas alarms, prealarms and faults.
- The possibility of setting fire zones in test mode.
- Disconnection of inputs, loop units, outputs and delays to outputs.
- Visual information concerning the alarms, faults and other system functions in the form of LED's and an LCD display.
- Inputs - General Alarm, External Fire Signal, Voltage Regulation and custom inputs.
- Outputs - Alarm devices, Sprinkler Systems, Fire Routing, External Control, Fire Brigade and custom outputs.
- *Option:* Preprogrammed realistic fire drill simulations.

Loop Card & Zone Card 10 - These circuit boards can be connected internally in the control unit or externally with the help of node card NC1.

NSREPA - A repeater panel which has the following functions:

- The ability to mute fire alarms, gas alarms, pre-alarms and fault warnings.
- Visual information concerning the alarms and faults in an LCD display.

NSLAMPBOX - A repeater panel which has the following functions:

- The ability to mute fire alarms, gas alarms, pre-alarms and fault warnings.
- Visual information concerning the location of alarms and faults represented by LED's.

OUT 32 - A programmable output interface including:

- Outputs - 32 programmable outputs.

MIMIC - A repeater panel consisting of:

- A maximum of 256 LEDs which light up in case of alarm or fault. The area corresponding to each LED is defined by the customer.

IC232 - A circuit board used for communication with an external computer, for example a computer used for graphic display or a central surveillance system. It includes:

- An optoisolated RS-232 output with all its control signals.

19 Operator Panel — The lower part of the control panel.

20 Prealarm — A condition where the detector senses a certain amount of danger, but the level of the detected state is not enough to cause a fire alarm.

22 Short Circuit Isolator — Unit placed on the loop to isolate a part of the loop that is short-circuited.

23 Test Mode — A condition in a fire zone where the system will not give any signals outside of the control panel when receiving an alarm from a fire detector or manual call point. It is used to test the equipment, for example during the installation of the system.

24 Text Display — The alphanumerical display in the lower part of the control panel which gives extensive information concerning fire alarms, prealarms, fault warnings and loop units connected with the fire alarm system.

25 Unit — A part of the fire alarm system which has a function of its own.

26 Zone — Seen from the fire alarm system's point of view, a zone is comprised of a series of addresses to which loop units are attached. This can be used to set apart a geographically limited space or room which has fire detectors installed. These fire zones are determined by government fire agencies.

15 Appendix C: Adding, Changing and Removing Loop Units in a Zone

Note: All service and maintenance on a loop should be done with the loop deenergized to prevent any possibility of jeopardising or damaging the fire alarm system.

In order to add or remove loop units from a loop the following procedure must be utilized:

1. Identify the zone and find out which address the corresponding loop card has.

2. Insulate the loop by entering the following command from the control panel:

- Choose SERVICE. Press .
- Choose OTHER. Press .
- Choose NODE. Press .

Enter access level 4 code. Press .

- Choose DISCONNECT. Press .

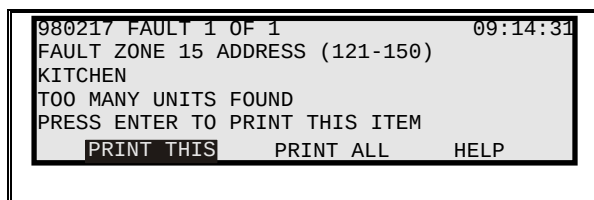
3. After disconnecting the card, the loop is deenergized and the service work is possible.

4. When the modification is ready, reconnect the loop card from the disconnection list. See “Reconnect” on page 36.

- Choose SUPERVISION. Press .
- Choose DISCONNECTIONS. Press .
- Choose DISCONNECTIONS. Press .

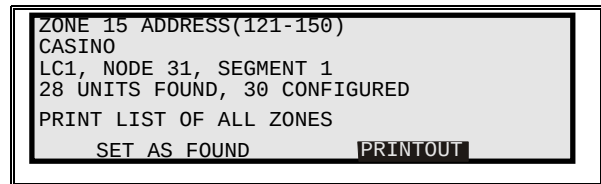
- Move forward in the list by pressing  until the card disconnection is shown. Reconnect the card by choosing RECONNECT. Press .
- Note that after reconnection it may take one or two minutes for the loop to identify all units on the loop.

- The message “Too many units found” or “Too few units found” is shown on the display.



- Choose MANAGEMENT. Press .
 - Choose ZONE/UNIT. Press .
- Enter the zone address. Press .

- Choose MORE INFO. Press .



5. Is the correct number of units found? If it is correct, choose SET AS FOUND. Enter access level 3 code. Press .

The fault can now be reset.

If the number of units found is not correct:

- Choose MANAGEMENT. Press .
 - Choose ZONE/UNIT. Press .
- Enter the zone address. Press .

- Choose UNIT. Press .
- Choose ALL UNITS. Press .
- Enter a single address. Press .
- Scroll and look for missing or extra detector.