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# ADVPLUS/1, ADVPLUS/2 & ADV PLUS/4 One, Two & Four Loop Control Panel



User Instructions







# 1 Introduction

## 1.1 Standards

Advanced Electronics Ltd declare that the products identified below conform to the essential requirements specified in the Construction Products Directive 89/106/EEC:



0786-CPD-20952

EN54-2: 1997 +A1:2006

Control and indicating equipment for fire detection and fire alarm systems for buildings

#### Provided options:

- Outputs to Fire Alarm Devices
- Output to Fire Routing Equipment
- Output to Fire Protection Equipment
- Output to Fault Routing Equipment
- Investigation Delays to Outputs
- Dependency on more than one alarm signal
- Fault Signals from Points
- Disablement of Points
- Alarm Counter
- Test Condition
- Standardised Input / Output

EN54-4: 1997 +A1:2002 +A2:2006

Power supply equipment for fire detection and fire alarm systems for buildings

Mx-5100, Mx-5200, Mx-5400

Mx-5100N, Mx-5200N, Mx-5400N

In addition, the products comply with the following:

Low Voltage Directive 2006/95/EC

BS EN60950-1: 2006 Safety of information technology equipment

Electromagnetic Compatibility Directive 2004/108/EC

BS EN55022: 1998 Emissions, Class B

BS EN50130-4: 1996 +A2: 2003 Immunity, Product Family Standard

# 1.2 Cautions and Warnings



Before commencing with installation or operation of the panel, please read this manual carefully. If you are unclear on any point DO NOT proceed. Contact the manufacturer or supplier for clarification and guidance.



Only Trained service personnel should undertake the Installation, Programming and maintenance of this equipment.



This product has been designed to comply with the requirements of the Low Voltage Safety and the EMC Directives. Failure to follow the installation instructions may compromise its adherence to these standards.



This Fire Alarm Control Panel is compliant with the requirements of EN54 parts 2 and 4 (1998).

Where appropriate, reference is made in this manual to the relevant sections of the EN54 standard for clarification and to ensure that the installation is compliant with the requirements of EN54.

# 1.3 General Description

This manual covers the use and operation of the Mx-5000&Mx-5000NSeriesFire Alarm Control Panels. Refer to the Installation and Commissioning Manual (Document No. 680-165) for details of how to install and program the panel.

#### 1.3.1 Mx-5000Series

The Mx-5100isa Single Loop, Analogue Addressable Fire Alarm Control Panel.

The Mx-5200isa Two Loop, Analogue Addressable Fire Alarm Control Panel.

The Mx-5400isa Multiple Loop, Analogue Addressable Fire Alarm Control Panel with provision for up to four loops.

All above models are designed for use with the Apollo (Discovery, Explorer, XP95 and Series 90), Hochiki (ESP) and Argus (VEGA) fire detection devices.

#### 1.3.2 Mx-5000NSeries

The Mx-5100Nisa Single Loop, Analogue Addressable Fire Alarm Control Panel.

The Mx-5200Nisa Two Loop, Analogue Addressable Fire Alarm Control Panel.

The Mx-5400Nisa Multiple Loop, Analogue Addressable Fire Alarm Control Panel with provision for up to four loops.

All above models are designed for use with the Nittan Evolution fire detection devices.

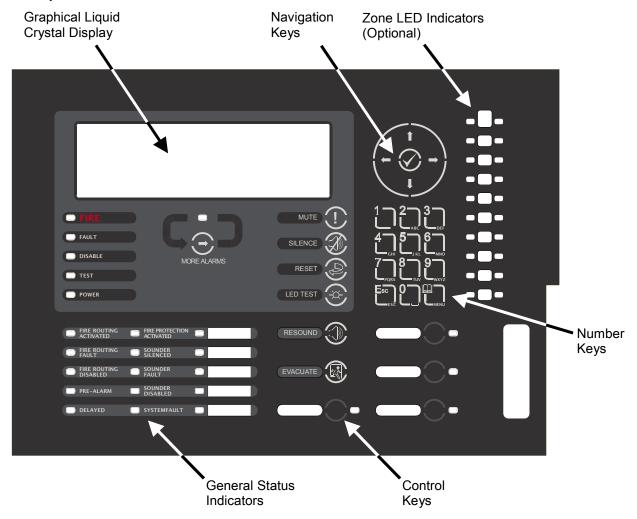
All panel models are available in a range of enclosure sizes and with a range of alternative optional features.

# 2 Controls and Indications

The Mx-5000andMx-5000Nseries are provided with indications and control functions as shown in the diagram below and described in the following text.

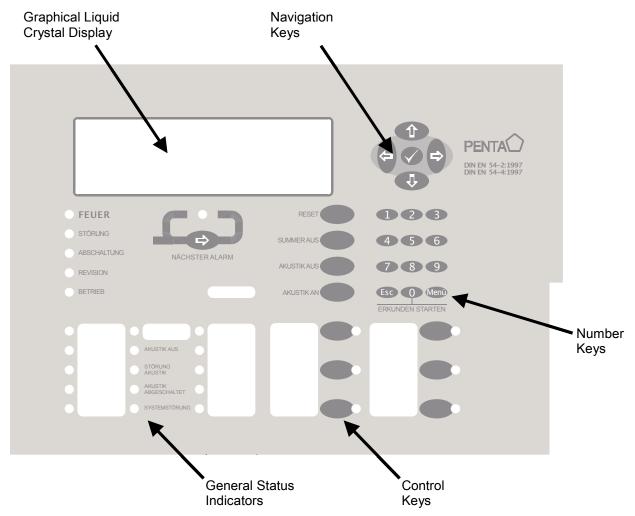
The LED functions and BUTTON functions may be assigned and used differently in specific countries dependent on the market and standards requirements.

The layout shown below is for the UK version.



Slide-in labels are used to annotate Function Indicators and Programmable Control Keys and Indicators.

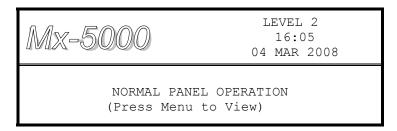
The layout shown below is for the PENTA German version.



Slide-in labels are used to annotate specific General Status Indicators in addition to Function Indicators and Programmable Control Keys and Indicators.

# 2.1 Graphical Display

The graphical display provides detailed information of the source of fire alarms, faults and warnings. It also shows menus for use when inspecting or programming the operation of the panel. Under normal conditions the panel display shows the access level, time, date and status: -



# 2.2 LED Status Indicators

The LED Status Indications show the basic operational state of the panel and whether the panel is in a fire alarm, fault, disabled or test condition.

Function	Colour	Description	
FIRE	Red	Indicates that the system has detected a fire alarm condition	
MORE ALARMS	Red	Indicates that the system has detected a fire alarm condition (on steady) in more than one zone.	
Fault	Yellow	Indicates that the system has detected a fault condition	
Disable	Yellow	Indicates that part of the system has been disable (i.e. isolated)	
Test	Yellow	Indicates that part of the system is in a test condition	
Power	Green	Indicates the presence of power	
Fire Routing Activated	Red	Indicates that the output to call the Fire Brigade has been Activated	
Fire Routing Fault	Yellow	Indicates that there is a fault condition in the Fire Brigade signalling equipment.	
Fire Routing Disabled	Yellow	Indicates that the output signal to the Fire Brigade is Disabled	
Pre-Alarm	Yellow	Indicates that a smoke or heat detector has detected a change in the environment that may develop into a possible fire alarm condition.	
Delayed	Yellow	Indicates that one or more output circuits are in a delayed operating condition	
Fire Protection Activated	Red	Indicates that the circuit to fire extinguishing or other fire protection equipment has been activated or that the fire protection equipment itself has been activated.	
Sounder Silenced	Yellow	Indicates that the sounders have been silenced	
Sounder Fault	Yellow	Indicates the presence of a fault in one or more sounder wiring circuits	
Sounder Disabled	Yellow	Indicates that one or more sounders have been disabled (i.e. isolated)	
System Fault	Yellow	Indicates the presence of a system fault	
Function 1	Red	Spare function LED	
Function 2	Yellow	Spare function LED	
Function 3	Yellow	Spare function LED	
Function 4	Yellow	Spare function LED	
Function 5	Yellow	Spare function LED	

The function LED Indicators are programmable and will have been configured and labelled accordingly during installation and commissioning of the system.

The arrangement and definition of the Status LED Indicators depend on the country and market requirements. The functions described are the same and the most common layout is shown.

## 2.3 Zone LED Status Indicators

The Zone LED Status Indications can be included on the main display (up to 20 zones – fire alarm indication only) or can be included as plug in modules below the main display. These show the basic operational state of the zone and can indicate whether the zone is in a fire alarm, fault, disabled or test condition depending on the module installed.

# 2.4 Control Buttons

The following table contains a list of all of the control button functions available. The buttons available on each product depend on the country of installation and specific market requirements.

Button	Description	Access Level
Ced	More Alarms Press to scroll through Zones in Alarm. The LED indicator turns on to indicate if more than one zone is in alarm.	Available in both Level 1 and Level 2
	Reset Press to reset the panel from a fire alarm or latched fault condition.	Only available with Level 2 Access.
	Mute Press to mute the internal buzzer.	Available in both Level 1 and Level 2
	Silence Press to silence the sounders.	Only available with Level 2 Access.
	Resound Press to re-activate the sounders.	Only available with Level 2 Access.
	Evacuate Press to initiate a manual evacuation and sound the alarms.	Only available with Level 2 Access.
	LED Test Press to illuminate ALL LED indicators	Available in both Level 1 and Level 2
	Disable Press to disable the zone or device in a fire alarm condition (Australia only).	Only available with Level 2 Access.
	Function Button Programmable function – an associated LED indicator can also be programmed	Depends on Programming

# 2.5 Navigation Buttons

Press to scroll through Menu Options.  Press to display more information.  Press to scroll through lists of zones or devices.
Press to confirm entry of numeric or letter information entry.  Press to confirm selection of a menu option.  Press to change some of the configuration options.

## 2.6 Number and Letter Buttons

1 2 3 DEF 4 5 6 MNO 7 8 9 WXYZ Esc 0 MENU	Used to enter numbers or letters.
Esc	Press to return to a previous menu.  Press to exit the menu functions and return to the normal display.
Menu	Press to show or return to Menu Functions.

## 2.7 Buzzer

The buzzer produces two different sounds to differentiate between fire alarm conditions and fault conditions.

Condition	Operation	
Fire Alarm	The buzzer operates with a continuous tone.	
Fault	The buzzer operates intermittently.	

# 3 Operation

#### 3.1 Access Levels

The panel operation is protected from inadvertent and erroneous misuse by means of four access levels. These levels are as follows:

Level 1 Untrained user Level 2 Authorised User

Level 3 Service and Maintenance Engineer

Level 4 Service and Maintenance Engineer – Special Tools required

 A Level 1 Untrained User can view the current operational condition of the system and may MUTE the internal buzzer.

NOTE: Depending on the configuration settings, a Level 1 user may also be permitted to EVACUATE and/or SILENCE and/or RESET the system by pressing the appropriate button and entering a password.

 A Level 2 Authorised User can view the operational condition of the system and may MUTE the internal buzzer. In addition, the EVACUATE, SILENCE and RESET buttons are enabled and access to the Level 2 Menu functions is available.

NOTE: There are up to 10 User ID codes available, each with its own password, which can be configured with varying permissions to specific menu function options.

• A Level 3 User has access to program and configure the operation of the panel. This is described in detail in the Installation and Commissioning Manual (Part Number 680-165).

# 3.1.1 Changing from Access Level 1 to Level 2

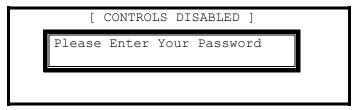
If the panel has an access key switch fitted, use the key in preference to the menu options shown below.

#### 3.1.1.1 Menu Access

Press the 'MENU' button. The level 1 menu will be displayed as shown below:

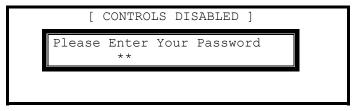


To enable the controls, ensure the "Enable Controls" option is highlighted and then press the button. The display then requests entry of the Level 2 or 3 passwords as follows:



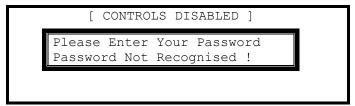
Enter the password using the number buttons and then press the entered, an asterisk (\*) is shown on the display. For example:

button. As each number is



If the password is correct, the Level 2 Menu options will be shown.

If the password is incorrect, the display briefly shows the following message.



#### 3.1.1.2 Control Buttons at Level 1

If any of the control buttons (Reset, Silence / Resound or Evacuate) are pressed, the display automatically prompts for the password. Enter the password as above.

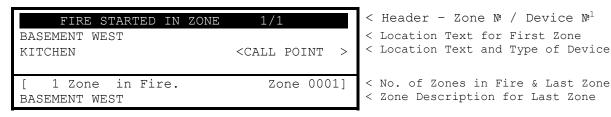
## 3.1.2 Changing from Access Level 2 to 1

If the panel has an access key switch fitted, use the key switch.

Alternatively, if passwords are used, select the "Disablement" menu and then select "Disable/Controls" – see section 3.10.3 for details.

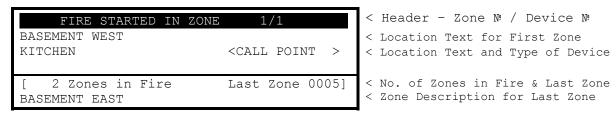
#### 3.2 Fire Alarm Condition

When the system registers a fire alarm condition the Red Fire Indicator illuminates, the internal buzzer sounds (continuously) and the display shows the zone in which the fire originated. The sounders, relays and other outputs will be turned on depending on the programming in the panel. An example of the display is shown below: -



The upper part of the display shows the origin of the fire. The lower part of the display shows the number of zones in a fire alarm condition and the last zone to enter the fire alarm condition.

If more than one fire alarm condition occurs, the total number of zones in an alarm condition and the last zone in an alarm condition will be updated on the display. If the sounders were silenced, they will sound again whenever the fire spreads to a new zone.



Press the 'MUTE' button to silence the internal buzzer (the FIRE LED will change from flashing to steady illumination).

Press the 'MORE ALARMS' button to view an scroll through a full list of zones in a fire alarm condition.

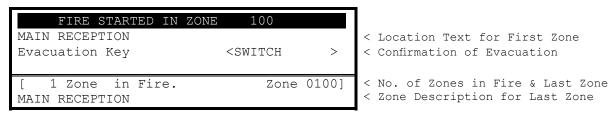
When the panel is enabled for Level 2 Access or, if configured, by entering a password at Level 1, the following functions are available.

Press the 'SILENCE' button to silence the sounders.

Press the 'RESOUND' button again to re-activate the sounders.

Press the 'RESET' button to clear the alarm condition and restore the panel to normal operation.

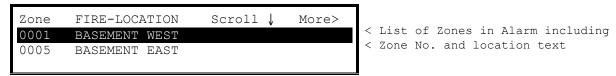
Press the **'EVACUATE'** button to initiate a manual evacuation and to activate the sounders. The display will show this fire alarm condition. For example:



<sup>&</sup>lt;sup>1</sup> The Device Number is only shown on products for the German market – this is the number specifically assigned to the device to denote its number within the associated meldergruppe (Mld).

#### 3.2.1 Detailed Fire Alarm Information

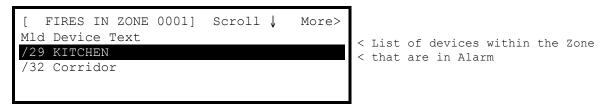
Press the 'MORE ALARMS' button to view the list of zones in a fire alarm condition. Press the 'MORE ALARMS' button again or use the ♠♥ buttons to scroll through the list. Each press highlights the next zone in the list and scrolls the zone list upwards.



If more detail regarding the source of any fires is required, press the 'MORE ALARMS' button or the 

↑ buttons to highlight the required zone in alarm and press the 

button to show further information. For example:



This shows that the device(s) in a Fire Alarm condition in the zone. If there are more devices in alarm, these will be shown in the list (as shown above). Press the  $\uparrow \Psi$  buttons to scroll through the devices. Press the  $\rightarrow$  button to show further information including state, type, value, loop, address, sector and node.

Press the **\( \infty** button or the **'Esc'** button to return to the previous display. If no button is pressed within 15-seconds, the display automatically reverts to the main display.

# 3.2.2 Investigation Delays



The Investigation Delay Function can be disabled or enabled as required by EN54: 2. Refer to Section 0.

If the Investigation Delay Function (Stage 1 / Stage 2 Investigation Delay) is enabled, a fire alarm is registered at the panel but does not immediately activate the sounders. On registering the alarm, the display shows:

The Output Delay Timer shows the amount of time left for investigation. If the alarm is not acknowledged before the Stage 1 timer elapses, the panel will enter a full alarm condition and will activate the sounders.

Pressing the '0' button acknowledges the alarm. This extends the time allowed to investigate the source of the fire.

The cause of the alarm can now be investigated. If the alarm is a false alarm, pressing the '**RESET**' button will clear the alarm condition. This must be done before the Stage 2 timer has elapsed or the panel will enter a full alarm condition and will activate the sounders.

Note: The **EVACUATION** button will terminate the investigation delays and activate all programmed sounders.

#### 3.3 Fault Condition

When the system registers a fault condition the Yellow Fault Indicator is illuminated, the internal buzzer sounds intermittently and the display shows the cause of the fault in more detail.

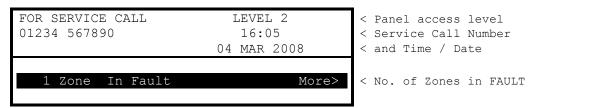
An example of the display is shown below:



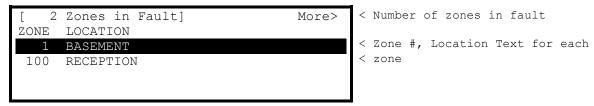
If more than one fault condition occurs, these will be shown on the display. If the internal buzzer was muted, it will sound again when a new fault condition is registered.

When the fault condition is corrected, the panel automatically clears the appropriate fault Status Indicators and Display information.

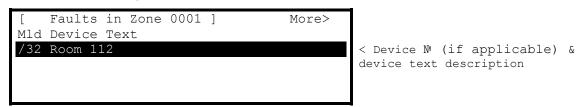
Press the 'MUTE' button to silence the internal buzzer The display then shows the current time and date and service centre telephone number along with the indication of the fault.



To obtain more detailed information about the faults, press the → button. The display then presents a list of all of the zones in a fault condition with the first fault highlighted. For example:



Press the ♠♥ buttons to highlight the required fault and then press the → button to show further information. For example:



Press the → button to show further information on device state, type, analogue/digital values and loop, address, sector and node, etc.

Press the 'ESC' key to return to the previous display.

If no button is pressed within a minute, the display automatically reverts to the main display.

#### 3.4 Disablement Condition

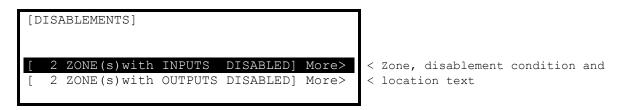
If any zones, input devices or output devices have been disabled, the DISABLE Indicator is illuminated. In addition, the SOUNDER DISABLE Indicator is illuminated if one or more sounder circuits or devices have been disabled. The display indicates the presence of zone disablement conditions in the lower half of the display as follows:



When the disablement conditions are removed, the appropriate indications are cleared from the display and from the Indicators. When all disablement conditions are removed, the DISABLE Indicator is also turned off.

To obtain more detailed information about the disablement conditions, press the → button. The display will then present the disablement conditions in the following sequence:

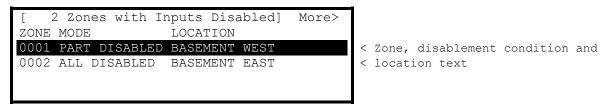
- ♦ Zone / Individual Inputs.
- ♦ Outputs



Press the ★♥ buttons to highlight the required option and then press the → button to view further information.

## 3.4.1 Disabled Inputs

The display presents a list of all of the zones in a disabled condition with the first disablement highlighted. For example:

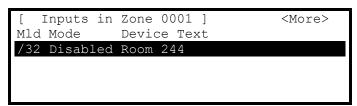


The display shows the status as ALL DISABLED if every input device within the zone has been disabled and shows the status as PART DISABLED if there is at least one input device within the zone still active.

Press the ♠♥ buttons to highlight the required zone and then press the → button to view the location text assigned to the zone in full. For example:

Press the 

button again to view the inputs within the zone and their status. For example:



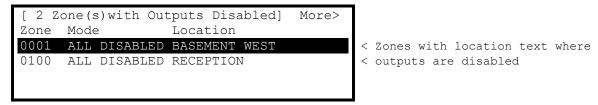
The display shows the Device Number, current disablement condition (mode) and the device text. Press the  $\P \Psi$  buttons to scroll through the inputs.

Press the → button to show further information on the state, type, analogue/digital values, the detection loop (LP) and address (ADRS), etc.

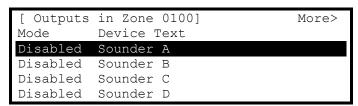
Press the 'ESC' key to return.

# 3.4.2 Disabled Outputs

The display presents a list of all of the zones in a disabled condition with the first disablement highlighted. For example:

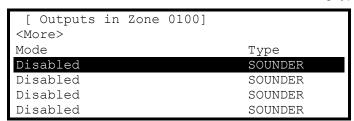


Press the ★♥ buttons to highlight the required zone and then press the → button to view the individual outputs and their disablement condition. For example:



The above example shows that the panel sounder circuits are disabled.

Press the → button to view further information including type, value and state, etc.



Press the ♠♥ buttons to scroll through the list of individual outputs within the selected zone. Press the **'Esc'** button to return to previous views and the main display.

## 3.5 Alarm Condition

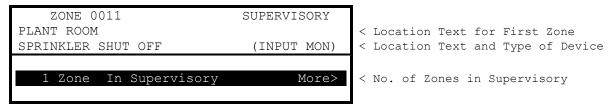
When the system registers a pre-alarm or plant alarm condition, the internal buzzer sounds intermittently and the display shows the cause of the fault in more detail. An example of the display is shown below:



To obtain more detailed information about the alarms, press the → button. The display then presents a list of all zones in an alarm condition.

# 3.6 Supervisory Condition

When the system registers a supervisory condition, the internal buzzer sounds intermittently and the display shows the cause of the fault in more detail. An example of the display is shown below:

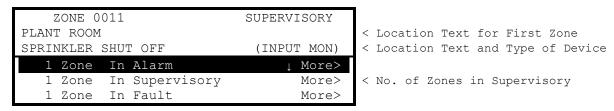


To obtain more detailed information about the alarms, press the → button. The display then presents a list of all zones in an alarm condition.

Supervisory conditions are typically (although not exclusively) used to indicate the presence of operating conditions that could prevent the operation of sprinkler valves such as; frozen water, valve shut-off, low pressure, etc.

# 3.7 Multiple Conditions

When the system registers alarm, pre-alarm, fault, disablement, warning, security and supervisory conditions simultaneously, the display shows these in the lower half in priority order. The detail of the most recent unacknowledged condition to occur, however, is shown at the top of the display. An example of the display is shown below:



An arrow is shown on the display to indicate the scroll options.  $\downarrow$  (first row),  $\uparrow$ ,  $\uparrow$  (last row) are shown depending on the row highlighted.

Press the ↑ buttons to scroll through the list to highlight the required condition and then press the button to view more detail as described for each condition.

If the system registers a fire alarm condition, the display is totally devoted to the indication of the fire alarm. Use the View Menu option to display these other conditions.

#### **Menu Functions** 3.8

The following Menu Functions are available at Level 2. The display shows the primary Level 2 Menu and the Level 2 User as follows:

[Level 2	Menu]	User 1 Node	1
VIEW TEST	DISABLE DELAY STATUS	ENABLE TOOLS	

The following table gives a list of the Level 2 Menu Functions, the sub-functions available within each main function and a brief description for each function.

Main Menu Option	Sub Menus	Comments			
VIEW	Fires	View Zones and	View Zones and Inputs that are reporting a fire alarm condition.		
	Faults	View Zones and Inputs that are reporting a fault condition.			
	Alarms	View Zones and Inputs that are reporting an alarm condition.			
	Disabled	View Zones, Inputs and Outputs that are disabled.			
	Inputs	View the current state of Inputs.			
	Outputs	View the current operational condition of all output circuits / devices.			
	Log	View the Event Log / Alarm Counter			
	Panel	View the operational state, voltage and current loading of the panel input and output circuits.			
	Network	View Network diagnostics			
	Warnings	View Zones and	d Inputs that are reporting a warning condition		
	Supervisory	View Zones and Inputs that are reporting a supervisory condition			
DISABLE	Zone / Inputs <sup>2</sup>	Disable a comp	lete zone or an individual input.		
	Outputs <sup>2</sup>	Disable sounde	er outputs or other devices.		
	Controls <sup>3</sup>	Cancel Level 2 access.			
	User ID <sup>3</sup>	Return Level 2 access to the default User 1			
	Groups	Disable a user-defined disablement group			
ENABLE	Zone / Inputs	Enable a complete zone or an individual input.			
	Outputs	Enable sounder outputs or other devices.			
	Groups	Enable a user-defined disablement group			
	Remote	Permits remote access controls			
TEST	Zones <sup>2</sup>	Configure one or more zones for walk test.			
	Display	Test the Graphics Display, Status Indicators and Keyboard.			
	Buzzer	Test the Internal Buzzer			
	Printer	Test the connection to the Printer			
	Outputs	Test Output Devices			
DELAY		Turn ON / OFF Investigation delays			
TOOLS	COMMISSION	Enter the Level 3 Commissioning and Panel Programming Functions			
	PRINT	Inputs	Print the status of inputs		
		Ouputs	Print the status of outputs		
		Faults	Print the fault conditions		
		Disabled	Print the disabled conditions		
		Log	Print the Event Log. (All Events of Fire Only Events Selectable).		
		Feed Paper	Advance the paper in the printer		
		Set-up <sup>2</sup>	Configure the printer connection and automatic print options		
	CHANGE TIME <sup>2</sup>	Allows authorised level 2 users to change time.			

 $<sup>^2</sup>$  This option can be configured per Level 2 User ID. User 1 does not have permission to change these options.  $^3$  Not required if a key switch is fitted to change access levels.

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