Honeywell

NFS Supra / VSN-2Plus / ESS-2Plus Conventional Fire Alarm Control Panel

Installation and Operating Manual

HLSI-MN-025-I v.03
March 2014

Note:

This manual is valid for the following control panel models:

- **NFS-Supra**
  - **NFS4-Supra**
  - **NFS8-Supra**
  - **NFS12-Supra**

- **VSN-2Plus** (no touch screen)
  - **VSN4-2Plus**
  - **VSN8-2Plus**
  - **VSN12-2Plus**

- **ESS-2Plus**
  - **ESS4-2Plus**
  - **ESS8-2Plus**
  - **ESS12-2Plus**

To make comprehension easier, when reference is made to these control panels, only the NFS-Supra model name is used, however, the information is valid for any of the models indicated above.

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1 Introduction

The purpose of this manual is to provide the user with all recommended procedure descriptions and full technical details for the successful installation and commissioning of the extinguishing control panel which is referred to.

Procedures described in this manual include appropriate warnings and cautions to guide the user towards adopting safe and methodical work practices during the installation and commissioning phases.

1.1 CE Marking

This panel is CE Marked to show that it conforms to the requirements of the following European Community Directives:

CE

- Electromagnetic Compatibility Directive 89/336/EEC (and the amendment of the Directives 92/31/EEC, 93/68/EEC).
- Dir Low Voltage Directive 73/23/EEC (and the amendment of the Directive 93/68/EEC).
- The Constructive Products Directive by the application of the following standards:
  - UNE-EN 54-2: Fire detection and fire alarm systems - Control and indicating equipment.
  - UNE-EN 54-4/A2:2006: Fire detection and fire alarm systems - Power supply equipment..

1.2 System design and Planning

It is assumed that the system, of which this control panel is a part, has been designed by a competent fire alarm system designer in accordance with the requirements of EN54 Part 14 (UNE 23007/14) and other applicable local standards.

The equipment connected to this system must be compatible, must comply with the standards and requirements concerning them and must be properly registered and certified for compliance with the whole system.

The design drawings should clearly show the positions of all the control panel and field devices.

NFS Supra control panels are manufactured in compliance with national and local standards and meet the requirements of UNE-EN 12094-1:2004, UNE-EN 54-2 and UNE-EN 54-4/A2:2006.

However, some installation and configuration practices may not meet the standards. Contact the proper authorities to confirm the requirements.

1.3 Personnel

Only suitably qualified electrical engineers must carry out the installation of this product.

Read carefully the commissioning and configuration procedures of this manual. It is recommended by the manufacturer to check the wiring lines before making any connection to the panel or equipment. Do not carry out any configuration functions without fully understanding of their operation.

1.4 General

The NFS Supra control panel has been designed to manage correctly and according to, UNE-EN 54-2 and UNE-EN 54-4/A2:2006 fire alarm control systems.

The control Panel can support an unlimited number of manual call points and a limited number of detectors by zone, according to the limits of design and installation standards that are applicable. Some approvals, certifications and proper functioning of the system, is ensured by the use and recommendations set by the manufacturer of fire detectors, optical acoustic alarm indicators and peripheral equipment connected to this fire alarm control panel. Read the reviews and features defined in this manual as well as any of the equipment to be connected to the panel, to ensure proper compatibility

The operational performance of the panel is microprocessor-controlled and has several configuration options, in addition to the mandatory requirements of sounder delays, zone monitoring or test mode. Check the system settings (or default configuration) before making any Test.

1.5 Warnings and Cautions

Installation: This Control Panel design is based on a modular build concept EasyFix, which offers the user completely flexible system solutions. The electronic components are part of a separate module, which need not be installed until system commissioning is to be undertaken.

Before installing this control panel, please thoroughly read and understand the installation section of this manual and installation instructions or manuals of every each device, which provide detailed information on mounting, wiring, and installing the system.

This panel or devices connected to it can be damaged if you do not follow the instructions described in this manual. Do not connect or disconnect any device without disconnecting all power sources as they can result in serious damage.

Commissioning: To install and configure the NFS Supra control panel, carefully follow the steps in this manual. It is recommended by manufacturer to check the wiring lines before making any connection to the panel or field devices.

The NFS Supra control panel includes integrated power supply and space provision for two sealed, lead-acid gel standby batteries. In accordance with UNE-EN 54-4: A2: 2006, mandatory standard from August 2009, it is necessary to supervise the internal battery resistance to guarantee the battery correct operation in the event of a power supply fault. The control panel carries regular readings of internal battery resistance to check the resistive value. **If this value exceeds 700 mΩ, the control panel will show a power supply fault,** indicating that the battery status is not correct

The lead-acid gel battery deep discharge and the use of low-quality batteries with high internal resistance can cause damage and malfunction of the system. Although the control panel allows a wide margin in the supervision and types of batteries, **DO NOT INSTALL discharged batteries** or **those with which the system indicates fault**. Consult the manufacturer for recommended battery types and models.

Note: While every effort is made to ensure the accuracy of the content of this manual, the manufacturer reserves the right to change the information without notice.

1.6 EN54 Functions

Commissioning and Configuration. Read carefully the commissioning and configuration procedures of this manual. It is recommended by manufacturer to check the wiring lines before making any connection to the panel or equipment. Do not carry out any configuration functions without fully understanding of their operation.

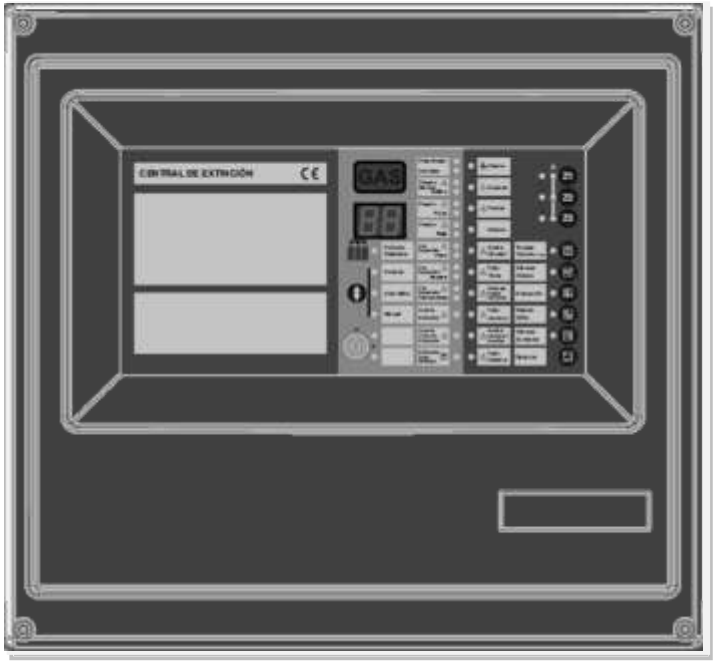
This fire control panel is designed to comply with the requirements of EN 54 Part 2/4. In addition to the basic requirements of EN 54-2, the panel may be configured to conform to the following optional functions - the applicable clauses of these standards are referenced as follows:

Option	Clause
Delay to outputs	7.11.1
Manual or automatic switching of delays to outputs	7.11.2
Dependency on more than one alarm signal, type A and/or C	7.12.2
Test condition Fire alarm device(s)	10



However, some installation and configuration practices may not meet the standards. Contact the proper authorities to confirm the requirements.

2 Use and Operation



System

The system is controlled by a processor with a software that monitors and ensures system's security, which increases its reliability.

System access is restricted by password or keyswitch (level 2).

Front indicator leds and buzzer show the current state of the system.

The NFS Supra control panel has 10 system status leds indicators, zonal led indicators (alarm and fault/disable/test), zonal push-button (disable/test/enable zone) and 6 function push-button.

Alarm zones

NFS Supra control panels have 4, 8 and 12 detection zones. Up to 32 sensors (System Sensor Series 800 / ECO1000) and/or manual call points may be connected to each zone

The control panel differentiates between an alarm from a sensor and from a call point.

Detector Alarm: Zone LED in flashing mode / Call Point Alarm: Zone LED in steady mode

The operation of each zone can be configured as:

-Normal zone: Immediate activation of alarms.

-Confirmed delay zone: The alarm must keep activated for 30 sec. (Not applicable to detectors).

-Verified zone: The zone is reset in the first alarm and keeps monitoring for 10 min. If a new alarm is generated within the verification time (10 minutes), the alarm is confirmed. Otherwise, the process is reset without indicating alarm.

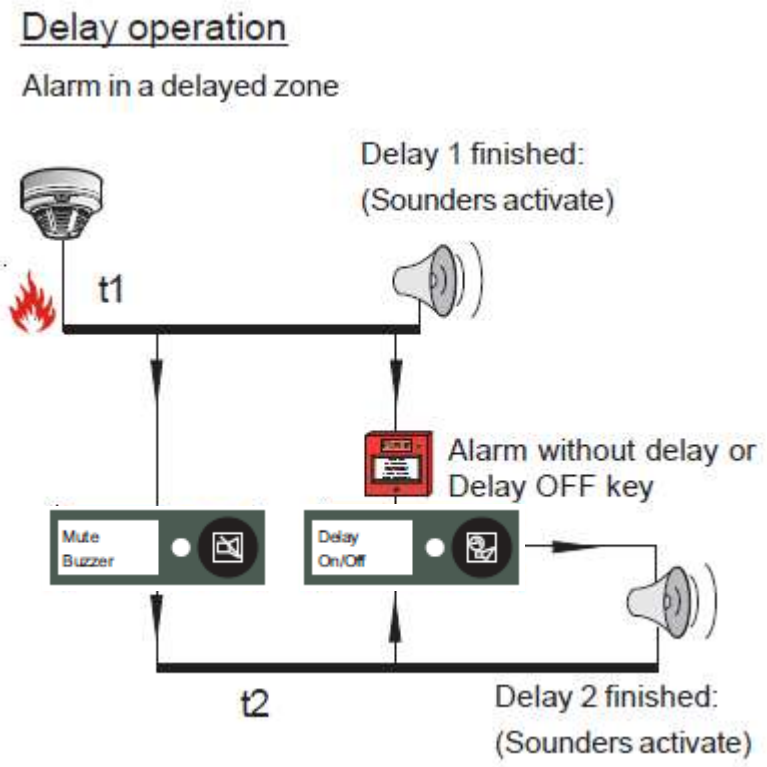
A short circuit in any zone maybe configured to be detected as an alarm or fault (EN54/2).

EN54-2:/D and EN54-14 A6.2.2.1: Up to 32 devices, fire detectors or 10 MCPs may be connected to one zone.

EN54-2 8.2.4: A fault in zone must be generated as an indication of any short circuit or interruption.

Outputs (Sounders and Relays)

EN54-14 A6.2.2.1: The effect of a fault should not prevent the alarm in a zone from being activated and at least one sounder must be operational.



The NFS Supra control panel have two sounder outputs, which can be activated by specific zones. **Any zone alarm will activate all sounders, by default**.

Relays: The NFS Supra control panel have one alarm relay that is activated immediately when an alarm is confirmed and is latched together with the general alarm led: one fault relay that changes its state after any fault in the system or lack of power supply.

Additionally, it is possible to connect up to 3 modules (VSN-4REL) with 4 relays each one (up to 12 relays), configurable by software to perform specific actions.

Sounder delay

The user can start or stop the delays configured for sounders by pressing the ***Delay On/Off*** key.

From access level 3 (programmer), 2 different delay times can be configured (10 minutes max.).

Time 1 (Acknowledge): During this time, the user must press the ***Buzzer Mute*** key to acknowledge the alarm; otherwise, sounders will activate. Configurable times: from 0 to 300 sec.

Time 2 (Inspection): Additional time for considering the alarm. After this period of time, sounders will activate. Configurable times: from 0 to 10 min.

The activation mode of sounders can be configured by zone, with or without delay for manual call points or detectors. Sounders may also not be activated by a specific zone.

Moreover, 2 zones in alarm at the same time can also disable the operating delays.

Users can stop the operating delays from the Access level 1 by pressing the ***Delay On/Off*** key. When a manual call point is activated, the operating delays will be cancelled.

Auxiliary 24 Vdc output

The control panel has two 24V power supplies for the connection of external low consumption devices (1A max. between both). One of the non-resettable and the other is resettable (power supply is interrupted for a few seconds when the system is reset).

Digital Input

A digital input is provided for connection to ancillary equipment to provide the following remote functions: RESET, SILENCE SOUNDERS, ACTIVATE DELAYS AND EVACUATION, which are particularly useful when the system is an integral part of a higher system.

Special Operation

The control panel can be configured so that 220Vac and batteries fault indication is not generated, for example, in Marine systems that are powered at 24Vdc. That function must not be used in normal systems.

Configuration

The system can be configured from Access level 3 (programmer) to be adapted to the different requirements of installations.

The system configuration must be carried out by qualified people.

ACCESS LEVELS:

The system has 3 access levels that enable to different system functions (User, Operator and Programmer).

-User (Access level1): The system status can be visualized by the Leds in the front of the panel. Access level 1, allows the following operations:

- Press **MUTE BUZZER**: Press this key to silence the internal buzzer.

- Press ***KEYPAD ACCESS/LAMP TEST****:* Press this key for 3 seconds to make a **led test**. All the leds and buzzer will activate for a few seconds.

- Press ***Delay On/off*** key to stop active delays (key LED flashes during the delay)

-Operator (Access level 2): Available by turning the key clockwise in order to unlock the keypad. All functions available in Access level 1 are also available in Access level 2.
-Programmer (Access level 3): In order to enter the configuration menu, connect the supplied jumper between the PROG connector pins on the main board. All the configuration functions are available. The system leds and push-buttons have special functions. Check each option to know its meaning and usage.

2.1 Keypad and Led indicators

The control keys and system status leds are located at the front panel. The leds are used to know the system status. All the information, according to the standard requirements, is clearly visualized by means of these leds.

The key to enable access to system to operator level (Access Level 2) is also locates at the front panel.

The front panel is divided into three areas: General Status Indicators, Indicators and zone push-buttons and control keypad.

2.1.1 Buzzer

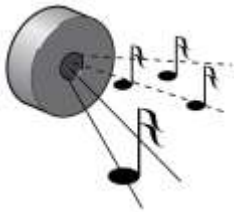
NFS Supra control panel has an internal buzzer to warn about events, as follows:

-*Buzzer steady:* Alarm registered in a zone or Evacuation activated.

-*Intermittent Buzzer*1:* System fault.

Press Buzzer mute key from Access level 1 or 2 in order to silence the buzzer.

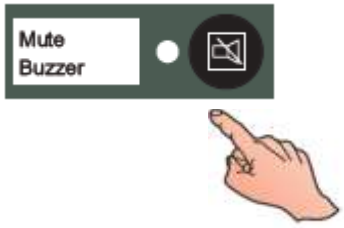
(*1) The buzzer has an 8-minute delay to indicate 220Vac faults.



Fault



Alarm

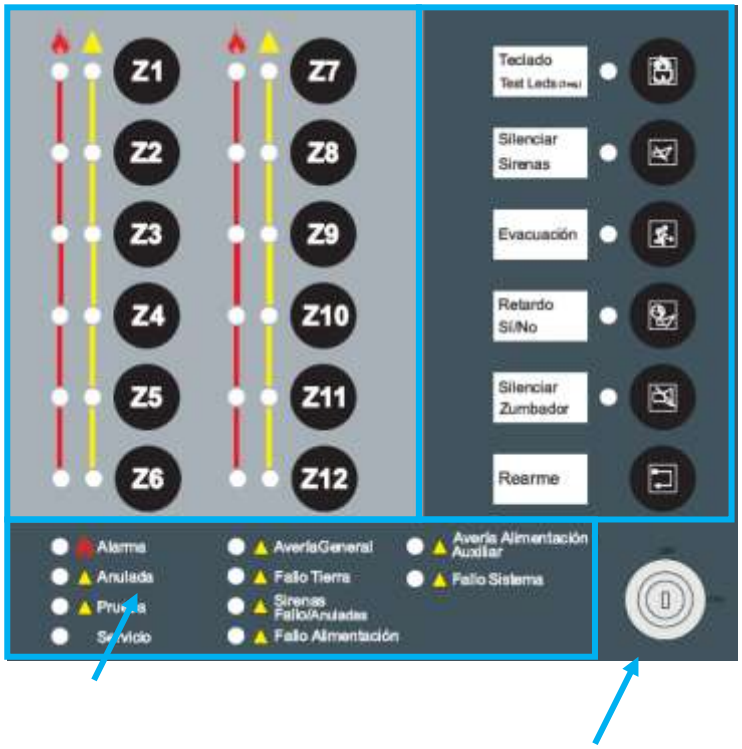




Normal or

Buzzer Mute





General
Status
Indicators

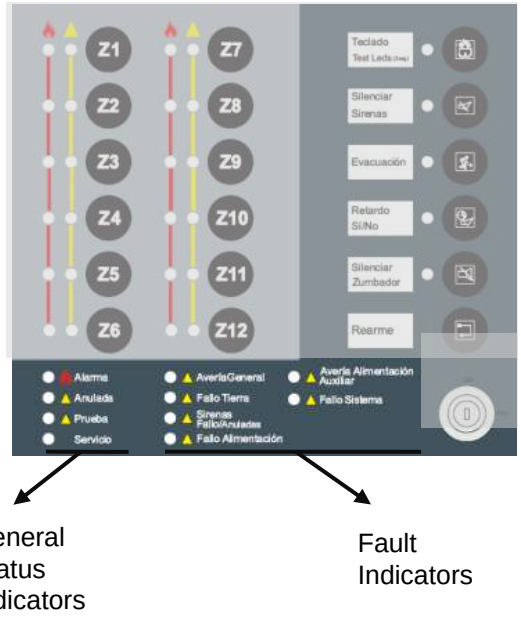
Keyswitch
Access level 2
(Operator)

2.1.2 LED Status Indicators

The front panel Leds are divided into two groups: General System Status Indicators, zone status indicators.

NFS control panel has 10 system leds and 2 more leds for each zone.

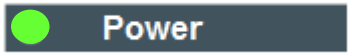
Additionally, the control keys have their own led, to indicate the state of each key, such as Mute Buzzer, Silence/Resound, Evacuate or Delay On/Off.



GENERAL INDICATORS

The General indicators report **Normal state, Alarm, Fault or Disablement**.

Whenever the system has an Alarm, Fault or Disablement, will light one of these LEDs.



Power *(Green):* This led is lit in green to indicate that the system is under normal operation.

-Led Off: If the Power *led is off*, the system will not work. Check the main power supply, battery and their fuses.



Alarm *(Red):* This led is lit when any zone is in alarm condition.

-Led On: The fire led illuminates in red to indicate that there is a fire alarm in any zone. Check the zone leds to identify which is the zone in alarm. Inspect the affected zone to identify the cause of the alarm. Press the ***Reset*** key (Access level 2) to make the system return to its normal status.



Disablement *(yellow):* This led indicates that any zone or sounder output circuits are disabled.

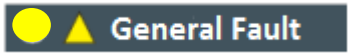
If there are Sounder delays, the Disablement led will be lit together with the Sounders delayed led (EN54/2). However, from Access level 3 (programmer), it is possible to program that the sounder delays do not light the Disablement led.

-Led On This led indicates that there are zones or sounders disabled or delayed. In order to disable delays temporarily, press the ***Delay On/Off*** key from Access level 2 (the led of the appropriate key will be lit). Check that the yellow Zone and the Sounder fault/disabled leds illuminate in steady mode. Enable the disabled zones or sounders by pressing the relevant ***Zone*** key or the ***Sounders Stop*** key (disablement led will be turned off). Delays can be enabled again, if required.



Test *(yellow):* This led indicates that any zone or sounder output circuits are disabled.

-Led On (flashing slowly in Access level 2): This indicates that a zone is under test. Check the Zone leds illuminated (flashing slowly with Test led in Access level 2). Press the relevant ***Zone*** key (Access level 2) in order to restore its normal status.



General Fault *(Yellow):* The General fault led is lit when there is a fault in the system or zones.

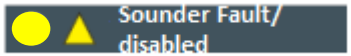
-Led On: The fault led illuminates in yellow to indicate that there is a fault in the system. Check the system led indicators that are on and the zone leds or Sounder fault/disabled led flashing quickly in order to identify the fault. Fix the fault and press the Reset key (Access level 2) in order to make the system return to its normal status.

Additionally there are **specific fault** indicators that provide information on the type of fault.



Earth Fault *yellow):* This led indicates that an earth leakage has been detected in zone or sounder circuits, digital input or Aux. 24V.

-Led On: System earth leakage fault. Please contact the installing company. Earth leakages imply a high risk for the system. Once the earth leakage condition has disappeared, press ***Reset*** key (Access level 2) to make the system return to its normal status.



Sounder Fault / Disabled *(Yellow):* There is a fault in the sounder circuits or sounders are disabled.

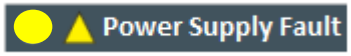
-Led flashing quickly: This indicates that there is a fault in the sounder circuit due to a short circuit, open circuit or overload. Check the circuits and the end of line resistance; check also the sounder fuses. Once the fault cause has been cleared, press the ***Reset*** key (Access level 2) to make the system return to its normal status.

-Led On (and Disablement led on too): Sounders are disabled. Enable the sounders by pressing the ***Sounders Stop*** key (Access level 2) until the zone yellow led is off.

Sounders delayed *(yellow):* This led indicates that the sounders are programmed with delays for detector alarms in a zone.

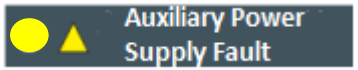
-Led On: There are delays configured for sounders.

-Led flashing: Delays operating. When delays are finished, sounders are activated. Press the ***Delay On/Off*** key to stop the operating delays. Sounders are activated immediately when there is an alarm in the system.



Power Supply Fault (*Yellow):* This led indicates that there is a fault in the control panel power supply.

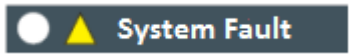
-Led On: Power supply fault. Check the 220 Vac power supply and batteries, the fuses of both and the Aux. 24V output. When the fault cause has been cleared, press the ***Reset*** key (Access level 2) to make the system return to its normal state.



Auxiliary Power Supply Fault *(Yellow):* This led indicates that there is a fault in the Auxiliary 24V output.

-Led On: Auxiliary Power Supply Fault. Check the 24V AUX fuses. When the fault cause has been cleared, press the ***Reset*** key (Access level 2) to make the system return to its normal state.

Note: This fault can cause, field device malfunction if they are powered by this output.



System Fault *(yellow):* A serious system fault has been detected.

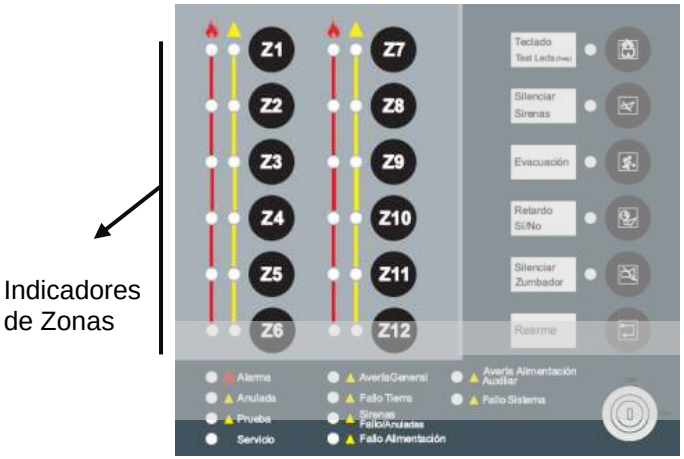
-Led On: System fault. Switch off the 220V power supply and batteries until the Power led is off and connect the power supply again. If the fault continues, contact your supplier.

Note: In case that the external relays or communication boards are installed but not communicating with the NFS supra control panel, the system fault led will light.

ZONE INDICATORS

The system has a number of alarm detection zones which will correspond, in general, with particular areas of the protected building.

In case of incidence in one of these zones, the zone led indicator, indicates their status. In case of Fault, Disablement or Test in one zone, besides the yellow zone LED, the general state LED of the specific event will light. If you enable access to Level 2 (Operator), LED zone will flash latched (with the same frequency) as the general status LED of the relevant zone.



Indicadores de Zonas



Zone Alarm *(Red):* This led indicates that there is a device under alarm condition in this zone.

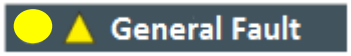
-Led **flashing**: There is a **detector** in alarm.

-Led **On**: There is a **call point** in alarm.

Check the alarm cause and press the ***Reset*** key (Access level 2) to make the system return to its normal status.



Zone Fault/Disabled/Test *(Yellow):* The relevant zone is in fault, test or disabled.



-Led flashing quickly (**and Fault led also on**): The zone is in fault condition. Check the zone wiring. Once the fault cause has been cleared, press the ***Reset*** key (Access level 2) to make the system return to its normal status.



-Led On (**and Disablement led on too**). The zone is disabled. Enable the zone by pressing the ***Zone*** key (Access level 2) until the zone yellow led is off.

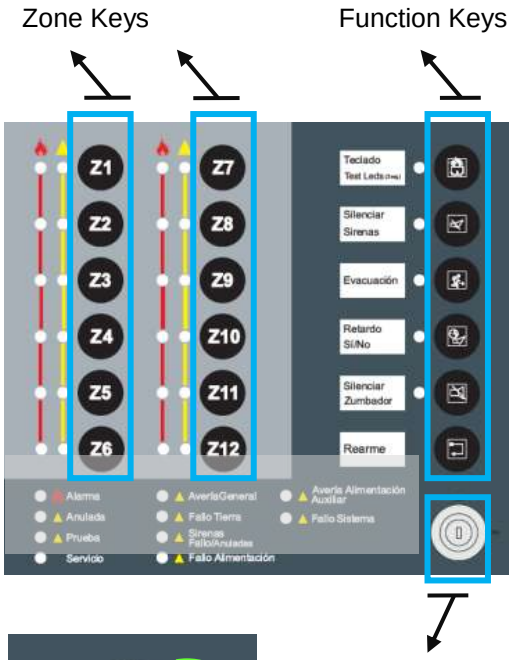


-Led On (and Test led On too) / (flashing slowly with test led On in Access level 2): The relevant zone is being tested. Press the *Zone* key (Access level 2) until the zone yellow led is off.

2.1.3 Function keys and zone keys

NFS Supra control panel has 5 function push-buttons and a pushbutton for each zone.

The access to functions and push-button is limited to 2 access levels for users and a third access level only for programmers.



Functions available in Access level 1 (user)

In Access level 1, the user can only visualize the system status and silence the buzzer:



***KEYPAD ACCESS/LAMP TEST**:* Press this key for 3 seconds to make a **led test**. All the leds and buzzer will activate for a few seconds.



BUZZER MUTE: Press this key to silence de Buzzer.
If Buzzer Mute key is pressed while Time 1 delay (acknowledgement) is activated, Time 2 delay (Inspection) will start.



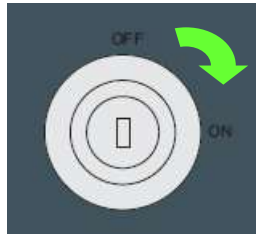
DELAY ON/OFF: Press this key to stop delays in operation.

Access Level 2 (User)

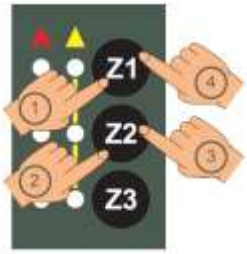
All functions available in Access level 1 are also available in Access level 2.

Access Level 2 (Enable keypad)

In order to have access to user functions (level 2) and enable the keypad: Turn the key clockwise To ON position. Keypad access led ON indicates that level 2 is available.



If the key is not available: press the ***Keypad*** key while entering the access code 1221 **at the same time**, by pressing the zone keys **Z1, Z2, Z2 and Z1** in this order. Keypad push button led will be illuminated to indicate the access level 2. If no other push button is pressed in 3 minutes, the control panel will return to access level 1.





***SILENCE/RESOUND**:* It allows to Silence/Resound and disable sounders.

-Silence/Resound: Press the ***Silence/Resound*** key to silence the sounders, the Silence/Resound led will be lit. Press this key again to activate sounders again.

-Disable sounders: When no alarms are activated, press the ***Silence/Resound*** key once to disable sounders, the Disablement and Sounders fault/disabled leds will be lit. Press the Sounders Stop key again to activate the sounders. The disabled sounders will not be activated in case of alarm.



EVACUATE: By pressing this key all sounders will be activated in order to evacuate the building.

-Evacuate: Press this key to activate all sounders.

To silence sounders press the *Silence/Resound key*.



DELAY ON/OFF**:* If there are delays configured for sounders, the ***Sounders Delayed led will light. Press the ***Delay On/Off*** key, then the ***Delay On/Off*** led will be illuminated with the delays disabled. While delays are operating, press the ***Delay On/Off*** key in order to disable the delays and activate the sounders immediately.



RESET: Press this key to reset the system. Any existing alarm or fault will be indicated again after resetting the system

Check the alarm or fault cause before resetting the system

***ZONE KEYS**:*



-To disable a zone: Press the zone key once. The Disablement and Zone keys leds will be lit. If a zone is already disabled, no alarms or faults will be received.
If a zone with an event is disabled, this zone will be disabled for new events but the current alarm or faults will only disappear after a system reset.

-To test a zone: press a zone key from the previous disablement status. The test and zone key leds will flash to indicate the test status.

The alarms in zones being tested will activate all the sounders for a few seconds and the zone is reset automatically. While zones are tested, the fault relay changes its status to indicate the new condition.

The alarm of any zone in normal status, not under test, will disable the test mode and activate the system normal operation.

3 Installation guide

3.1 Introduction

This section is intended to provide you with simple guidelines on how to install the extinguishing control panel quickly and safely.

3.2 Pre-installation Check list

Antes Before installing the NFS Supra control panel, you must first ensure that the following criteria have been met. Failure to do this may not only result in damage to the equipment, but may also cause problems when commissioning the equipment or adversely affect its performance.

Before selecting a location for the control panel and devices, DO make sure that:

• The operating room temperature is in the recommended range: -5ºC to +40ºC

• The relative humidity is between 5% and 95%

• The panel is wall mounted in a position that allows clear visibility of displays and easy access to operating controls. The height above floor level should be chosen such that the LCD is just above normal eye level (approximately 1.5 metres).

• DO NOT locate the panel where it is exposed to high levels of moisture.

• DO NOT locate the panel where there are high levels of vibration or shock.

• DO NOT site the panel where there would be restricted access to the internal equipment and cabling/wiring connections.

• DO NOT install the electronic module until you are sure that the work at installation area does not damage the system.

3.3 Transient Protection

This equipment contains transient-protection devices. Although no system is completely immune from lightning transients and interference, for these devices to function correctly, and to reduce susceptibility, this equipment must be earthed correctly.

As with all solid-state devices, this system may operate erratically or can be damaged if subjected to lightning-induced transients.

The use of overhead or outside aerial wiring is not recommended due to the increased susceptibility to nearby lightning strikes.

3.4 Installation Procedure

Installation of the NFS Supra control panel, in line with EasyFix concept, is comprised of two stages: mounting plate installation and panel enclosure installation. Details of each stage are provided in the following sections.

3.4.1 Mounting Plate Installation

To prevent distortion, the NFS Supra mounting bracket MUST be installed on the wall as flat as possible, i.e. with a maximum flatness deviation between any two points of 3mm. Where the wall is out of tolerance, use appropriate packing pieces to meet these requirements.

Step 1:

• Hold the mounting plate in the required position on the wall and mark the position of the 3 fixing holes. Use a level to ensure these are level.

• Remove the mounting plate from the wall and drill the 3 holes.

• Use rawlplugs or equivalent (Ø 6mm) to the 3 holes.

Step 2:

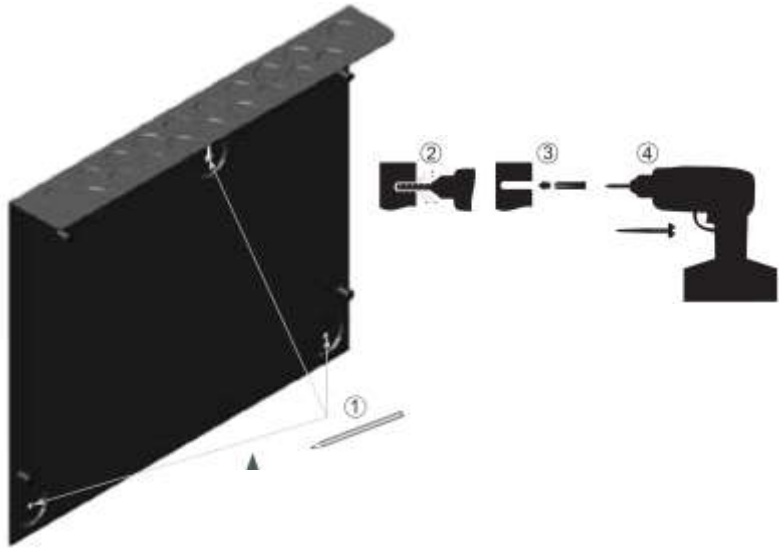
• Screw the mounting plate to the wall, using the top fixing hole only at this stage and appropriately sized screws.

Step 3:

• Line the 2 holes in the lower area of the mounting plate with the two holes in the wall drilled earlier. Use suitably sized screws to secure the mounting plate to the wall.

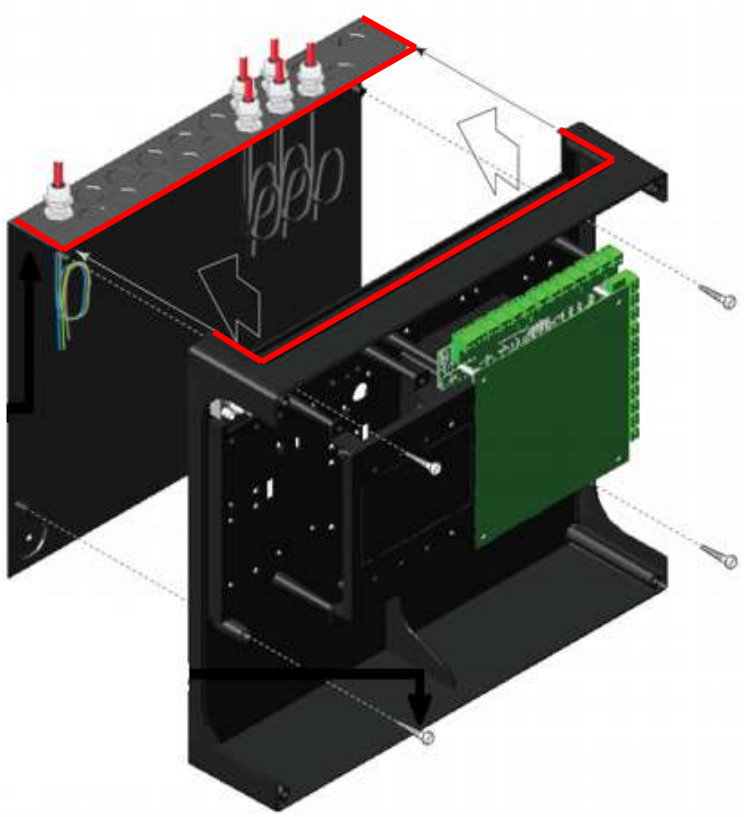
Step 4:

• Remove all blanks from the 20mm cable-entry apertures required for all cable access.



3.4.2 Panel Enclosure Installation

The control panel enclosure is very simple to install providing the mounting plate has been installed correctly as described in Section 3.4.1 Mounting Plate Installation.



This procedure assumes that all field cables have been secured on the mounting bracket with fire industry approved cable glands, using the appropriate cable apertures (knockouts) and appropriately labeled by function in readiness for termination within the panel.

Step 1:

- With the mounting plate installed on the wall in the desired location, offer the two rebates located at the top of the panel enclosure to engage the enclosure to the mounting plate.

- While performing this procedure, you will need to guide each of the field cables through the aperture located at the back of the enclosure until they are within the enclosure.

Step 2:

- Once the enclosure is aligned correctly with the mounting base, use the 4 suitably-sized screws to fix it.

CAUTION - ENERGY HAZARD!
NEVER short the battery terminals.

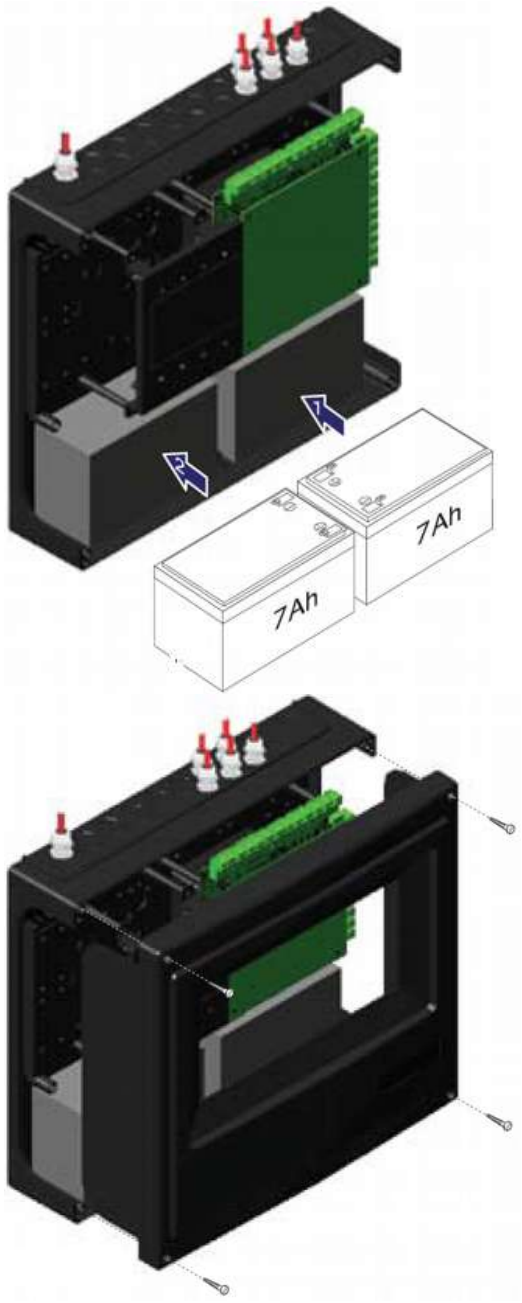
CAUTION - RISK OF EXPLOSION!
If battery is replaced with an incorrect type.

3.4.3 Installing the Batteries

The batteries must be located in the dedicated space in the lower part of the NFS Supra enclosure that has space provision for two 7Ah,12V sealed lead batteries.

• Orientate the batteries so that the wiring connection terminals of each unit are adjacent to each other (as shown opposite) then offer each in turn to the enclosure.

• Locate the batteries in their right position inside the enclosure.



3.4.4 Enclosure Cover

The control panel has a cover (door) to close the enclosure at the end of the installation.

Use 4 screws to fix the cover on the enclosure.

4 Installation

4.1 Cabling Instructions

All wiring should comply with current wiring regulations or the applicable local wiring regulations. Note also the requirements of EN54-14 (UNE 23007/14) for cabling and interconnection of a fire detection and alarm system.

For information on wiring inputs and outputs and wiring instructions to identify terminals, refer to Section 3.3 **External Wiring**.

Use the following rules when installing cables:

1. Cables should be brought into the enclosure using the 20mm cable entry points provided on the top face and back of the enclosure. Ensure that all openings in the enclosure are closed before connecting power to the panel to prevent inadvertent access to hazardous voltages.

2. Tails should be of sufficient length to connect to the appropriate termination points at the commissioning stage.

3. Cable conductor size should be a minimum of 0.5mm2. Terminals accept one 0.5 to 2.5mm2 stranded or solid conductor.

4. Cables should be screened or metal coated and the screens terminated into the earthing points provided within the enclosure to meet EMC requirements defined by European Directives and to preserve the integrity of the screen connection.

5. Use insulation sleeving on the tails between the cable entry position and the earth post. Run the tails close to the rear wall of the back box.

6. The supply to the panel must be provided with a suitable and readily accessible, double-pole, mains-disconnect device. The mains supply must be suitably fused and rated according to the specifications.

7. The cable entry points on the extreme left-hand side of the enclosure should be used for mains cable entry. DO NOT route mains cables using any other cable entry points and ensure that the mains wiring is always separated from the low voltage wiring.

8. All low voltage cables should have a minimum 300Vac rating.



All cables (Mains supply, zone and sounders wiring) of fire alarm systems should be separated from other cables. The distance should be suitable to prevent mutual interference or damage. "(EN 54-14, section. 6.11.1).
Cables must meet all the requirements specified by the manufacturer or supplier of the equipment. Pay attention to the load capacity and signal attenuation data. It is essential to follow manufacturer instructions for each cable with respect to the elimination of voltage spikes "(EN 54-14, section 6.11.2)”

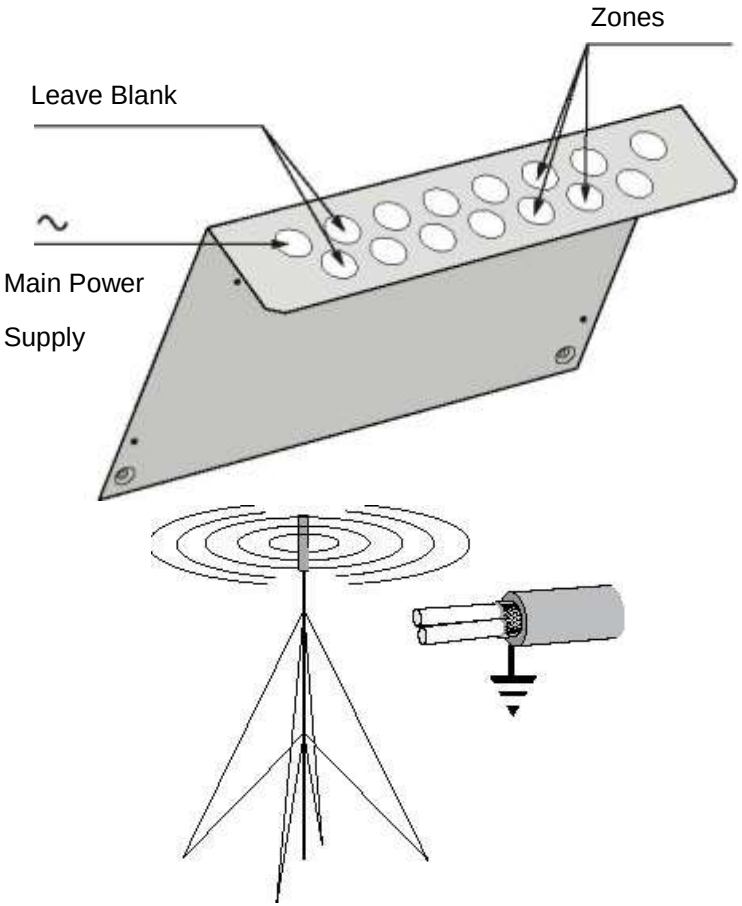
4.1.1 Cable Terminations

This section provides guidance on where to bring cables into the enclosure for ease of termination. Ensure the following requirements are met:

1. The mains supply should be brought into the control panel such that the cable path to PSU is kept as short as possible.

2. All loop and ancillary cable terminations should be brought into the panel enclosure using cable entry points close to their termination points to ensure tails are kept as short as possible.

3. Some cable entry points, e.g. the nearest to mains entry, should be left unused, where possible, to provide adequate mains supply input/ signal cable segregation.



4.1.2 Cable Quality and Installation

It is vitally important that good quality cable is used, and that correct installation techniques are followed. In general, the following cable installation requirements must be met:

1. All cable sections must be circular to allow effective cable clamping using the cable glands.

2. The cable must be screened (sheathed) to provide protection against Radio Frequency Interference (RFI) and the screen must be connected to earth at the control panel.

3. The screen must be continuous throughout the loop.

4. The system should be always connected to a safe earth with 0 V potential.

5. Cable recommended for use is MICC with a LSF PVC overcovering, a fire resilient cable to BS7629 or PVC/SWA/PVC to BS6387.

Cables Recomendados

Manufacturer	Product Name	Type
Honeywell	2 x 1.5LHR	Fire resistant and halogen free
Honeywell	2 x 2,5 LHR	Fire resistant and halogen free

4.2 EMC Considerations

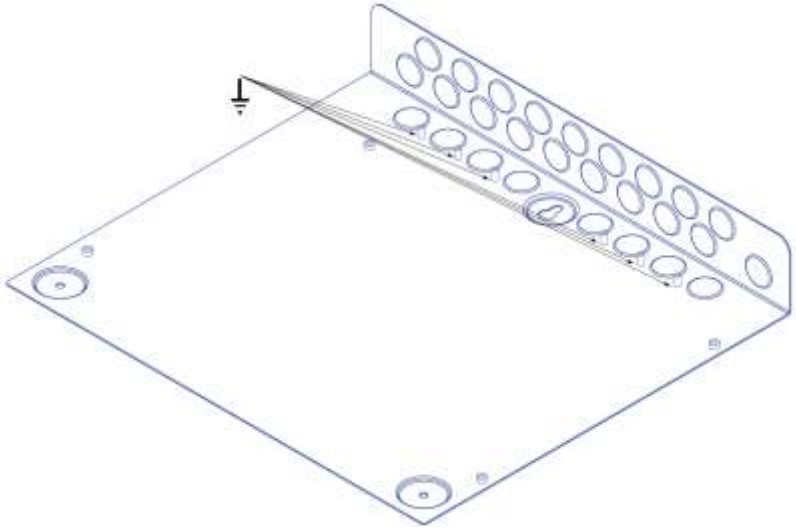
Following the above instructions and by using suitable cables EMC problems will be avoided. In particularly difficult EMC environments, or where non-preferred cable is used, it is possible to fit additional ferrite suppressors (sleeves) to cables entering the control panel.

4.2.1 Screen Termination

Cables should be screened or metal coated and the screens must be earthed within the enclosure.

Multiple earthing of cable screens must be avoided. Six earthing points are provided for this purpose on the underside of the mounting plate to cover all the cable entry points.

Use insulation sleeving on the tails between the cable entry position and the earth post. Run the tails close to the rear wall of the back box.



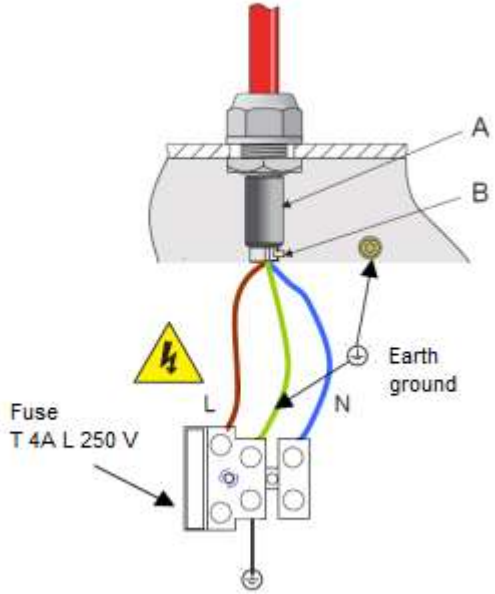
4.2.2 Ferrite Sleeves (Optional)

In difficult EMC environments, or where non-preferred cables are used, optional ferrite sleeves should be fitted to all the wiring entries.

The ferrite sleeves (A) are to be fitted over the conductor(s) of each cable and as close as possible to the entry point of the cable.

The sleeve should be held in place using a cable tie (not supplied).

If more ferrite sleeves are required, please contact your supplier.



4.3 Commissioning

4.3.1 Preliminary checks

Before connecting the mains power to the panel, the following must be checked:

1 Verify that the earth lead from the safety earth post is connected to the earth tag on the Main PCB and that the earth-monitoring jumper (EARTH FAULT) is fitted.

2 Check that the EOL devices are correctly terminated in the zone input and sounder output terminals and no external wiring terminations have been made.

3 Apply power (main power supply and batteries) as indicated below and make a reset from level 2 (user access). Check if the control panel is on stand-by.

4.3.2 Mains Power

Disconnect the service breaker on the distribution board.

Before applying mains power to the control panel, make sure that you carry out the following checks and procedures:

Make sure that main supply wiring is brought into the cabinet separated from low voltage wiring. Prepare the mains supply wiring for connection as follows:

Check that differential circuit breaker is disconnected. For safety reasons, remove the mains fuse and keep and put it away in a safe place until all the wiring connections are finished.

i Remove the outer cable sheath to provide sufficient slack, approximately 80mm, in the wiring to assist termination.

ii Form each wire in a 'pigtail' before taking it to its termination point. Route the L and N wires such that there is separation from the safety earth..

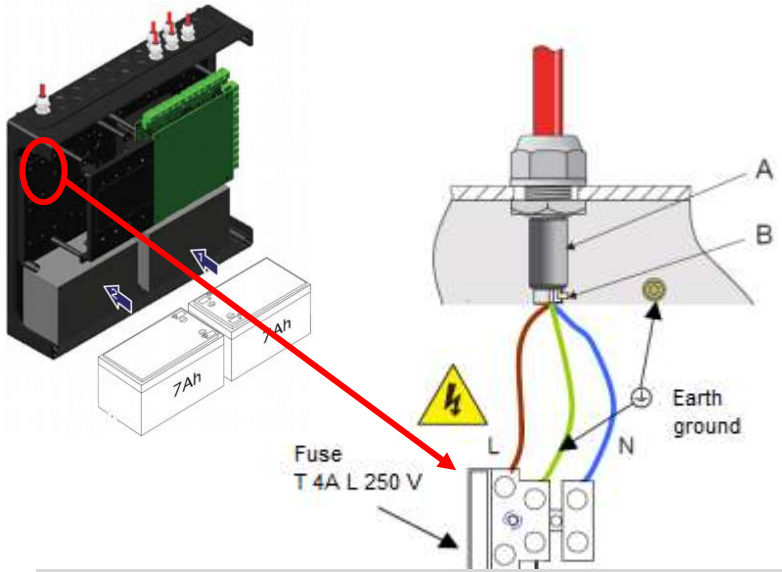
iii Connect the L and N wires directly to the MTB (left and right terminals, respectively). The safety earth (⏚) wire must be terminated at the central terminal. See drawing on the right.

Note: Terminals accept 1 to 2.5mm2 cables.

ELECTRICAL HAZARD!

WARNING. Risk of electric shock.
Before working on mains connections, ensure mains power supply to the panel is disconnected.

For more information about operating the system, please refer to Operation section of this manual.

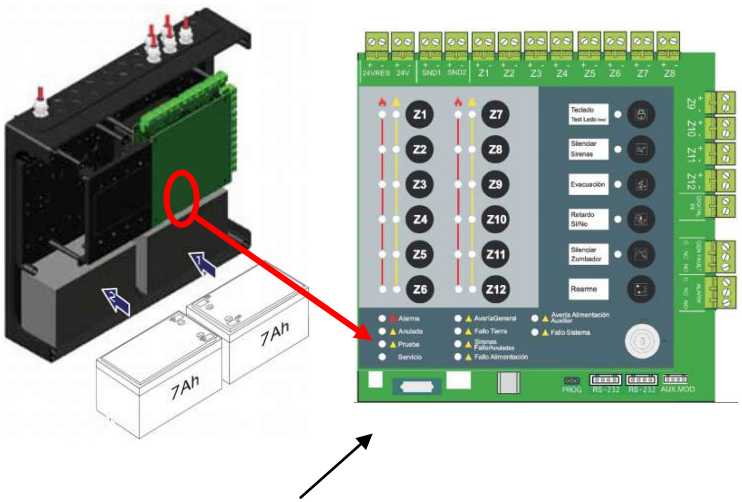


In the presence EMC, it´s recommend placing a ferrite (A) (not supplied) on the power cables. Secure it with a nylon flange (B) (not supplied).

4.3.3 Batteries

The panel back box can hold up to two 12V, 7Ah batteries. The batteries are not supplied with the panel. Refer to **Specification** Section for details of recommended batteries

Note: The panel can function satisfactorily on batteries only, if required, when mains power is not available. However, this should only be done for short periods to avoid inadvertent discharge of the batteries.



Battery charger connector

To Install Batteries:

1 Install the batteries in the back box. The batteries should be positioned so that their terminals are close enough to allow connection of the short interlink cable.

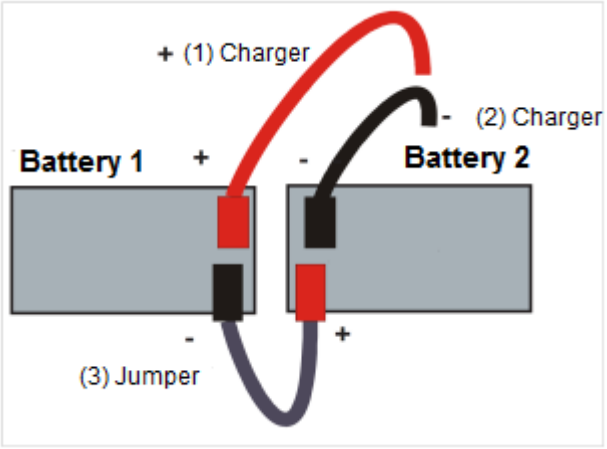
2 Connect the batteries using the provided items:

a. Red battery lead (1)

b. Black battery lead (2)

c. Short battery interlink lead (3).

One end of each battery lead is fitted with a connector. The other end of the red and black battery leads should be connected to the battery charger termination block located at the bottom, left-hand corner of the Main PCB:
The red lead to the **+ve** connection and black lead to the **-ve** connection. Connect the other end of the red lead (1) to the **+ve** terminal of one battery and the black lead (2) to the **-ve** terminal of the other. Connect one end of the short interlink (3) lead to the **+ve** connector of one battery (refer to drawing on the right).



CAUTION – ELECTRICAL HAZARD!

NEVER short the battery terminals.

CAUTION – RISK OF EXPLOSION!

If battery is replaced with an incorrect type.

4.4 Base PCB Wiring Connections

The base PCB of the extinguishing control panel provides the external cable/wiring connectors for the following functions.

To recognize the function of connectors easily, the input connections have been identified with alphabetical characters and the output connexions with numbers:

Inputs

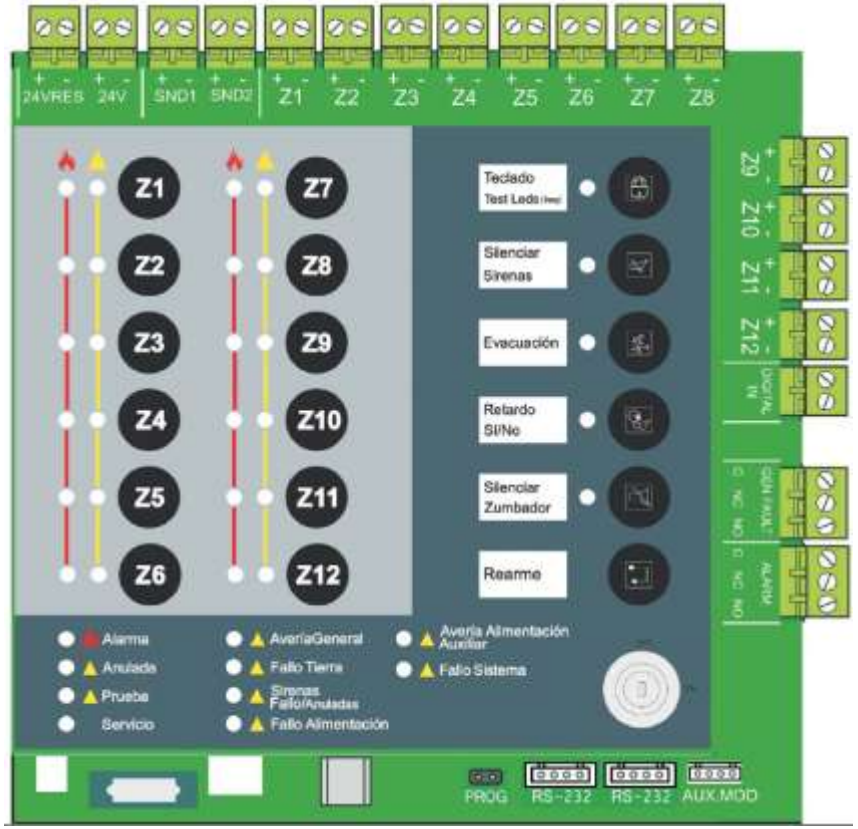
1. Z1 **Zone 1**
2. Z2 **Zone 2**
3. Z3 **Zone 3**
4. Z4 **Zone 4**
5. Z5 **Zone 5***
6. Z6 **Zone 6***
7. Z7 **Zone 7***
8. Z8 **Zone 8***
9. Z9 **Zone 9***
10. Z10 **Zone 10***
11. Z11 **Zone 11***
12. Z12 **Zone 12***

Outputs

- A **24 V Resettable**
- B **24 V Fix**
- C **Sounders 1**
- D **Sounders 2**
- E **General Fault Relay**
- F **General Alarm Relay**

Programmable input:

13. Digital Input external contact



* The number of zones depends on the panel Model.

NFS4 (Zones 1 to 4); NFS8 (Zones 1 to 8) and NFS12 (Zones 1 to 12)

4.4.1 Zone Wirings (1 a 12 connectors)

Detector and call point wiring must be separated from other conduits with different voltage or usage.

NFS Supra control panel has four, eight or twelve alarm zones.

Detectors and Call Points can be connected to the same zone wire, and the system identifies through the zone led if the alarm comes from **detectors (flashing led)** or **call points (steady led)**. Moreover, call point alarm may clear programmed delays, in compliance with EN54/2.

However, when installing detectors and call points in the same zone line, please, make sure other local regulations are followed.

NFS Supra control panels support an unlimited number of call points per line but some local regulations may limit this number. Please, check the current and applicable regulations before installing alarm devices.

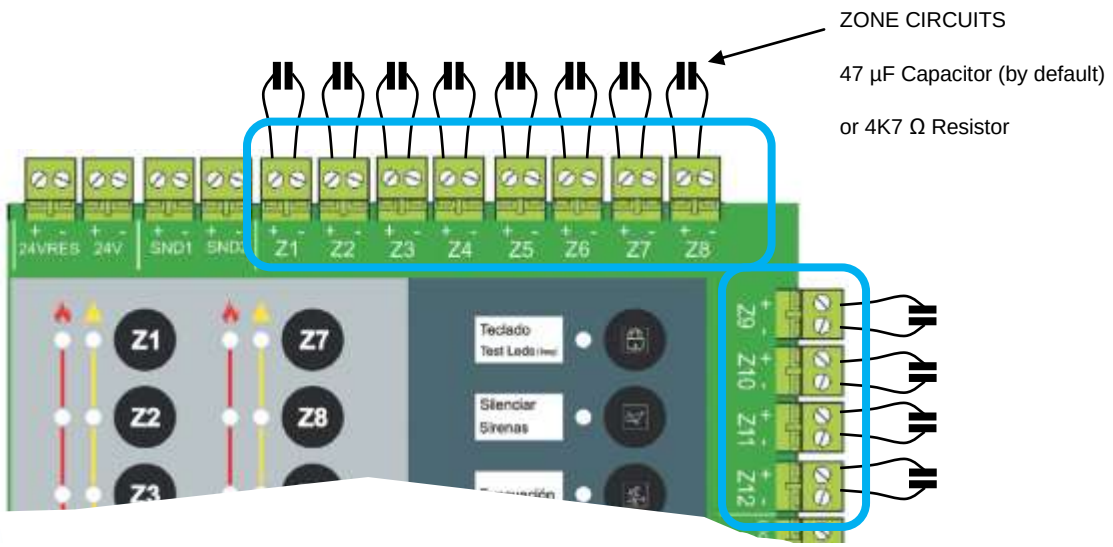
End of line (EOL)

Zones lines must be terminated with the supplied, **47µF capacitor** or 4K7Ω, resistor. The EOL resistor make zone stable to 24 V(normal/quiescent status).

The EOL resistor must be installed in each zone, including not used zones.

Zone status thresholds

0	to 1.9 Vdc	Short Circuit
2	to 7.4 Vdc	MCP Alarm
7.5	to 19 Vdc	Detector Alarm
19	to 25.5 Vdc	Normal
25.6	to 27.5 Vdc	Open Circuit



Connecting Call Points

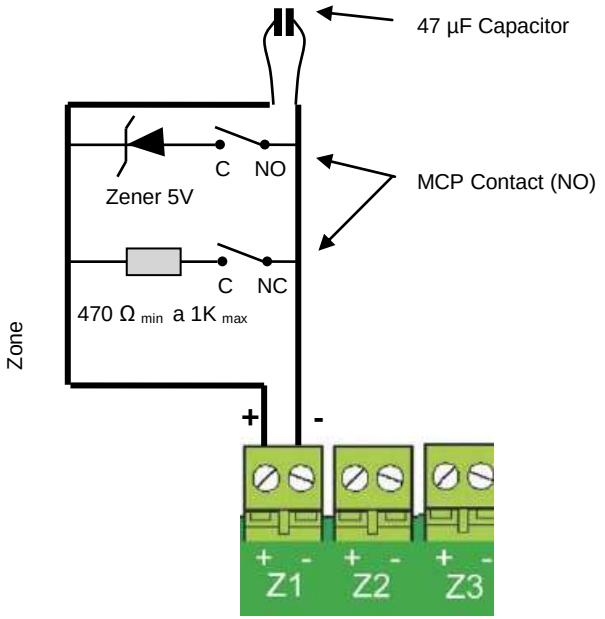
Alarm call points are connected to the zone line by means of a 5.1V/0.25w Zener Diode (not supplied). PUL-VSN call points include this Zener Diode.

NFS Supra control panels can support an unlimited number of call points in each zone but, according to EN54-14, no more than 10 MCPs may be connected to one zone.

So that the NFS Supra control panels can identify MCP alarms (Alarm LED steady), each normally open (NO) switch contact must be connected in series with a diode Zener of 5.1 V (minimum 1/4W) between positive and negative of the line as shown in the drawing.

Alternatively, it is possible to use a resistor 470Ω > R > 1kΩ in series connection with call points.

Connect the end of line (EOL) 47µF capacitor or 4K7 Ω (RFL mode) between positive and negative of the line after the last device.

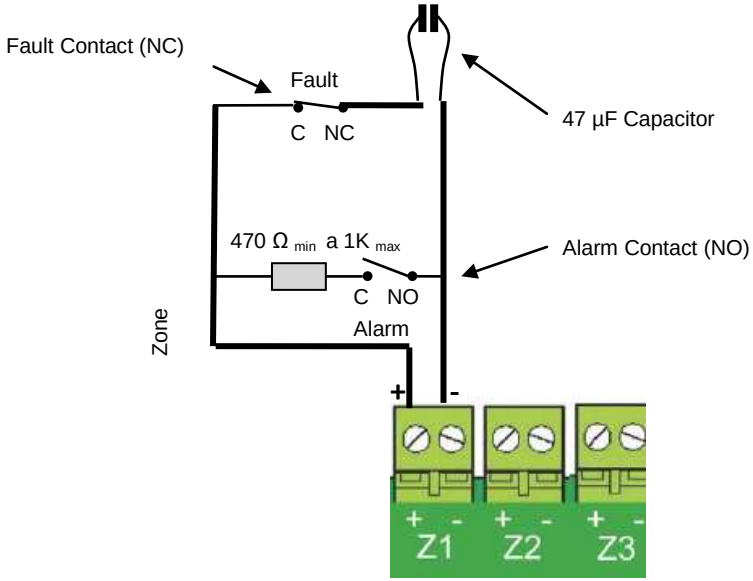


Connecting autonomous Detectors with Alarm and Fault contact relay

Autonomous conventional detectors as aspiration systems, beam detectors, sensor cable control panels, etc. have an alarm relay and a fault relay for connection to alarm circuits as a conventional zone.

To connect these devices to the conventional zone line the detector alarm relay should be connected in normally open (NO) mode, in series with the alarm resistor or 5V zener between positive and negative as shown in the drawing.

The detector fault relay must be connected in normally closed (NC) mode in series with the end of line (EOL or RFL), between positive and negative, as shown in the drawing.



Connecting detectors

Fire detectors are connected directly to the zone line and are powered by this circuit.

A Detector removal from the zone must be indicated as a fault (EN54/2). For this reason, an (EOL) 47µF capacitor or 4K7 Ω resistor must be installed in the output connection of the last detector, between zone positive and negative poles.

At each zone of NFS Supra, 32 Honeywell conventional detectors can be connected; however, there may be local regulations more restrictive as for the quantity of detectors.

Please read carefully the detector's manuals before connecting them. Check the operating margins of the zone in the specification section of this manual and the consumption of the detectors to know the number of detectors that is supported by zone.

-The detectors consumption must not exceed 3mA with an EOL installed..

According to EN54-2, the highest number of detectors supported by a zone is 32. Moreover, the detectors consumption must not exceed los 3 mA (3000 µA). That means that the number of detectors to be installed must be calculated depending on their consumption without exceeding the number of 32 detectors. (For example, if the consumption of detectors 0.2 mA (200 µA), the maximum detectors number will be 15.

$$\textbf{Max. Detectors number} < \frac{\textbf{3000 µA}}{\textbf{Each detector consumption (µA)}}$$

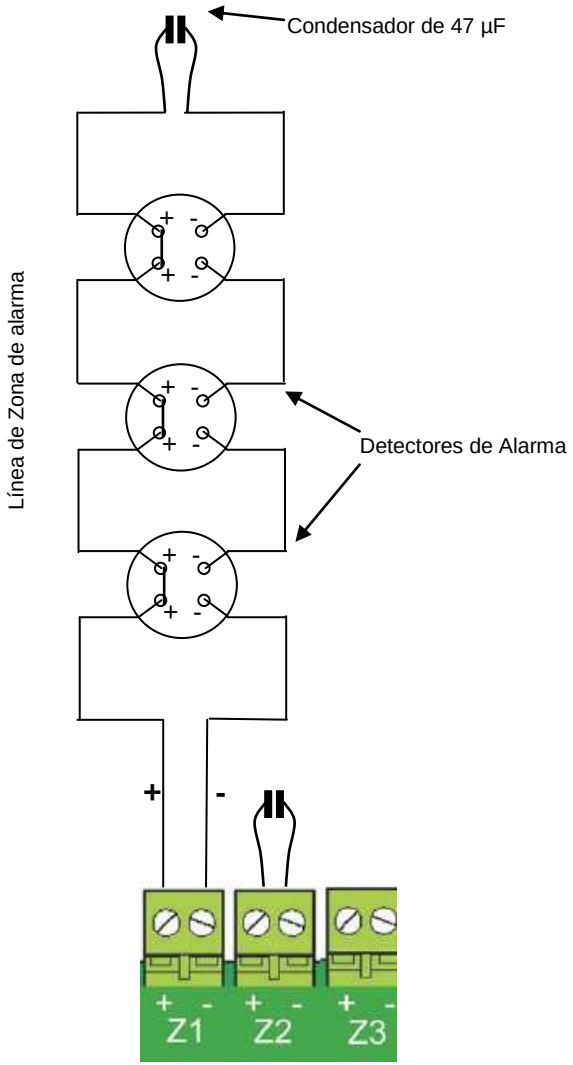
***Max. Detector number is 32 according to EN54**

Example: Max number of detectors by zone, using Eco1000 System Sensor detectors or 800 series detectors from Honeywell: Max. Consumption: 80µA (0,08 mA) in standby.

$$\text{Max. Number of Detectors} < \frac{3000\ \mu A}{80\ \mu A} = \textbf{37}$$

Max. number of detectors is 37. However, according to EN54-2 no more than 32 can be installed.

Max.number of detectors 800 series or ECO1000 from Honeywell will be 32.



4.4.2 Sounder Circuits

The NFS Supra control panel provides two independent, monitored sounder outputs. Sounder circuit wirings must be separated from other cables.

There are some local requirements for Notification appliance Circuits. Sounder circuits must be fire resistant according to EN54--14.

Sounder circuits must be wired as a single circuit with no spurs or T-junctions to ensure the correct operation of the monitoring function (see figures below). Moreover, an EOL diode (1N4007 or 4K7 Ω resistor) (see figure) must be installed after the last sounder.

Both sounders outputs circuits should have an EOL, even if is not used.

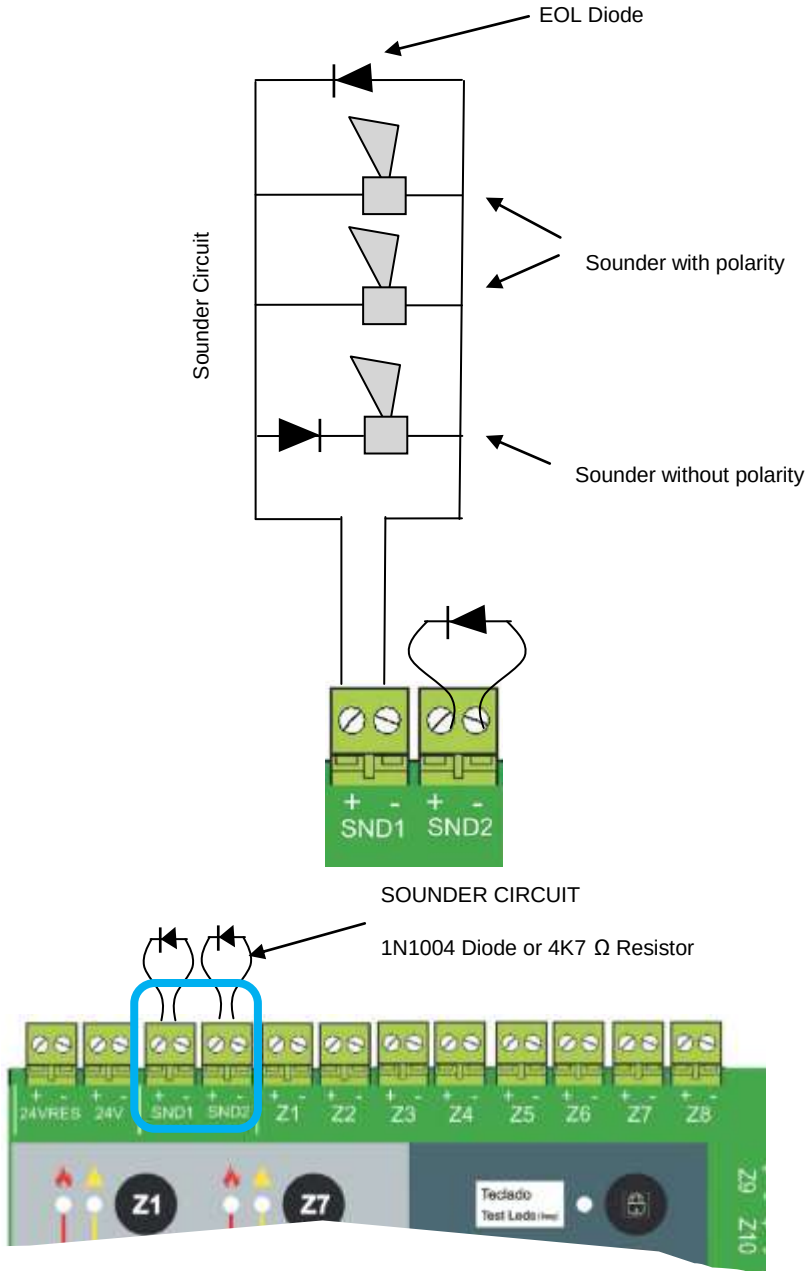
The system reverts polarity of output in standby due to sounders consumption in standby.

Each sounder circuit supports **a maximum of 500mA when activated**, being protected by resettable. Check the devices loads in order not exceed the maximum allowed. Refer to Specifications section.

Connect the circuit to the panel output while observing correct polarity. When sounders without polarity are used, a polarity diode must be used in the power supply of each sounder in the current way and another in parallel to the sounder in reverse current way, see drawing. **To avoid false alarms, do not connect sounders until all connections are terminated.**

The sounders can be tested by using, the Evacuate push-button form level 2. Sounders will turn on. Press the push-button again to silence sounders.

Any fire in any zone activates sounders by default, but sounders may be configured to be activated by zone with delays. Refer to Configuration section in this manual.



4.4.3 Alarm and General Fault Relay

NFS Supra control panel has two voltage free relays (C, NC, NO): Fault and alarm relay.

Alarm relay is activated when an alarm is generated at the control panel (the Alarm led also turns on). Once activated, it is necessary to reset the control panel in order to reset the alarm relay and revert it to its normal status.

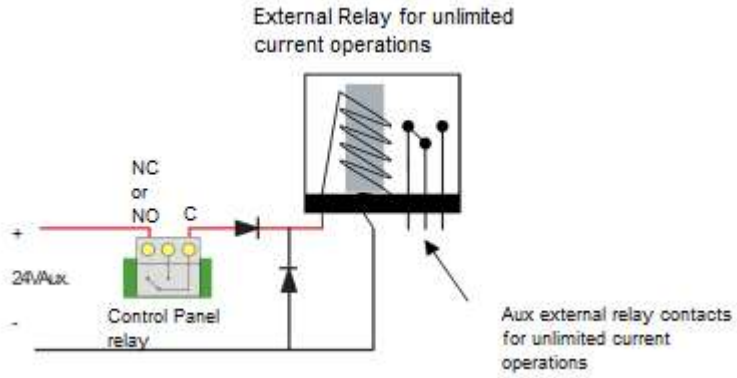
The system allows to be configured so that the alarms are verified during a period of time. If an alarm is not confirmed, the alarm relay will not be activated. Refer to the operating and zone configuration sections of this manual.

The fault relay is activated in standby and becomes deactivated when a fault is generated at the control panel or the panel power supply is cut.

Faults may be configured as latched or resettable. By default, faults are latched and it is necessary to reset the control panel so that the fault relay comes back to its normal (standby) status. On the other hand, resettable faults automatically revert the fault relay to its normal (standby) status, in case the fault is cleared.

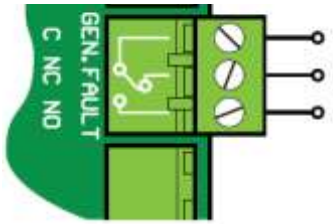
NFS Supra control panels support 12 additional relays by means of up to three 4-relay boards (VSN-4REL).
Check the External equipment and Accessories section for more information.

Each relay supports 1 A max. For high current or 240Vac, please use external double relays with a polarity diode and a protective diode to avoid return spikes from coils. See the drawing below.



GENERAL FAULT RELAY

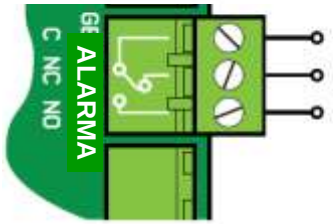
(Standby mode)



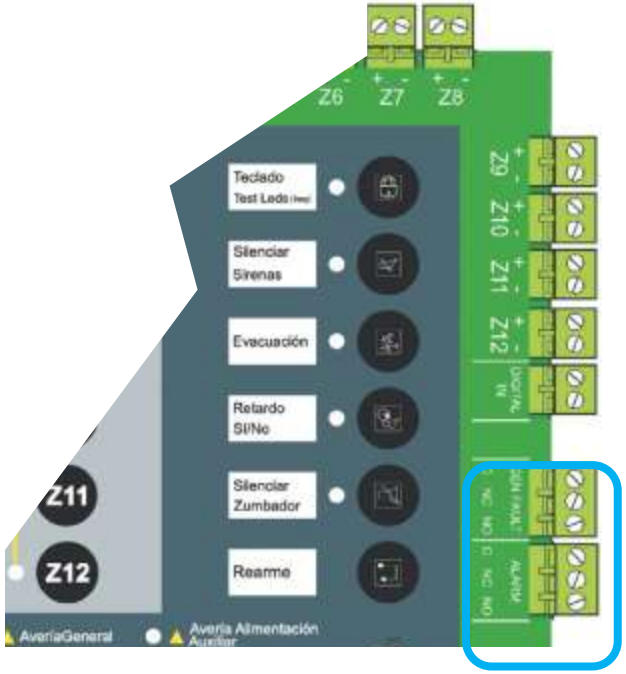
Common
NO
NC

ALARM RELAY

(Standby mode)



Common
NC
NO



Fault and Alarm relays

4.4.4 Auxiliary 24V Outputs

NFS Supra control panels have two 24 Vdc outputs, supplied from the control panel power supply.

Max. Power from each output is 500mA at 24Vdc, protected by electronic resettable fuse.

24 V AUX fixed output provides 24V non-resettable from mains supply or batteries.

Resettable *24VAux.:* Voltage goes down to 0V for approx. 5 seconds, each time the control panel is reset. This output is used to supply external devices that need to cut the power supply to be reset.

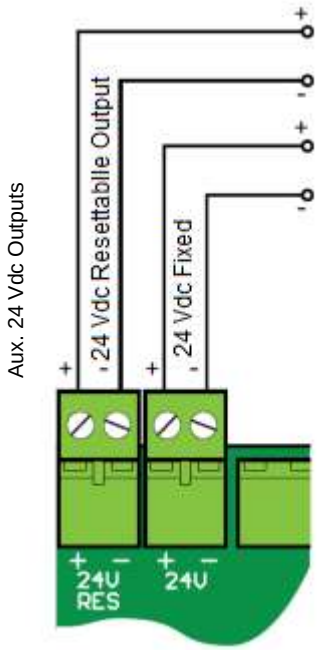
Before connecting any external current to the control panel, check the max. current allowed for the devices that are going to be connected.

Please, consider the time that the system must remain in standby and in alarm.
Make sure that the control panel power supply and batteries have enough power.

Otherwise, auxiliary devices must not be supplied by the control panel but by suitable external power supplies.

For calculations, check the technical section of this manual and the manual of each devices you want to connect.

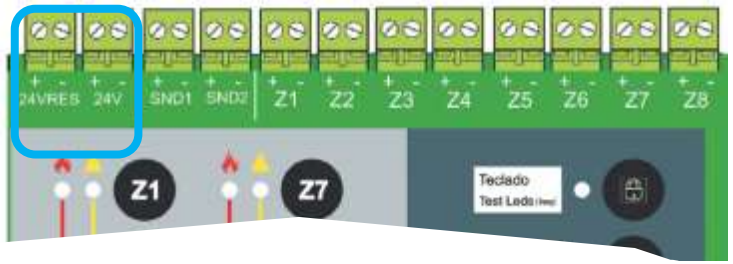
Para Please, refer to the diagram, on the previous page, to connect coils, relays or valves. Otherwise, the control panel may become seriously damaged.



Aux. 24 Vdc Outputs

CAUTION! Battery backup period time reduction

The external consumption in Standby and Alarm means a direct reduction of the capacity of the batteries to keep the system during an emergency.
Do not connect high consumption external devices to Aux. 24 Vdc Outputs. Instead, use the auxiliary power supplies.



4.4.5 Digital Input

A digital input is provided for external configurable contact in order to control the panel from another system.

The following functions are available through a NO or NC external contact (voltage free):

RESET

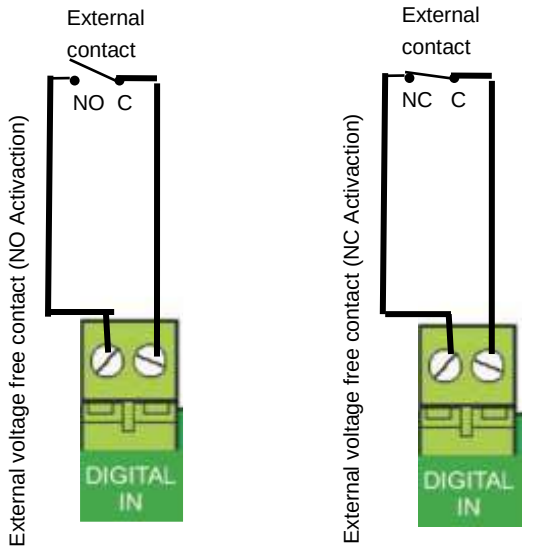
EVACUATE

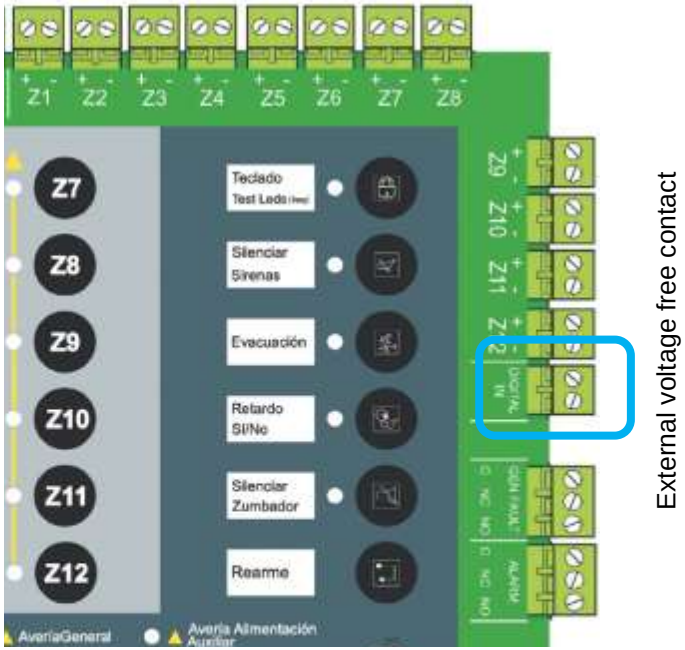
SILENCE/RESOUND

DELAY ON/OFF

Connect the ends of the external voltage free contact to the digital input contacts DIGITAL IN.

Do not use live contacts or cables in the digital input or the panel will be irreparably damaged!





5 Configuration

5.1 Introduction

It´s possible to configure output and control functions from Access Level 3.

Before changing the panel configuration, read this section carefully. Do not make any changes in the configuration unless you have completely understood the operation of the panel.

The default configuration is valid for most installations and does not need to be modified.

Please observe that some configurable functions available may contravene local applicable regulations.

5.2 Level 3 Access (configuration)

Inside Level 3, the system leds and push-buttons have special functions. Check each option to know its meaning and usage.

Configuration access (PROG)

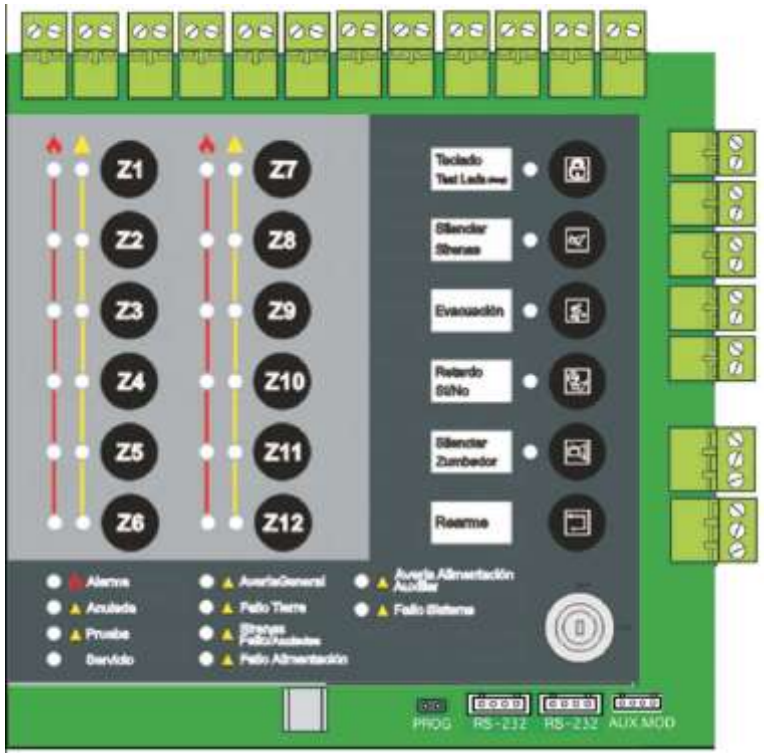
In order to enter the configuration menu, connect the supplied jumper between the PROG connector pins on the main board. **The buzzer will sound briefly every 10 seconds to indicate the access to level 3. The fault relay will remain activated while the panel is in level 3.**

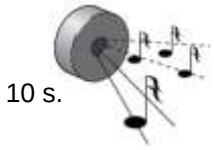
The system leds indicate the configuration of the first option (Digital input).

Follow the steps of each option to modify their values.

Exit configuration

Once the configuration is finished, remove the jumper from the PROG connector on the main board and the configuration will be saved in the inner memory.





PROG. Jumper

Level 3 Access Jumper

5.3 Default Configuration

NFS Supra is supplied with the following configuration, suitable for most installations.
Refer to configuration options for further information:

- Digital input: Panel **Reset**.
- Sounders **without delays** (Delay 1= Delay 2 = 0 sec).
- **Zone type = Normal (all): Immediate activation of zone alarm.**
- **Zone short circuit = Fault.**
- **All zones activate all sounders. Detectors perform delays and call points not.**
- **Disablement led on with delays**.
- **2 Zones in alarm do not cancel delays**.
- **Latching faults**.
- **Monitored main power supply and batteries**.
- **Earth monitoring level** normal.

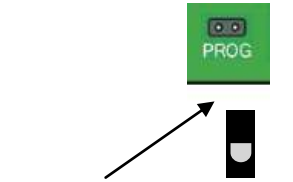
5.3.1 Default Configuration

To restore the default configuration to the control panel:

i) Fit the **configuration jumper** (Level 3)

ii) Keep the Keypad Access push-button pressed while you are entering the access code (1221) by pressing the zone keys in this order (**Z1, Z2, Z2 and Z1**). Control panel quits the configuration mode and the buzzer activates with a quick intermittent sound.

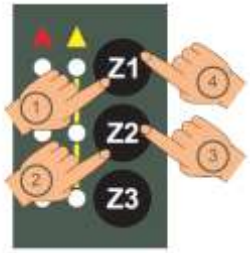
iii) Remove the programming jumper. The default configuration is saved.



PROG. Jumper

Level 3 Access Jumper





5.4 Configuration Options

In NFS Supra control panels, the following functions can be configured:

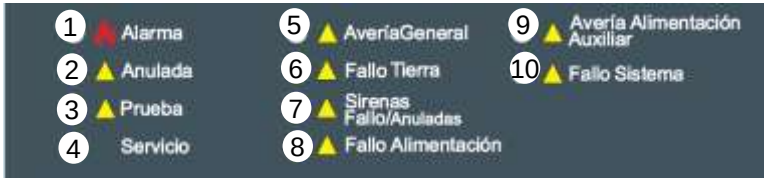
At level 3, the panel leds indicate, the configuration for each option. In order to select one option, the relevant push button must be pressed, following the lighted keys. System leds (Inferior group of leds from 1 to 10) indicate the selected configuration.

In order to change a function, press *RESET*. Select the led corresponding to the desired option in each menu. On removing the level 3 access jumper (PROG), the control panel saves the configuration automatically.

When entering the configuration, you will always Access at the option 1 (Digital Input).

Reset push button: **Change Option** (Access Level 3 - Configuration)





Configuration Option indication from 1 to 10.

5.4.1 Zone type

Zone operation may be configured as follows:

***Normal* operation (by default)**: Zone alarms are activated immediately.

Delayed contact (470Ω): To be used with flow switches or contacts with *470Ω alarm resistor that require that the alarm condition remain for 30 seconds before the control panel* indicates an alarm. Call points activate the alarm immediately.

Verification (Detectors): This option requires a second acknowledge/confirmation within 10 minutes or the activation of the same or any other zone. After the first alarm, the zone is reset and the alarm is confirmed if a new alarm occurs in the next 10 minutes.

***Delayed contact (470Ω* and Zener 5V)**. Both alarm contacts *470Ω* alarm resistor and call points must keep the alarm condition for 30 seconds, otherwise the alarm will not be indicated.

Zone type configuration:

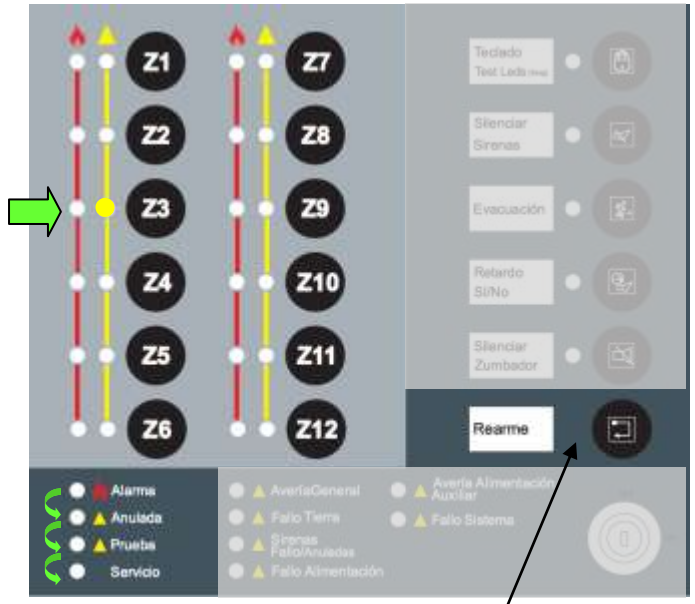
Select the desired zone by pressing the relevant push-button ***ZONE*=ON (Red or Yellow)**. The zone led will be lit in red or yellow, depending on the short circuit option configuration for zones alarm or fault. See also section fault/alarm by short circuit.

Change zone type cyclically by pressing ***RESET.***

Zone Configuration

Led 1 Alarm Red	= ON = **Normal** (By default)
Led 2 Disablement Yellow	=ON= **Delay contact** 30s. (470Ω*).* Zener immediate activation
Led 3 Test yellow	=ON= **Verification**. 10 minutes.
Led 4 Power green	=ON= **Delay contact** 30 sec. (470Ω and Zener)

The sounder and relay cards outputs operation depends on the zone configuration associated with these outputs.



Reset push-button: **Change Option** (Access Level 3 configuration)

Note: The zone led will be lit in red or yellow, depending on the short circuit option configuration for zones alarm or fault

5.4.2 Delay 1 (Primary Delay – Alarm acknowledge)

Delay 1: Maximum time to press *MUTE BUZZER* key in order to acknowledge (accept) the alarm start Delay 2. If the MUTE *BUZZER key is not pressed, sounders will be activated when delay* 1 time is finished. It is possible to configure a period of time from 0 seconds (only delay 2 is performed) to 300 seconds (5 minutes) at 30-second intervals.

Delay 1 configuration:

Press the ***MUTE BUZZER*=ON** push-button. Then press ***RESET*** *push-button to change cyclically the led that has to be on and, consequently, to change the period of time.*

No leds on	= OFF= **0s** only Delay 2 if configured (by default)
Led 1 Alarm (Red)	= ON = **30 sec.**
Led 2 Disablement (Yellow)	= ON = **60 sec.**
Led 3 Test (Yellow)	= ON = **90 sec.**
Led 4 Power (Green)	= ON = **120 sec.**
Led 5 General Fault (Yellow)	= ON = **150 sec.**
Led 6 Earth Fault (Yellow)	= ON = **180 sec.**
Led 7 Power supply fault (Yellow	)= ON = **210 sec.**
Led 8 System fault (Yellow)	= ON = **240 sec.**
Led 9 Sounder fault/disable (Yellow)	= ON = **270 sec.**
Led 10 Sounders delayed (Yellow)	= ON = **300 sec**.

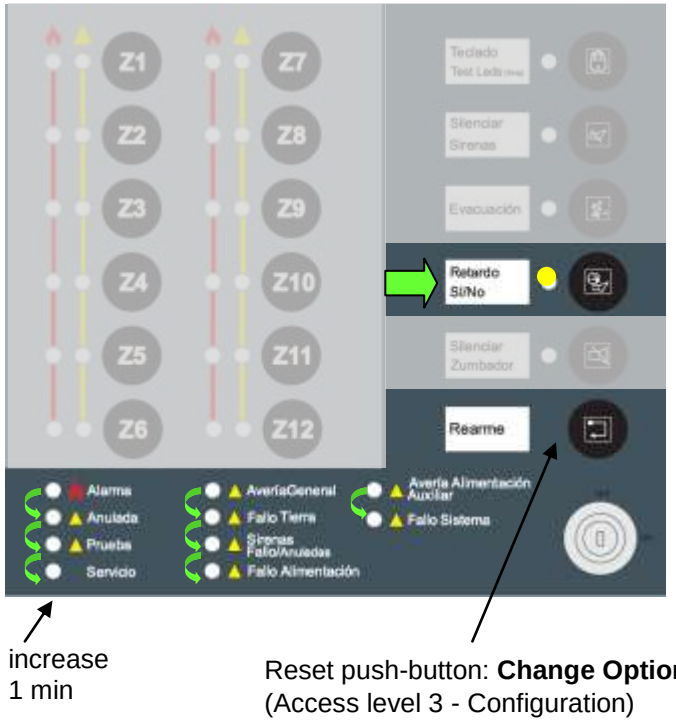
At level 1 or 2, DELAY ***ON/OFF*** push-button can be pressed in order to cancel operating delays.
The sounder and relay cards outputs operation depends on the control matrix.



Reset Push-button: **Change Option** (Access level 3 - Configuration)

5.4.3 Delay 2 (Secondary delay – Alarm inspection)

Delay 2: Period of time available to check the alarm cause after pressing MUTE BUZZER push-button. After this time, sounders will activate. It is possible to configure a period of time from 0 sec. (only delay 1 is performed) to 10 minutes at 1 minute intervals.



Delay 2 configuration:

Select Delay 2 by pressing ***DELAY ON/OFF*=ON**

Then press **RESET** push-button to change cyclically the led that has to be on and, consequently to change the period of time.

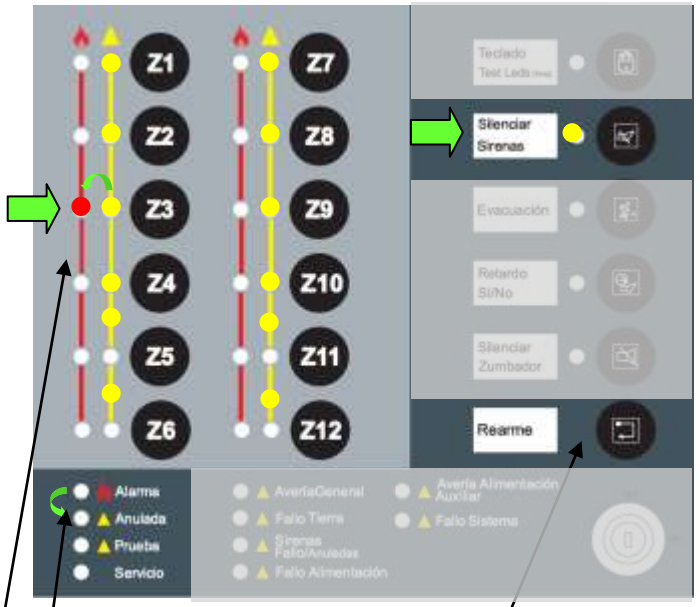
No leds on	= OFF= **0s** only delay 1 (by default)
Led 1 Alarm (Red)	= ON = **1 min**
Led 2 Disablement (Yellow)	= ON = **2 min**
Led 3 Test (Yellow)	= ON = **3 min**
Led 4 Power (Green)	= ON = **4 min**
Led 5 General Fault (Yellow)	= ON = **5 min**
Led 6 Earth fault (Yellow)	= ON = **6 min**
Led 7 Power supply fault (Yellow)	= ON = **7 min**
Led 8 System Fault (Yellow)	= ON = **8 min**
Led 9 Sounders fault/Disable (Yellow)	= ON = **9 min**
Led 10 Sounders Delayed (Yellow)	= ON = **10 min**

At level 1 or 2, ***DELAY ON/OFF*** push-button can be pressed in order to cancel operating delays
Alarm inspection (delay 2) starts after pressing the mute key confirmation period (Delay 1).
The sounder and relay cards outputs operation depends on the control matrix.

Maximum Delay**, Delay 1 + Delay 2, is 10 minutes** (EN54-2).
If there is any delay configured, the ***Sounders delayed* led and *disablement led*** *will be illuminated.*
While the delay is running, the *Sounders Delayed* led is flashing before sounders are activated.

5.4.4 Sounders activation by zone (Control matrix)

Sounders activation in zones can be configured independently for detectors and call points: delays operation (Delay 1 and Delay 2) and whether the zone activates or not the sounder.



Sounder 1 or Sounder 2

Reset push-button: **Change Option** (Access level 3 - Configuration)

Zone push-button to select sounder activaction

Sounders activation by zones:

Select sounders configuration menu by pressing ***SILENCE/RESOUND*** **=ON**

Change the selected sounder by pressing ***RESET***:

Led 1 Alarm (Red) = ON = **Sounder 1**

Led 2 Disablement (Yellow) = ON = **Sounder 2**

Fort he selected sounder:

Press the ***ZONE*** *key to select the sounder (Sounder 1 or Sounder 2) activation* mode for each zone (do this operation for all zones and both sounders):

Zone led

Red	Yellow	**Activation mode by zone**
OFF	ON	Detectors (Eco1000 or 470Ω) with delay / MCP (Zener 5V) without delay
ON	OFF	Detectors (Eco1000 or 470Ω) and MCP (Zener 5V) with delay
ON	ON	Detectors (Eco1000 or 470Ω) and MCP (Zener 5V) without delay
OFF	OFF	Sounder is not activated.

To exit this option, press ***SILENCE/RESOUND*** *push-button again*.

In order to have delayed outputs, Delay 1 or Delay 2 must be configured.
At level 1 or 2, DELAY ***ON/OFF*** push-button can be pressed in order to cancel operating delays

5.4.5 Digital Input

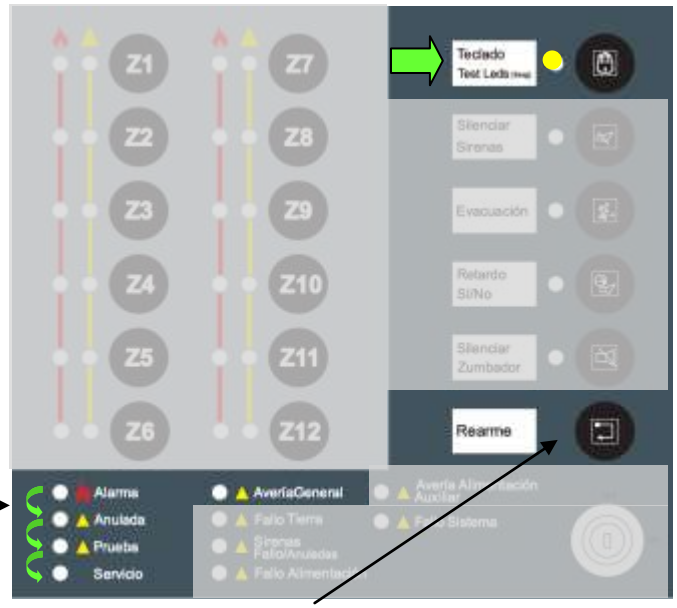
The digital input of the control panel activates by close contact (by default) or open contact (Configurable option). When the contact is closed/opened between digital input terminals (DIGITAL IN), the following functions are supported by the control panel:

Digital input configuration:

Select by pressing ***KEYPAD ACCESS*=ON**

The cyclic change of the function is made by pressing the ***RESET*** *key.*

Led 1 Alarm (Red)	= ON	**Reset** (By default)
Led 2 Disablement (Yellow)	= ON	**Evacuate**
Led 3 Test (Yellow)	= ON	**Sounders and Buzzer mute**
Led 4 Power (Green)	= ON	**Delays on/off**
Led 5 General Fault (Yellow)	= ON	**Buzzer Mute**



Digital input function change

Reset push-button: **Change Option** (Access level 3 - Configuration)

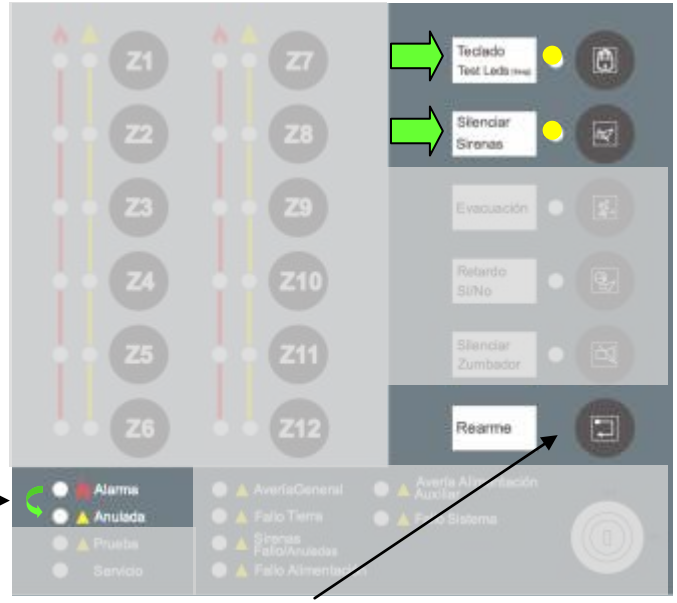
Digital input activates by close contact (by default) (when closes activates)

Digital input activation selection NO/NC:

Select by pressing keys ***(KEYPAD ACCESS*=ON + *SLIENCE/RESOUND* =ON)**

The cyclic change of the function is made by pressing the ***RESET*** *key.*

Led 1 Alarm (Red)	= ON; activates by **NC** contact
Led 2 Disablement (Yellow)	= ON; Activates by **NO contact** (By default)



Change option

Reset push-button: **Change Option** (Access level 3 - Configuration)

5.4.6 Disablement led indication with delay

The delay may turn on (EN54-2) the disablement led depending on the configuration.

Configuration of disablement led with delays:

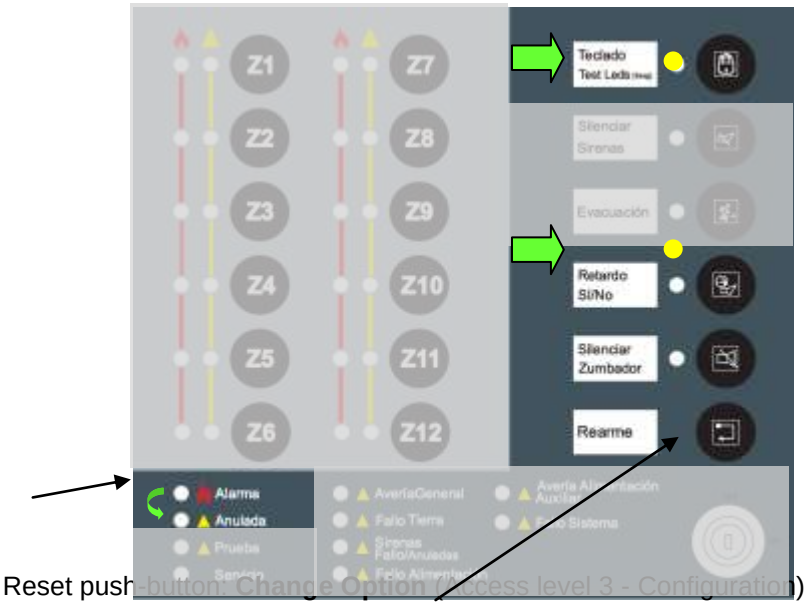
Select the sounders configuration menu by pressing at the same time the following keys:

(*KEYPAD ACCESS*=ON + *DELAY ON/OFF*=ON).

The cyclic change of the function is made by pressing the ***RESET*** *key.*

Led 1 Alarm (Red) = ON = ***Disablement led*** **ON with delay (**by default)
EN54-2: *Delay on/of and Disablement led*

Led 2 Disablement (Yellow) = ON = ***Disablement led OFF*** **with delays**



Reset push-button: Change Option (Access level 3 - Configuration)

5.4.7 Cancel delays with 2 zones in alarm

In case of zones alarms with delays, the zones in alarm can be configured to cancel delays.

Configure: 2 Zones cancel delays

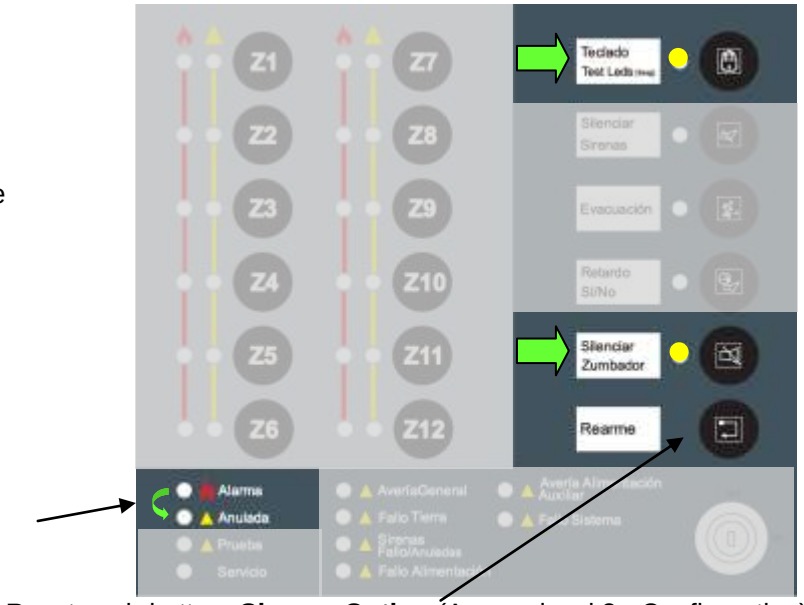
Select the configuration menu of delays cancellation with 2 zones in alarm by pressing at the same time the following keys:

(*KEYPAD ACCESS*=ON + *MUTE BUZZER*=ON)

The cyclic change of the function is made by pressing the ***RESET*** *key.*

Led 1 Alarm (Red) = ON = **2 Zones in alarm DO NOT cancel delays** (by default)

Led 2 Disablement (Yellow) = ON = **2 Zones in alarm cancel delays**



Reset push-button: **Change Option** (Access level 3 - Configuration)

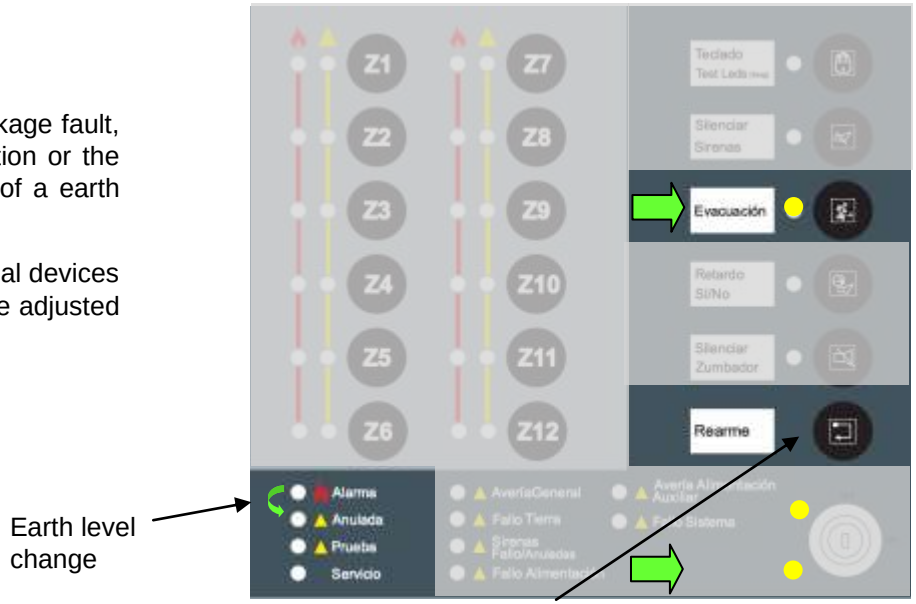
5.4.8 Earth fault level

The system allows to set the earth fault more sensitive, in order to indicate earth leakage fault, with small potential differences between earthed points or when the devices insulation or the cable zones do not have the expected values and thus detect in advance the risk of a earth leakage.

The system can detect earth leakage due to auxiliary 24 Vdc connections or to external devices communications. After check that there is no earth leakage, the earth fault level can be adjusted to Low Sensitivity.

Earth fault level configuration:

Select the earth level disablement menu by pressing the ***(EVACUATE=ON)*** *key*



Earth level change

Reset push-button: **Change Option** (Access level 3 - Configuration)

The cyclic change of the function is made by pressing the ***RESET*** *key.*

Led 1 Alarm (Red) = ON = **Low Sensitivity** (By default)

Led 2 Disablement (Yellow) = ON = **Medium**

Led 3 Test (Yellow) = ON = **High Sensitivity**

5.4.9 Input monitoring (Resistive EOL/Capacitive EOL)

The system can monitor the inputs with a 47mF capacitor and the sounders outputs with diodes to be more stable to EMC and to reduce power consumption in standby. To backward compatibility, it is possible to configure the input monitoring, between capacitive (Diode in sounders and 47mF capacitors in zones) or resistive (4k7 Ω).

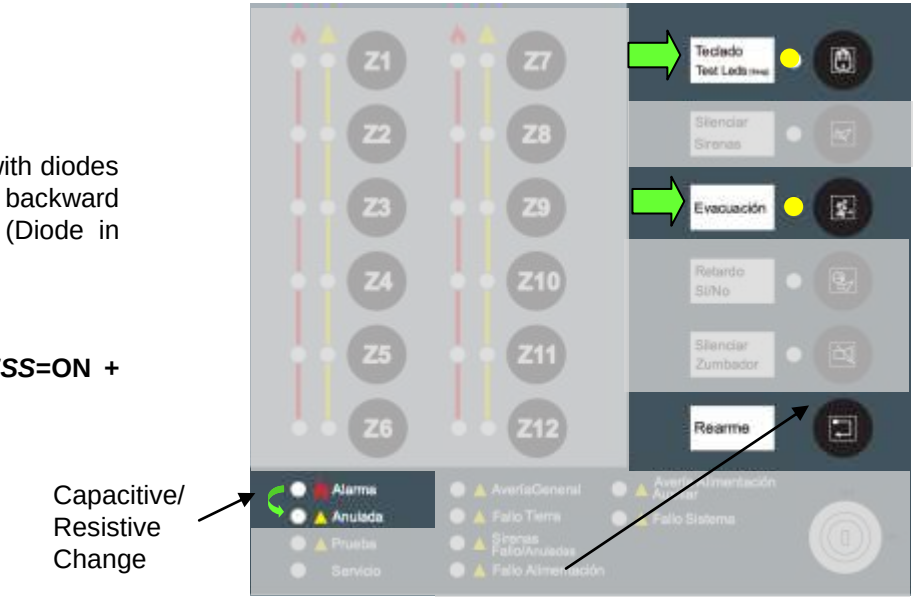
Input monitoring configuration:

Select EOL input monitoring menu configuration by pressing the (***KEYPAD ACCESS*=ON + *EVACUATE*=ON)**

The cyclic change of the function is made by pressing the **RESET** key.

Led 1 Alarm (Red) = ON = **Capacitive EOL 47mF/Diode** (By default)

Led 2 Disablement (Yellow) = ON = **Resistive EOL 4K7**



Capacitive/ Resistive Change

Reset push-button: **Change Option** (Access level 3 - Configuration)

5.5 Special Functions (UNE-EN54 non-compliant)

The control panel allows special configurations. These configurations do not comply the EN54-2/ and can only be used for special performances and to configure the external relay cards. These options require a special access level.

Special configurations can be use at installations that do not require EN54 compliance.

The control panel allows special configurations that modify normal operation of the control panel, to suit specific needs, such as, installation in vehicles, external UPS, resettable faults, etc..

The use of these special function configurations is not recommended because the system will not operate properly and will not comply EN54/2-4.

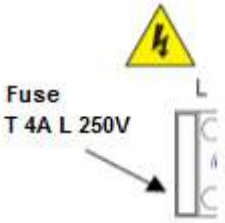
Only the consent of competent authorities, the user may use these special configurations for special applications.

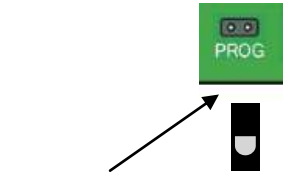
Special functions configuration:

To configure special functions, switch off the control panel l (mains supply and batteries disconnection), then connect the jumper (**PROG**) and connect again the control panel as usual. Special functions leds will be lit, according to the actual configuration. Press the push-button you want to change until you obtain the required configuration. Then remove the (**PROG**) jumper and the control panel will save the configuration and show the status of the system.

CAUTION! – EN54 non-compliant!

Do not use special configurations if you do not have consent of competent authorities.
Special functions configuration does not change if you restore the panel to default values. It is necessary to change them manually.





PROG. Jumper

Programming Access: Jumper closed

5.5.1 Check/Change special functions configuration:

Switch off the control panel (Mains supply and battery disconnection), then connect the (**PROG**) jumper and connect again the control panel as usual. Special functions leds will be lit, according to the current configuration, as showed below:



Keypad Access led = ON = **Latched faults**. Faults need to be RESET (by default)

= OFF = Resettable faults. Faults RESET automatically when fault has disappeared



Silence/Resound led =ON = **Power supply faults** are indicated (by default)

=OFF **Power supply faults** are not indicated



Delay On/Off led =ON = **Battery faults** are indicated (by default)

=OFF= **Battery faults** are not indicated.



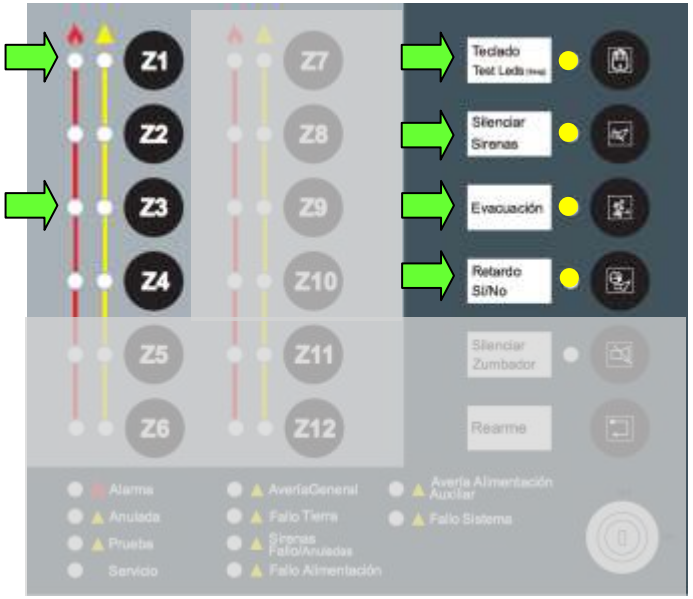
Mute Buzzer led =OFF= Port RS-232 not monitored (by default). (only from MK-VSN/TG)

=ON = Port RS-232 monitored (by default). (only from MK-VSN/TG)



Zone 3 fault led **=OFF= Fault relay activates only with General fault.**

=ON = Fault relay activates with fault and digital input activated



Optional Relay cards configuration

In order to, the relay cards connected to the *Auxiliary Modules* bus work properly, the correct number of cards must be enabled and configured.

If the number of cards enabled/configured is different from the installed, the control panel will indicates **System Fault**.

To increase or decrease the number of cards, press ***Z1 push-button*** cyclically.

Zone led

Z1 = Z2 = Z3 = OFF = **0 VSN-4REL cards (without cards enabled)**

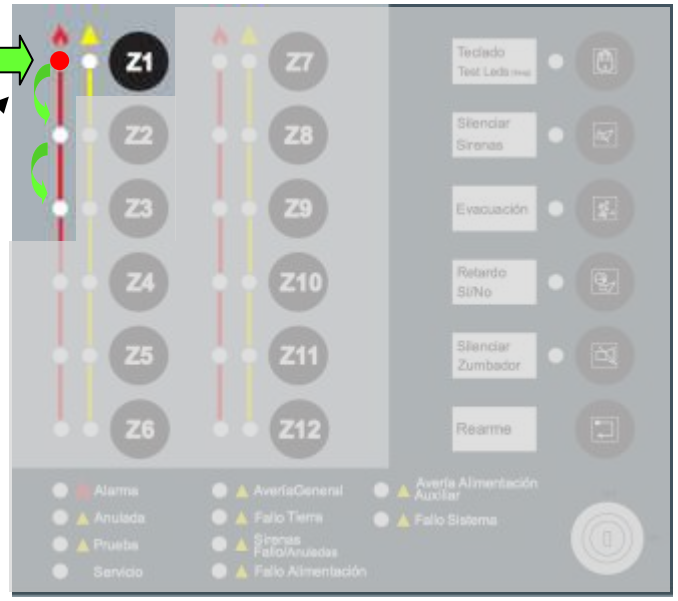
Z1 (Red) = ON = **1 VSN-4REL card (with one card enabled)**

Z1 + Z2 (Red) = ON = **2 VSN-4REL cards (with two cards enabled)**

Z1 + Z2 + Z3 (Red) = ON = **3 VSN-4REL cards (with three cards enabled)**

Number of VSN-4REL relay cards sellection

0, 1, 2 or 3



6 Specifications

General

NFS Supra control panels (NFS4/8/12--Supra) have been designed to comply with EN 54 part 2/4:1997 requirements.

This panel complies with the European low voltage 73/23/EEC (and the amending Directive 93/68/EEC), by the application of the safety standard EN 60950.

The panel complies with the essential protection requirements of the EMC directive 89/336/EEC and the amending directives 92/31/EEC and 93/68/EEC, by the application of de EN 50081-1, (emissions) and EN 50130-4, (immunity).

Mechanical specifications:

Box:	Enclosure and door: ABS V0. Chassis: Galvanized and lacquered steel sheet.
Dimensions (mm):	350 (h) x 380 (w) x 125 (d)
Approx. Weight:	4 kg (without batteries)

Environmental specifications:

Operating Temperature:	-5ºC a +45ºC, (recommended: +5ºC a 35ºC)
Operating Humidity:	5% a 95% R.H.
Height above sea level:	Maximum 2000 m
Panel sealing:	IP 30 (EN 60529)

Electrical specifications:

Fuses:

Main fuse:	F 4A L 250V
Battery fuse:	F 2A L 250V
Sounders fuse:	2 x 250mA (electronic)
24V Aux.:	2 x 250mA (electronic)

Power Supply:

Mains supply:	230V~ (ac) ±15%, 50/ 60Hz, 65W (2,4A.)
Output Voltage:	29.4Vdc +/-7%
Output Current:	2.4A (Maximum load external circuits 2A: Zones, Sounders, and 24V Aux.)

Battery Charger:

Charger Voltage:	27.3V at 20°C (temperature compensated)
Charger Current:	300mA */-10%

Indicators:

Status indicators*[1]: FIRE, Zone alarm and fault, Power, General fault, General disablement, Test, Earth fault, Power supply fault, Sounder fault/disablement.

Control indicators*[1]: Level 2 Access, Silence/Resound, Delay ON/OFF, Mute Buzzer, Evacuation and Zone Disabled/Test.

*[1] In level 3 Access, the control panel leds are used to indicate special functions.

Control Keys:

Optional keyswitch with two positions:

Access level 1 (without key or in remove position)

Access level 2 (key turned 90° clockwise)

Push-buttons with the following functions*[2]:

Keypad Access: Level 2 access with key/Lamp test

Silence/Resound: Silence/Resound/Disable Sounders

Evacuate: Sounders output activation

Delay ON/OFF: Disable delays

Mute Buzzer: buzzer silence

Reset: control panel reset

Zone push-buttons: Disable/Test/Normal operation

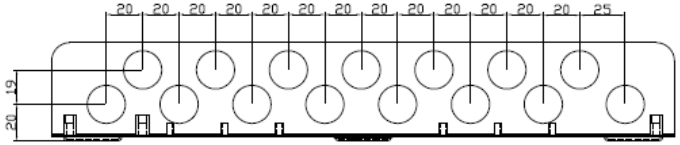
*[2]In levels 3 Access, push-buttons have selection functions.

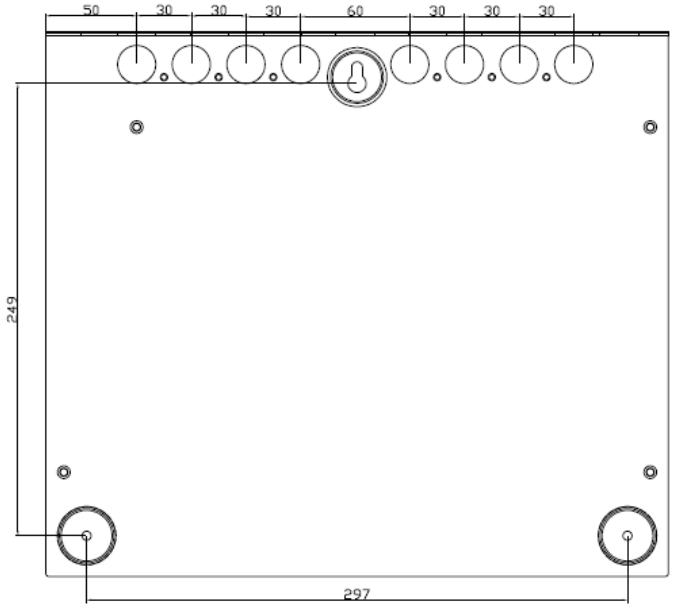
Configuration Jumpers: Earth leakage jumper (EARTH FAULT) and Access level 3 Jumper (PROG)

Cable entry points:

15 x 21 mm knockouts (top) and 6 x 21 mm knockouts (back).

Dimensions:





External circuits:

Zone circuits

Available four, eight or twelve detection zones to connect detectors and/or MCPs. The control panel was designed to function with most brands. It is recommended the installation of Honeywell ECO1000 and Series 800 detectors.

32 ECO1000 and Series 800 detectors and an unlimited number of MCPs can be connected to each zone.

Zone maximum voltage: 28.1Vdc (Normal) to 21Vdc.

Zone status thresholds in % with the maximum voltage in zone[*1] (approx. the same as in open circuit):

Short circuit fault	0% - 14% Approx. 0 - 73 Ω
MCP alarm:	15% - 42% Approx. 78 - 318 Ω
Detector alarm:	43% - 86% Approx. 0 - 73 Ω
Standby: (Capacitive EOL)	87% - 100% > 2k9 Ω
Open cicuit: (Resistive RFL)	93% - 100% of 27.5V > 6k9 Ω (approx)

(*1) Zone maximum current: 61mA - 67m

2 Sounder outputs:

Two monitored and configurable sounder outputs are provided.

Maximum load 0.25A per alarm output, fuse protected.

2 Alarm and fault relays:

C, NC, NO contacts max. 30Vdc/ 1A.

Aux. 24V Outputs:

NFS-Supra has two 24V Aux. outputs: 24V fixed and 24V resettable

18.5 - 28.5Vdc (24Vdc nominal) / 250mA per output

Digital Input:

Activated by NO or NC free voltage contact.

Optional cards bus:

Connection port to communication cards VSN-CRA and/or VSN-4REL ralay cards.

Communication port:

Bidirectional port for VSN-232 card (serial port card).

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