

# ANALOGUE ADDRESSABLE FIRE DETECTION AND ALARM SYSTEM

# M450A

INSTALLATION MANUAL AND USER GUIDE FOR  
1 LOOP M451A AND 2 LOOPS M452A SYSTEMS



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## **1.- INTRODUCTION**

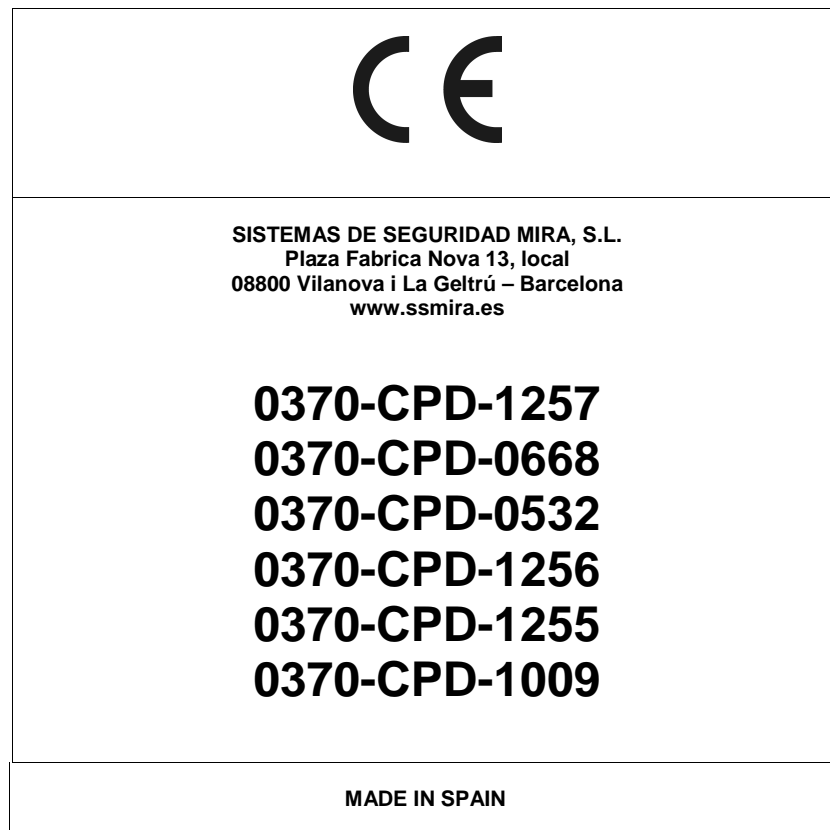
### **1.1.- Standards**

The analogue fire detection system M450A and its components are CE certified by the accredited laboratory nº 0370 APPLUS, meeting all the requirements of the European Norms: EN 54-2, EN 54-4, EN 54-15, EN 54-7, EN 54-3 and EN 54-11.

There could be specific national or local regulations that may apply to the design of the system and the installation of this device that should be considered, and they could differ in some point with the content of this manual.

The manufacturer is never to be considered accountable for damages caused by an incorrect use of this device.

It should be underlined that the installation and maintenance of a fire detection system should be carried out by specialized personnel.



Once this device has been used, it should be disposed of by an authorized electrical recycling company.



## **1.2.- General considerations**

The analogue fire detection system MIRA M450A has been specially designed to protect buildings of different typology and sizes, applying the most advance tendencies in analogue detection technology and fire alarm management.

This manual contains the necessary information for the installation, start-up and correct functioning of the analogue control panel models M451A of 1 loop and M452A of 2 loops.

## **1.3.- Features of the system**

The system MIRA M450A makes possible the connection and individualized control of a total of 120 addressable devices in each one of the detection circuits of the loop. These devices could be analogue detectors, manual call points, sounders or modules.

The control panel has a touch screen of 3,5" to control, completely program and configure the system, with a QWERTY keyboard to write texts, addresses, etc...

The addressing and configuration of the devices it is carried out in a very simple and different procedures to carry it out can be chosen from the touch screen.

Within the advanced functions of the system there is the creation of different groups of devices and to configure different programmable commands, sensitivity adjustments and control of detectors contamination, delays, as well as integrate and monitor different devices and external signals. It also allows to check the status of the outputs of the control panel, verify voltages, batteries, etc.

(SEE APENDIX A: DEFINITIONS)

## **1.4.- Safety**

The control panel and all the components of the system have been designed and certified in conformity with the European Standards EN-54, and they comply with all the requirements established in the mentioned standards.

It should be underlined that the installation and maintenance of a fire detection system should be carried out by specialized and competent personnel in this type of job, that should be carried out accordingly to this manual, that should be read and understood completely before engaging in any handling operation with the control panel.

There are, or there could be regulations or specific guidelines of authorities with jurisdiction, that could affect the design and planning of the installation of the system and its components, as well as its maintenance, and that could even differ from the instructions in this manual, and that need to be duly considered (EN54-14 standard, regional dispositions, codes of practice, insurance companies, etc...)

It is the responsibility of the owner or user the control and daily verification of the system, and to ensure that the maintenance is carried out in conformity with the prevailing provisions.

## **2.- INSTALLATION AND ASSEMBLY OF THE SYSTEM**

### ***2.1.- Description of the devices***

M450A System admits the deployment of different devices in connection with the control panel through the loop line , to detect fire signals, issue warning signals and for the control of other external devices.

There are the following available devices:

#### **ANALOGUE OPTICAL SMOKE DETECTOR MODEL M500A**

General use optical detector for smoke detection, with Analogue technology and individual addressing. It has a base with connection terminals and extraction lockout.

#### **ANALOGUE HEAT DETECTOR MODEL M501A**

Heat detector to be used in environments where smoke detectors cannot be installed, or where the fire may start without smoke, with Analogue technology and individual addressing. It has a base with connection terminals and extraction lockout.

#### **OPTICAL SMOKE AND HEAT ANALOGUE DETECTOR MODEL M502A**

Multi-sensor detector that combines the Features of the smoke and heat detectors to amplify the range of detection. Analogue technology with individual addressing. It has a base with connection terminals and extraction lockout.

#### **ADDRESSABLE MANUAL CALL POINT WITH ISOLATOR MODEL M101A**

Manual call point to manually set off the fire alarm with individual addressing technology. Resettable by means of a key and with transparent protection cover. It includes a loop isolator element.

#### **ADDRESSABLE INDOOR SOUNDER BEACON WITH ISOLATOR MODEL M100A-FI**

Fire alarm sounder equipped with a blinking light signal and individual addressing technology. Sound in synchronized phase with the rest of the sounders, 90dB acoustic power. It includes a loop isolator element.

#### **ADDRESSABLE OUTDOOR SOUNDER BEACON WITH ISOLATOR MODEL M100A-FE**

Outdoor fire alarm sounder equipped with a blinking light signal and individual addressing technology. Sound in synchronized phase with the rest of the sounders, 95dB acoustic power. Red polycarbonate housing with the word "Fire". It includes a loop isolator element.

#### **ADDRESSABLE MODULE WITH A CONTACT INPUT AND A RELAY OUTPUT MODEL M450A-ES**

Input and output module with a short circuit isolator. Relay output programmable to carry out controlled actions from the control panel (retainers control, voltage sounders, elevators, etc...). 2A 30V, and voltage free contact signal input to obtain signals managed and controlled in the control panel (supervision of other systems, gates status, flow detectors, etc...). Status LED. It includes a loop isolator element.

#### **CONVENTIONAL ZONE ADDRESSABLE MODULE WITH ISOLATOR MODEL M450A-C**

Module to enable the integration within the system of one or more conventional fire detectors, assigning them a collective address. Power supply directly from the loop. It includes a loop isolator element.

#### **4 -20 mA INPUT MODULE MODEL M450A-4.20**

Module to enable the integration within the system of devices that work with the 4-20mA standard. It includes a loop isolator element.

#### **ISOLATOR M450A-A**

Short circuit isolator module that can be installed anywhere in the loop to limit the consequences as well as losing devices in case of a short circuit in a line.

## 2.2.- Cabling

The connection lines enable the communication between the control panel and the different devices that are part of the system, as well as providing power supply. This communication is carried out by frequency modulation, obtaining a very high protection against all types of interferences.

This connection lines must form a closed loop, starting and ending in the control panel of the system. Each loop can **manage up to 120 individual addresses for the different devices**, but the total power supply consumption must never be over the value specified in the control panel, so the total number of devices controlled could be lower, depending the nature of the device, the power supply consumption and the length and features of the loop.

In order to determine the section required in the loop lines, depending on its length and the consumption of the devices, and taking into account a maximum acceptable voltage drop of 6v (least favorable conditions), attached is the following chart.

The first chart indicates the loop resistance in ohms corresponding to the different sections (0.75 – 1 – 1.5 mm2) for determined lengths from 500m to 3.500m.

The second chart indicates the maximum intensity in Amperes available for the specified maximum voltage drop (6v), depending on the section and the distance.

The third chart shows a maximum combination of devices (sounders, detectors, manual call points) that the system could feed (in theory, since the maximum number of addresses is 120) for the different length and section of a loop line.

Caida max. **6** Volts

Resistencia en funcion de la longitud y sección			
Longitud / Seccion:	0,75	1	1,5
500	28	21	14
1000	56	42	28
1500	84	63	42
2000	112	84	56
2500	140	105	70
3000	168	126	84
3500	196	147	98

Intensidad maxima (A) para la caida especificada			
Longitud / Seccion:	0,75	1	1,5
500	0,214	0,286	0,429
1000	0,107	0,143	0,214
1500	0,071	0,095	0,143
2000	0,054	0,071	0,107
2500	0,043	0,057	0,086
3000	0,036	0,048	0,071
3500	0,031	0,041	0,061

Nº sirenas / Detectores / pulsadores			
Longitud / Seccion:	0,75	1	1,5
500	23 / 238 / 23	31 / 317 / 31	47 / 476 / 47
1000	11 / 119 / 11	15 / 158 / 15	23 / 238 / 23
1500	7 / 79 / 7	10 / 105 / 10	15 / 158 / 15
2000	5 / 59 / 5	7 / 79 / 7	11 / 119 / 11
2500	4 / 47 / 4	6 / 63 / 6	9 / 95 / 9
3000	3 / 39 / 3	5 / 52 / 5	7 / 79 / 7
3500	3 / 34 / 3	4 / 45 / 4	6 / 68 / 6

(Charts are shown as reference, data could change depending on the quality of the wires)

Following the charts, the wiring of the loops should be carried out with a line of 2 twisted wires of at least 0.75mm (bicolor twisted pair 2 x 0.75mm) in which case a simple combination of 120 devices would not exceed 1200m of length. For longer distances or to install devices with higher power consumption a wider wire is needed so the total voltage drop in the least favorable conditions does not exceed 6v in the end of the line.

In case of any doubt about the section of the lines, please consult your provider regarding the exact configuration.

Loop lines should be installed avoiding any problems such as electromagnetic interferences, mechanical damages, damages cause by the maintenance of other devices and a possible fire. **Shielded wire** should be use **with earth connection in one** of the ends and **ensuring the continuity of the shield in the whole**

installation. (Make sure that the shield is **connected to the ground terminal just in only one of the ends**).

MIRA M450A system is technically able to control all the devices connected to its lines, no matter what the structure and configuration of the installation is. However, in order to ensure the correct functioning of the system and to avoid losing the communication with any fitting in case there is a problem in a line, the lines should be installed as a **closed loop starting and ending in the control panel**, connecting the devices to that loop. The system can work with devices connected to different branches in any point of the loop, but connecting lines as a sub-loop, starting and ending in the main loop, cannot be done under any circumstances, as the use of cable with two pairs included for run and return.

Also, isolator elements should be used (included in all the manual call points, addressable sounders and devices as a standard), in order to minimize the possible problems caused by a short circuit in the lines.

In case the installation of another device to a spur branch of the loop is needed, possible problems caused by a malfunction of that line should be taken into account, and having an isolator element should be considered.

Related to this matter, there are norms where guidelines to avoid the effects of possible malfunctions are established: number and type of fittings that could be affected, losing coverage in important areas, line path, etc...( EN54-14), so this guidelines should be taken into account when designing and installing the system. Other possible regulations, should be also taken into account, since other features of the system (wires used, fire resistance level, toxic emissions, etc) could be determined in those regulations.

### **2.3.- Control panel mounting**

Check that the unit is in a good condition in the original packaging.

Do not operate the interior part of the control panel when connected to mains (230 VAC) (only specialized personnel).

Choose a suitable place to install the control panel accordingly to the design and planning of the system, where it is not exposed to vibrations or can be hit. It should be easily accessible and be away from electromagnetic interferences (radios, speakers, TV...).

Please make sure that the environmental conditions regarding temperature and humidity are within the functioning limits of the control panel.

Unscrew the four frontal screws to open the control panel.

Make a hole only in the marks that are going to be used, taking into account that the left hole is to be used with the power supply wire and the rest are to be used with the loops or other accessories to be installed.

**Avoid drilling in the bottom for it may cause metal shavings that could damage or interfere in the electronics of the control panel. If a new hole is needed, we recommend to remove the electronics from the box and place it in a safe and clean place.**

Mark the fixation drills using the metallic base as a guide and taking into account that the touch screen should be placed at a distance of 1.5m approximately for a comfortable use.

#### **SYSTEM AUTONOMY:**

The control panel requires at least two 12V 7Ah serial connected batteries to get 24V between terminals. According to the norm, the system should be able to have an autonomy to guarantee an alarm signal for at least 30 minutes in case of a power supply failure.

In case a bigger capacity is needed, the control panel also admits 2 12V 9Ah batteries.



## 2.4.- Wiring diagram and description of the terminals of the control panel

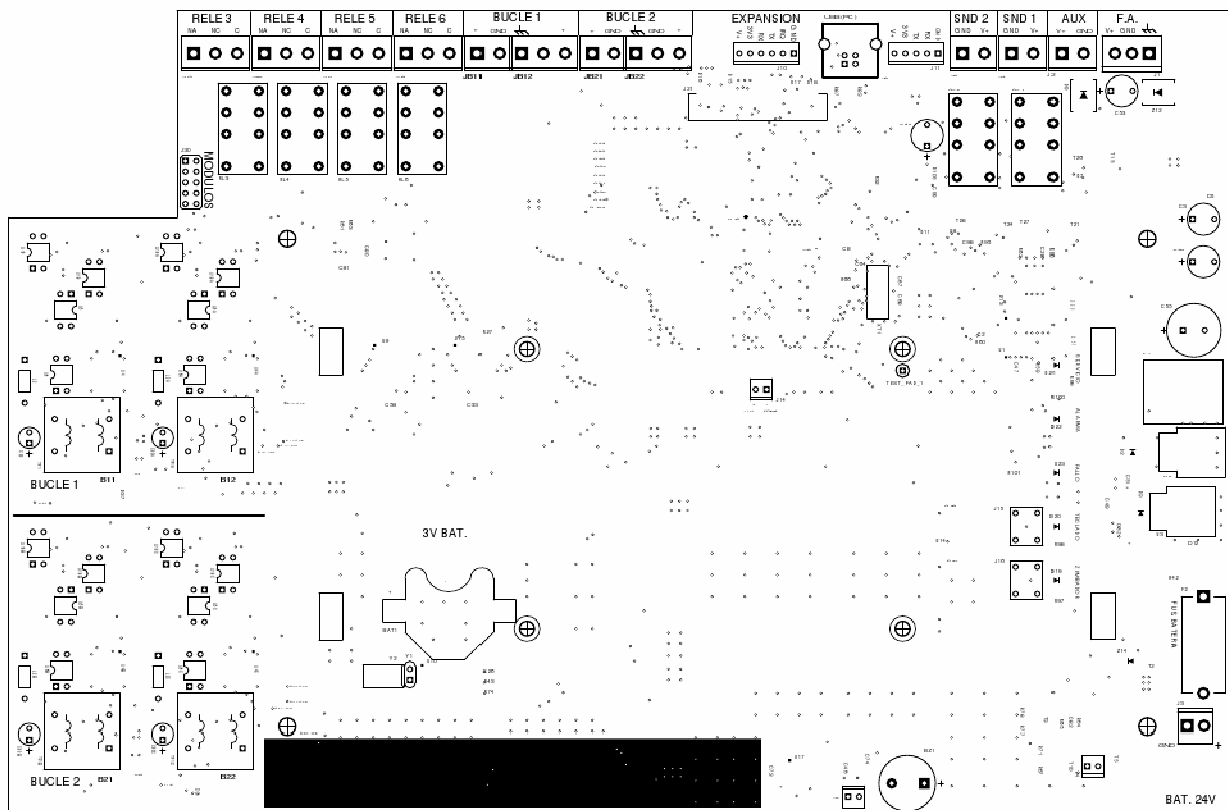
The control panel has input and output terminals for one or two loops (depending on the model), 4 programmable relays, 2 alarm power supply outputs supervised for conventional sounders and a permanent power supply output for feeding those auxiliary fittings that requires power supply.

The programmable relays are assigned to the following events:

RELAY 3: Generic fault.

RELAYS 4, 5, and 6: Generic alarm.

For more info about the electrical features of this outputs, please see **annex C.2. "Electrical Specifications"**.



## 2.5.- Wiring and connecting the control panel

230 VAC power supply connection should have earth connection, and an independent and direct line from the electrical box with a protection switch of exclusive use is highly recommended.

Please be reminded that the wire used in the wiring of the loops should be a twisted bicolor pair with the recommended minimum section (see 2.2). **It must be used shielded wire to avoid interferences.** Connect the shield to the earth connection terminal of the correspondent loop and make sure there is continuity over the entire installation and no derivations between conductors and screen.

## 2.6.- Start-up of the system

To start up the system please verify the following points:

- The power supply is 230V.
- Both batteries (12V units connected in serial) are in good condition and fully charged.
- The wiring of the loops is correct and it is correctly connected to the control panel. Measurements should be carried out concerning continuity between the ends of the loops and screen (the negative will be interrupted by the presence of isolators) and between negative, positive and screen to ensure the absence of derivations between them.
- Each one of the two outputs for conventional sounders has the correspondent supervision 4K7 Ohms resistance that is supplied with the fitting. In case of not installing sounders, connect this resistance directly to the output terminals closing the circuit.
- The wiring and the devices connected to the supervised outputs are installed correctly.

Once the power supply is connected and the batteries are connected for the first time, a screen will be displayed as described in the section 5.1.- Introduction to the "User mode":



From here, the control panel is ready to be used. If it is the first time that the control panel is started up, the different devices connected to the loop can be configured, as shown in the sections:

### 3.1. Addressing of the devices

### 4.1. Loop modification and adding devices

### 6.2.2.4.- Configure → Loops, subsection ADDITIONS

### 3.- CONFIGURATION AND ADDRESSING OF THE DEVICES

#### **3.1. Addressing of the devices**

##### Recommended procedure:

Each device is manufactured with a 32 bits **serial number** and its manufacturing date. This identification is exclusive and individual for each element and it will be kept throughout the life of the device.

This **serial number** with 8 figures or letters its printed in a visible place in every single device of the system, and the last 4 numbers are highlighted (ex: 19. 70. **01. A8**). Noting down this last 4 figures in a drawing or in the matrix given at the end of this manual, the device could be easily located within the installation, so after locating it in the screen of the control panel, it can be assigned to a group and given its corresponding addressing text.

Each device connected to the loop will send its identification with its serial number to the control panel, together with a device number (this device number is the same in all devices initially). Both numbers do not have any relation between them, nor with the physical position within the loop.

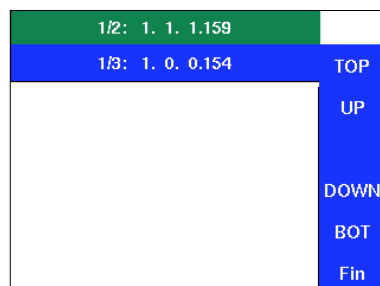
During the first starting up, the control panel will modify the mentioned device number (but not the *serial number*, that will remain the same), assigning to each one of them the lower number available within the loop (from 1 to 120 in each loop) or in order when they get connected if the loop was empty.

If the start-up of the system is carried out for the first time with all the fittings already connected, those will be shown directly and automatically in the failure line in **grey color**.

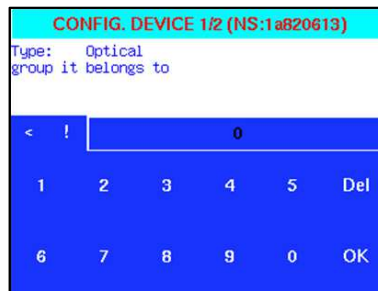


This screen would show a system with a loop and a total of 2 devices connected to it, that are pending to be set up.

**Accessing now to the level 3 access (technical)**, (pressing the "T" button and introducing the corresponding password (origin "3" and confirming with (OK)), **by pressing any of the buttons in grey we will directly get access to the setting up screen :**



The devices that can be selected and added are shown in this screen. The buttons on the right (TOP,UP,DOWN, BOT) are used to move through the complete list so the devices can be selected. By clicking in the device (Identified by the **serial number**, which is visible in the fitting and it is given in the factory), the following screen is shown :



In this screen the group where the device will be connected is indicated.

After a description text can be added:



Once the text has been introduced, previously noted down in the drawings, by pressing ok the first screen will be shown again, so the rest of the devices can be selected and added as well. When a device is added, it will disappear from this list.

Apart from this procedure, there are three other different procedures to give the addresses to the devices connected to the loop:

### Alternative procedure 1

Once the installation is finished and the control panel has been started (**with no devices connected**), the devices should be now connected and their ID and physical location should be noted in the drawings, in correlative order (no pre established order or their physical location in the loop is to be taken into account).

Each device connected will cause a failure that will be registered in order in the failure list of the control panel. The devices pending to be addressed will appear in grey, so it can be easily differenced from a failure (blinking yellow), a addressed device that is carrying a test out (yellow), or an addressed device that has been cancelled (dark yellow). Once we have the failure list, accessing the level 3 in the control panel, the devices can be clicked on to give them their group and descriptive text. The faults disappear when this group and text are given.

### Alternative procedure 2

With the base connected to the control panel, the addresses, groups and descriptive texts can be given. After, the devices are placed physically, since they have been already registered in the control panel.

### Alternative procedure 3

When all the devices are already installed and connected to the loop and afterwards the control panel is started up, the control panel will give the addresses to the devices automatically, without establishing any order.

In this situation, in the control panel menu select the option MENU->Test->Loops->DEVICE LOCATION: for n° 1, it will be one flash, n°2 will be two flashes, and so on until n° 9, with 9 flashes. N° 0 correspond to 10 flashes. A device with the ID 10 will be shown by means of one flash, a waiting time and ten flashes, a much longer waiting time, and then it will start again. For 11, it would be one flash, a waiting time and another flash.

This procedure is useful when a fitting needs to be identified in the installation.

### 3.2. Resetting the system

There are two ways of resetting the system, as well as the option of erasing the configuration of the loops.

From the option RESET in the menu it is possible:

- **RESTART** the system: It's the equivalent of taking out all the power supplies (both mains and the batteries) and then connect them again (it keeps ALL the configurations of the control panel). It is useful to reset the system (without having to pull out the cover and take the batteries out) once the installation has been finished or major changes in the configuration have been carried out. This option resets the control panel, takes out the voltage in the loops, it connects them again and register all the devices again.
- **RESET** the system: It turns out the sounders and the outputs, reset all the devices in the loops and erases the possible alarms/faults in the control panel. If any alarm or fault stays after doing this, this would be shown after resetting the corresponding device.

It is also **possible to erase completely the configuration of the loops from the Access level 3: "Menu->Configuration->Loops->Erase loop"**. This option will ask for a confirmation and a level 3 or 4 password as a security measure since this **means losing all the programming carried out before**.

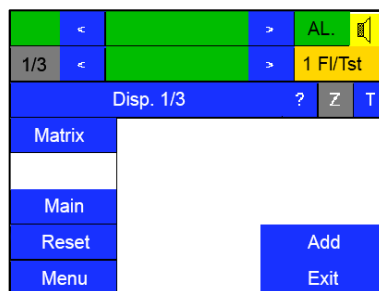
## 4.- SOLVING CONFIGURATION PROBLEMS

### 4.1. Loop modification and devices addition

If any modification has been carried out by adding new devices to the system, this can be done by entering the level 3 access and then physically connect the devices to the loop. These new added and connected devices will be shown in grey in the screen in the failure line, so it can be easily differentiated from a failure (blinking yellow), a addressed device that is carrying a test out (yellow), or an addressed device that has been cancelled (dark yellow). To add devices, please see section 3.1 "Addressing devices", since the process is the same.

By clicking on the device that we want to add (grey button in the screen), there are two options:

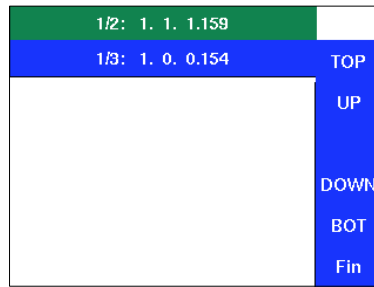
- **If there is only one device** to be added it will be shown in the following screen. If we press "Add" this device will be added, and we will be asked the group it should be connected to and its descriptive text.



- **If there is more than one device** to be added the following screen will be shown:



By clicking on any of the devices pending to be added, the following **multiple device addition screen** will be shown:



The device to be added can be selected. The field 1/2 shows the loop 1 device 2, and the numbers after are the serial number given in the factory. In this case: 1.1.1.159

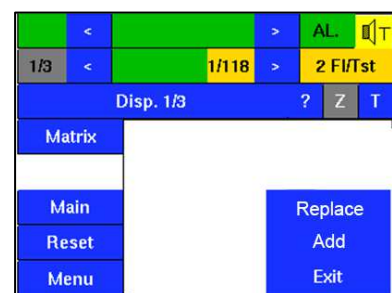
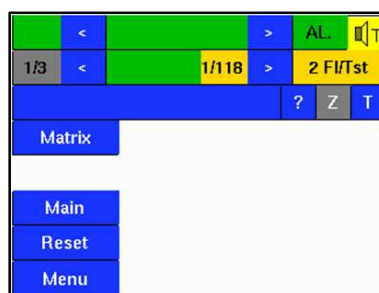
**Attention:** Any modification in the wiring should be carried out taking into account any possible effect or consequence that a fault in the line (cut or short circuit) could have. Also, any manipulation or addition of new elements should be carried out previously disconnecting the corresponding lines in the control panel.

## 4.2. Devices replacement

To replace an existing device for a new one, remove the device to be replaced, so a fault indication will appear in the screen (approximately 90 seconds after the device is removed). Also by erasing this device (see 6.2.2.4. Configure -> Loops), the new one can be installed and added. In this case there is no need to wait for a failure indication, since it can be erased even before of removing it. It can be removed and replaced later. The only important thing is **to erase the former device before installing the new one, so the ID of the former device can be used for the new one**. In case the new device was already given an ID, and that ID is not added in the loop, the device will keep the original ID that it already had before.

Other way is the **recommended option "Replace Device"**. In this case, the group and the text are kept, and they can be modified later on if needed. Remove the device and wait for the fault indication to appear on the screen. After that, place the new device where the first one was removed. It is possible to remove as many devices as we want to replace, but the new ones should be installed and added one by one.

If the control panel detects more than one device to be added, it will show the "Multiple device addition" screen. If it only detects one device to be added, the following screens will be shown:



Once the new device has been placed, the control panel will show this by showing a grey button (pending to be added) and the faults detected by a missing device in yellow. Since the new devices will be introduced one by one, there will only be one device pending to be added. By pressing the grey button (from access level 3) the option "Replace" is shown.

By pressing "Replace" the nº of device to be replaced will be asked, in this case nº 1/118. Assign that 1/118 nº to the new device, keeping the group and the original text. By resetting the system, we will set the "Rest" mode again.

Please see the difference between **"Serial number"** and **"Device number"**. The **device number** is automatically assigned by the control panel each time a new device is connected to it. The device numbers are correlatively assigned by the control panel during the start up process. A device that has been numbered before in other system, could keep its original device number but yet be out of the correlative initial order.

### 4.3. Deleting devices

To delete devices, from Access level 3 go to the option. “**Menu->Configure->Loops->Erase device**”. The device number and the group number will be required.

See section 6.2.2.4.- Configure → Loops for more information.

## 5.- FUNCTIONING AT USER LEVEL (ACCESS LEVEL 1 and 2)

### 5.1.- “User level” introduction

In this section, the actions than can be carried out in the control panel during the Rest mode without any user interaction are explained, as well as the actions than can be carried out from level 2 access.

In “Rest” mode the control panel shows two rows in the upper part with the alarms and the faults. Those rows are shown in green when there is no alarm or fault and they will turn into red (in the alarm row) and / or yellow (in the failure row), automatically when alarms or failures are detected. The second row also shows devices that are carrying out a test (yellow), cancelled devices (dark yellow) and devices pending to be added (Grey).

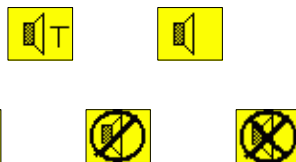


The left column will show the 1st alarm (upper row) and the 1st fault (second row), as well as the last 3 alarms / faults in the 3 control panel columns, as required by the regulation.

Columns in **blue** marked as “<” and “>” are used to move through the list of alarms / faults. With “<” older alarms / faults can be shown, with “>” the newer ones. When reaching the latest one, by pressing again “>” we will go to the older ones and viceversa, when showing the former ones, by pressing “<” the new ones are shown. Basically it works like a circular buffer. When in the third column there is nothing shown, that means we are seeing the oldest position.

The upper right button has multiple functions

- Shows if the sounders are delayed (up left) or not (up right), if they are released (down left) or silenced (down middle) or if they are disabled (down right).



- With a short pressing of the button, the silenced sounders are reactivated again.
- By pressing 10 seconds all the sounders will be released (evacuation function).

The following buttons can be pressed at any time:

- '?' for help.
- 'Z' to stop the control panel buzzer .
- 'T' to get access to the keyboard to introduce the access code.

To obtain more detailed information about the alarms / failures and to be able to rearm and use the control panel, a password is required. By defect that password to get access to level 2 is “2” (to change the password please see section 6.2.2.2.- Passwords).

## 5.2.- Description of the options (menus) that are accessible to the user

### 5.2.1.- Access code

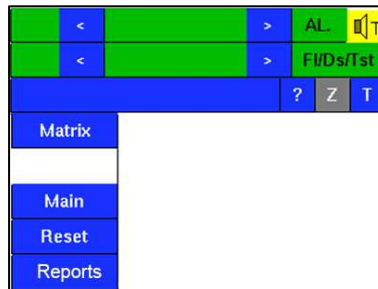
From the previous screen (called "Rest"), by introducing a password the control panel can be operated with. By pressing "T", the access code will be required:



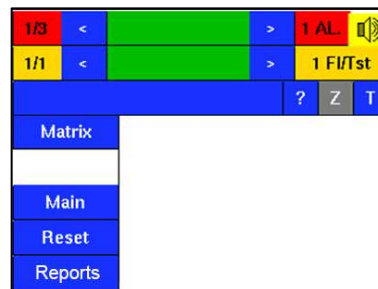
Once it's been successfully introduced, press OK to get to the access level granted by that password.

### 5.2.2.- Main menu

Access 2 screen is as follows:



This is an example of a level 2 access screen with alarms and faults:



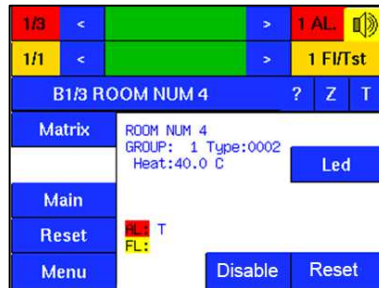
Current alarms and faults can be shown:

- Device number 1/3 is in alarm (it also shows that there is 1 device in alarm).
- Sounders are sounding.
- Device number 1/1 is in fault (blinking) (it also shows there is a device in fault).



### 5.2.3.- Alarm, fault and device information

By pressing any button on the first two rows, detailed information about that device will be given. For example, by pressing the button of the first alarm (1/3), the following screen is shown:

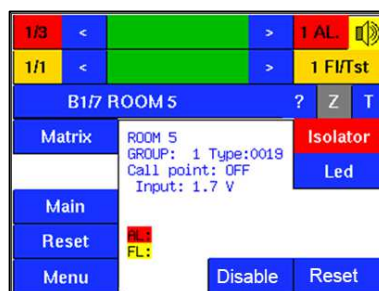


The LED button is used to turn on / off the LED on the fitting shown, so it is possible to physically locate the device that is causing the alarm or fault in case it is needed. The LED will blink automatically when the device is shown in the screen.

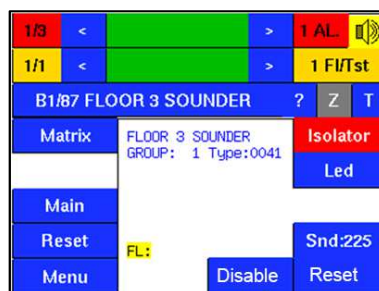
RESET is used to reset the alarm or fault corresponding to that device.

DISABLE is used to disable the device until it is enabled again. Alarms or faults from this device will be ignored.

In the case of devices with isolator, sounders and or outputs, the corresponding button is also shown:



Here, the information about call points is shown. It indicates it is OFF (no released) and it is possible to act directly on the isolator to disable it (option with password).



Here we can see a sounder with its corresponding button. By pressing we can set on or stop the sounder individually (see specific manual for sounders). It is useful for individual tests.

The alarms and faults of the device we are visualizing are shown in the lines as:

- **AL**: for alarms. In the devices that cannot generate an alarm, this line will not be shown
- **AV**: for faults

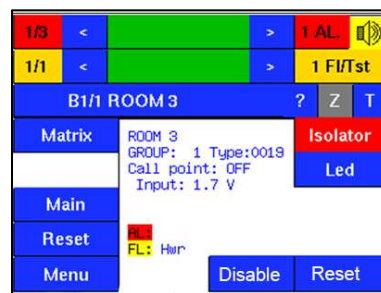
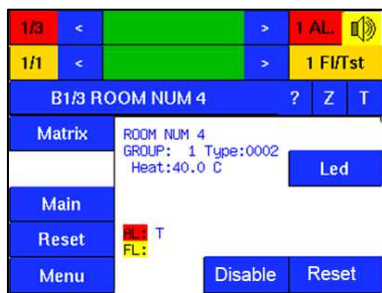
The types of alarms that can be shown after the symbol **AL** are:

- **T** indicates a heat detector alarm
- **O** indicates an optical detector alarm
- **E** indicates an input alarm
- **Z** indicates it is a 4-20mA zone alarm
- **P** indicates is a manual call point alarm

The conventional zones will indicate T+O if the alarm is caused by any detector within the conventional zone or P if it is an alarm caused by a manual call point in the conventional zone (if it is duly identified as one by means of a zener diode).

The types of faults that can be shown after the symbol **AV** are:

- **Ais** Indicates a fault in the isolator.
- **Hwr** indicates a fault in the hardware of the device (for example a dirty optical detector)
- **Prs** indicates a presence fault, meaning that the detector is not answering the queries from the control panel.



Note:

\*Please note that in case of the sounders being released, they will sound in a very low level for the first five seconds, to start sounding at their full capability after. This is caused by the anti-panic function, to avoid sudden alarms that may disturb people.

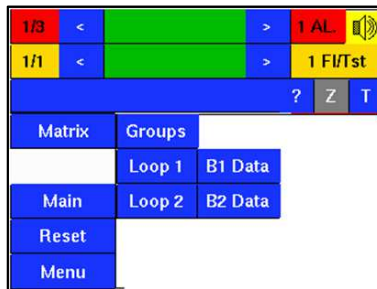
\*\* When it comes a fault advice in device 0/60 ( Panel/Loop 1) or device 0/68 (Panel/Loop 2) may exist two different makes of fault:

Any **Hwr** fault indicates that the loop power has been cut automatically because consumption has been exceeded.

Any **Prs** fault indicates that continuity in the loop wiring has been lost. The loop wiring continuity only can be checked if there are devices addressed. If the fault disappears, the panel will automatically reset

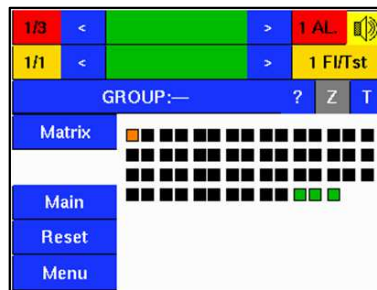
### 5.2.4.- Groups and loops information

By pressing the button "LOOP INFO" the following screen is shown:



This screen shows the groups and devices connected to one loop.

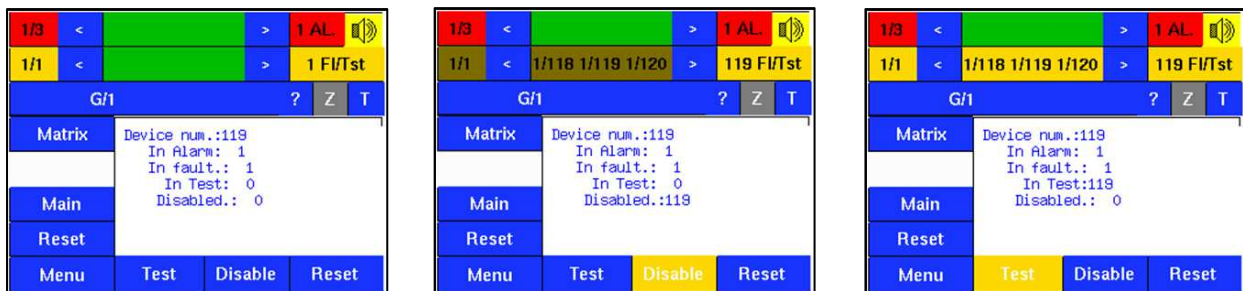
By pressing in "Groups", the following screen appears:



This indicates the following:

- Group nº 1 is both in alarm and fault (fault is in blinking yellow and the alarm is in red).
- There are devices with no alarms or faults on the groups 2 to 5, 57 and 58.
- The rest of the groups have no devices assigned.

By pressing in any of the groups we can interact with it. The following screen will be shown:

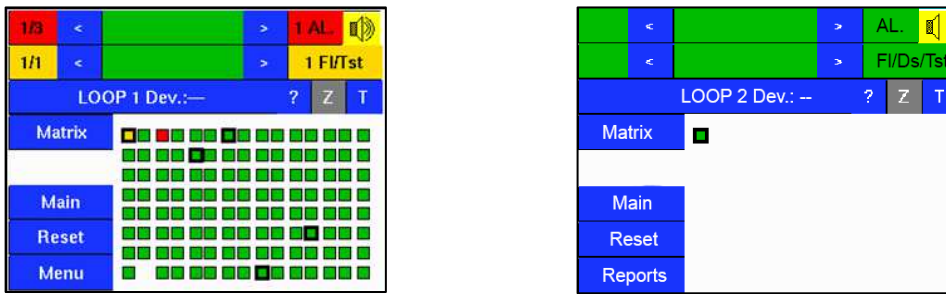


By pressing TEST the whole group will carry out tests. When in this mode, if there is an alarm, everything that is programmed to be set on (outputs, sounders) will be set on immediately, and it will be deactivated after 8 seconds. It is not possible to set just one device on test, only entire groups. This function makes it possible to check the functioning of the detectors without having to go back to the control panel to reset the system.

By pressing DISABLE, the whole group is disabled, meaning that all the alarms or faults from that group will be ignored. It is possible to disable just one device, as explained before. When DISABLE is pressed the whole group is disabled and the button DISABLE will be yellow. If not all the devices within the group are disabled (because they have been managed individually) the button DISABLE will be dark yellow.

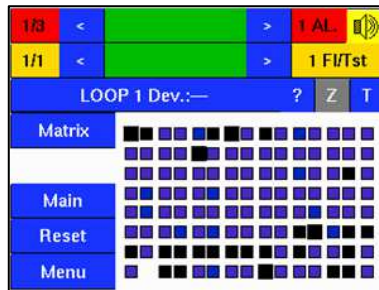
The option RESET will reset all the devices into their normal functioning mode, getting them out of the TEST mode.

By pressing in Loop 1 or Loop 2 the following screens are shown:

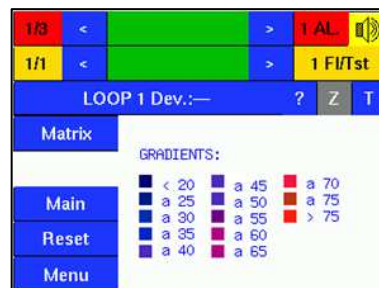


The screen in the left shows the devices connected to the Loop 1, from which one of them is in alarm and another one in fault. The blank spaces represent free device numbers, erased in this case. The thicker squares mean that those devices have an isolator. In the screen on the right there is only one device added.

By pressing B1 Data or B2 data the following screen is shown:

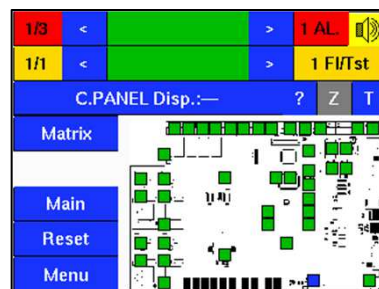


The device in fault is shown in yellow. On the other hand, the rest are in black (they are not heat detectors) or in a color that correspond to their temperature (only heat and optical smoke and heat detectors). The color screen is accessible by pressing “?”



### 5.2.5.- Status of the control panel

This screen shows the devices connected to the control panel itself:

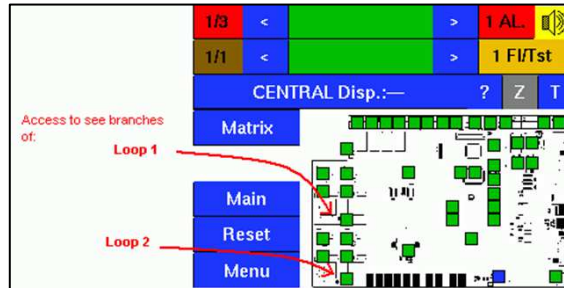


Each device is approximately located where their hardware is, so an indication in yellow may mean a fault in that zone of the circuit (this information is a reference and it is not necessarily a fault).

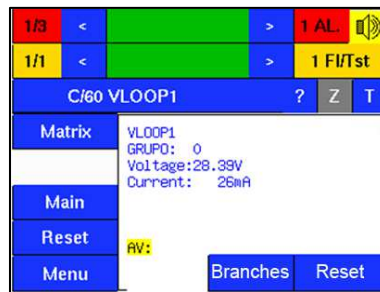
Within these devices, there are some that deserves special attention:

5.2.5.1.- Loop wiring status (loop wire cut)

By pressing the loop power supply button (indicated by the arrows):

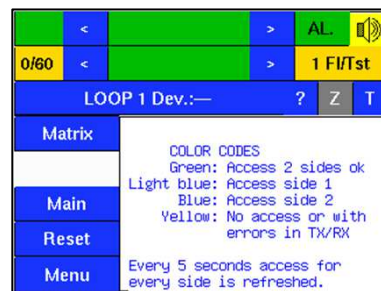
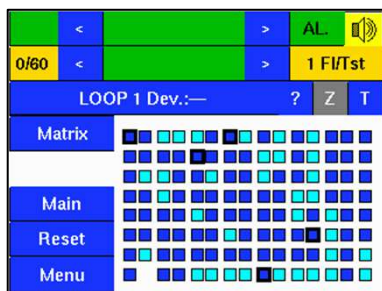


The following screen is shown:



In this screen, by pressing on branches, the corresponding loop is visualized in a matrix form.

In order to show any anomaly as well as its location, the devices accessible through the two branches (correct status) will be shown in green, the devices accessible only through branch nº1 will be shown in light blue, those devices accessible only through branch nº2 will be shown in dark blue, and those devices with an error in the communication will be shown in yellow.



The devices shown in light blue are only accessible through branch nº1 while the ones shown in dark blue are only accessible through branch nº2, as it is shown in the corresponding help screen (by pressing "?"). The error 0/60 indicates there is an open circuit in the cable.

### 5.2.6.- Getting access to resetting

By pressing in reset, the following screen is shown:



Here we can get access to:

- Restart the control panel (the equivalent of turning it off and on again)
- Reset the control panel

### 5.2.7.- Show warning and alarm lists

This option will show in the screen the latest events (alarms, faults, etc) that happened in the control panel. This list can be given on the screen or through RS232. The number and the type of events to be shown can be selected. It will look something like this:

```

I:8053,DETECT :PRESENT.LOOP 1: 2 0 72 (Tempor: 0) 07/10/13 11:31:56
I:8054,DETECT :PRESENT.LOOP 1: 6 0 72 (Tempor: 0) 07/10/13 11:31:56
I:8055,DETECT :PRESENT.LOOP 1: 94 0 14 (Tempor: 0) 07/10/13 11:31:56
I:8056,ACTIV. :FAULT (255) : 57 5 FF (Tempor: 0) 07/10/13 11:32:25
I:8057,VAR.S. :AC.LOOP LOOP 1: 57 0 1D (Tempor: 0) 07/10/13 11:32:25
I:8058,VAR.S. :AC.LOOP LOOP 2: 57 0 1D (Tempor: 0) 07/10/13 11:32:25
I:8059,VAR.S. :AC.LOOP LOOP 1: 57 0 1D (Tempor: 0) 07/10/13 11:32:26
I:8060,VAR.S. :AC.LOOP LOOP 2: 57 0 1D (Tempor: 0) 07/10/13 11:32:26
I:8061,ACTIV. :ALARM (255) : 58 5 0 (Tempor: 0) 07/10/13 11:32:26
I:8062,VAR.S. :AC.LOOP LOOP 1: 58 0 1D (Tempor: 0) 07/10/13 11:32:26
I:8063,VAR.S. :AC.LOOP LOOP 2: 58 0 1D (Tempor: 0) 07/10/13 11:32:26
I:8064,VAR.S. :AC.LOOP LOOP 2: 58 0 1D (Tempor: 0) 07/10/13 11:32:26
I:8065,VAR.S. :AC.LOOP LOOP 1: 58 0 1D (Tempor: 0) 07/10/13 11:32:26
I:8066,DETECT :FAULT LOOP 1: 1 0 40 (Tempor: 0) 07/10/13 11:33:11
I:8067,ACTIV. :FAULT CONTROL PANEL: 25 0 1 (Tempor: 0) 07/10/13 11:33:11
I:8068,ACTIV. :FAULT (255) : 57 5 0 (Tempor: 0) 07/10/13 11:33:11
I:8069,VAR.S. :AC.LOOP LOOP 1: 57 0 1D (Tempor: 0) 07/10/13 11:33:11
I:8070,VAR.S. :AC.LOOP LOOP 2: 57 0 1D (Tempor: 0) 07/10/13 11:33:11
I:8071,VAR.S. :AC.LOOP LOOP 1: 57 0 1D (Tempor: 0) 07/10/13 11:33:12
I:8072,VAR.S. :AC.LOOP LOOP 2: 57 0 1D (Tempor: 0) 07/10/13 11:33:12
I:8073,DETECT :ALARM LOOP 1: 3 0 1 (Tempor: 0) 07/10/13 11:33:19
I:8074,ACTIV. :ALARM CONTROL PANEL: 25 0 2 (Tempor: 0) 07/10/13 11:33:19
I:8075,ACTIV. :ALARM (255) : 1 5 FF (Tempor: 0) 07/10/13 11:33:19
I:8076,VAR.S. :AC.LOOP LOOP 1: 1 0 1D (Tempor: 0) 07/10/13 11:33:20
I:8077,VAR.S. :AC.LOOP LOOP 1: 1 0 1D (Tempor: 0) 07/10/13 11:33:20
I:8078,VAR.S. :AC.LOOP LOOP 2: 1 0 1D (Tempor: 0) 07/10/13 11:33:23
I:8079,VAR.S. :AC.LOOP LOOP 2: 1 0 1D (Tempor: 0) 07/10/13 11:33:24
I:8080,ACTIV. :ALARM (255) : 58 5 FF (Tempor: 0) 07/10/13 11:33:24
I:8081,VAR.S. :AC.LOOP LOOP 2: 58 0 1D (Tempor: 0) 07/10/13 11:33:24
I:8082,VAR.S. :AC.LOOP LOOP 2: 58 0 1D (Tempor: 0) 07/10/13 11:33:24
I:8083,VAR.S. :AC.LOOP LOOP 1: 58 0 1D (Tempor: 0) 07/10/13 11:33:24
I:8084,VAR.S. :AC.LOOP LOOP 1: 58 0 1D (Tempor: 0) 07/10/13 11:33:25
I:8085,ACTIV. :ALARM (255) : 56 6 E1 (Tempor:30) 07/10/13 11:33:54

```

Press "0" when the panel asks for the number of events to export all the events.

When the panel asks for the type of events: press "0" to see every type of events, press "1" to see only faults, press "2" to see only alarms or press "4" to see device registrations after restarts.

On section 6.2.1.1 there is an explanation about the list.

## **6.- FUNCTIONING AT INSTALLER LEVEL (access levels 3 and 4)**

### ***6.1.- Introduction to the “Installer mode”***

In this section, all the options and operations when accessing the control panel in levels 3 and 4 are explained, according to the EN-54-2 regulation.

As a standard, the password to get Access to level 3 is “3”.

Accessing the level 3, apart from being able to do all the operations from level 2 (user), the control panel can be configured, reports about the configuration are accessible and the TEST menu is available, by pressing MENU.

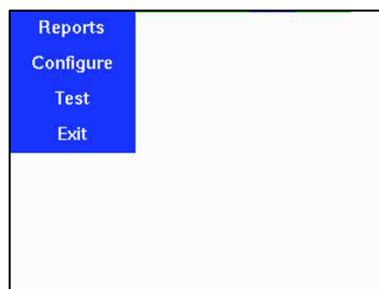
Adding and addressing devices can be done as explained in section 3.1 Addressing devices or in a more direct way by simply clicking on the device to be added (grey color) as explained on section “4.-Solving configuration problems”.

**Level 4 programming access** is reserved for a more advance configuration options. Level 4 enables the user to add, erase and modify the actions to be taken in case of an alarm or a fault (section 6.2.2.5.- Configure → Actions), as well as configure special parameters of the device in the loop, such as alarm levels, etc. ( section 6.2.2.4.- Configure → Loops subsection DEVICE PARAMETERS).

**Level 4 should be only accessed by certified and prepared technicians, since its manipulation could lead to a modification in the behaviour of the system not accordingly to the regulation. If any modification is required, please contact your provider.**

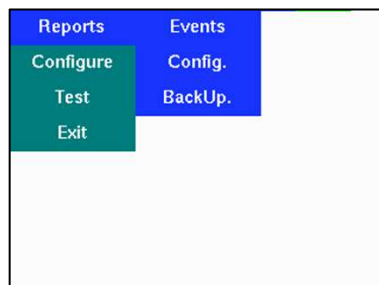
### ***6.2.- Description of the options (menus) specific of the installer mode***

After accessing Level 3 Access, by pressing MENU the following screen is shown:



#### ***6.2.1.- Reports***

By clicking on REPORTS, the following screen is shown:



##### **6.2.1.1.- Reports → Events**

These options shows in the screen or through the RS232 port a list of events that happened in the control panel. It is the same list that can be accessed from the option “Lists” from level 2 access.

The control panel CPU can record and save the last 4096 events.

The format of the list is as follows:

```

I:2440,VARIOS :KBD.Niv3CONTROL PANEL: 27 0 0 (Tempor: 0) 20/07/12 00:27:59
I:2441,VARIOS :KBD.OFF CONTROL PANEL: 27 0 0 (Tempor: 0) 20/07/12 00:28:12
I:2442,VARIOS :KBD.Niv2CONTROL PANEL: 27 0 0 (Tempor: 0) 20/07/12 00:28:16
I:2443,VARIOS :KBD.OFF CONTROL PANEL: 27 0 0 (Tempor: 0) 20/07/12 01:01:35
I:2444,VARIOS :KBD.ERR.CONTROL PANEL: 27 0 0 (Tempor: 0) 20/07/12 01:02:06
I:2445,DETECTA:AVERIA BUCLE 1: 12 0 40 (Tempor: 0) 20/07/12 01:04:36
I:2446,ACTIVA :AVERIA CONTROL PANEL: 25 0 1 (Tempor: 0) 20/07/12 01:04:36
I:2447,ACTIVA :AVERIA (255) : 57 5 0 (Tempor: 0) 20/07/12 01:04:36
I:2448,VARIOS :AC.BUCLEBUCLE 1: 57 0 1D (Tempor: 0) 20/07/12 01:04:36
I:2449,VARIOS :AC.BUCLEBUCLE 2: 57 0 1D (Tempor: 0) 20/07/12 01:04:36
I:2450,VARIOS :AC.BUCLEBUCLE 1: 57 0 1D (Tempor: 0) 20/07/12 01:04:36
I:2451,VARIOS :AC.BUCLEBUCLE 2: 57 0 1D (Tempor: 0) 20/07/12 01:04:36
I:2452,DETECTA:ALARMA BUCLE 1: 20 0 1 (Tempor: 0) 20/07/12 01:04:49
I:2453,ACTIVA :ALARMA CONTROL PANEL: 25 0 2 (Tempor: 0) 20/07/12 01:04:49
I:2454,ACTIVA :ALARMA (255) : 58 5 FF (Tempor: 0) 20/07/12 01:04:49
I:2455,VARIOS :AC.BUCLEBUCLE 1: 58 0 1D (Tempor: 0) 20/07/12 01:04:49
I:2456,VARIOS :AC.BUCLEBUCLE 1: 58 0 1D (Tempor: 0) 20/07/12 01:04:49
I:2457,VARIOS :AC.BUCLEBUCLE 2: 58 0 1D (Tempor: 0) 20/07/12 01:04:53
I:2458,VARIOS :AC.BUCLEBUCLE 2: 58 0 1D (Tempor: 0) 20/07/12 01:04:53
I:2459,ACTIVA :ALARMA (255) : 1 5 FF (Tempor: 0) 20/07/12 01:04:53
I:2460,VARIOS :AC.BUCLEBUCLE 2: 1 0 1D (Tempor: 0) 20/07/12 01:04:53
I:2461,VARIOS :AC.BUCLEBUCLE 2: 1 0 1D (Tempor: 0) 20/07/12 01:04:54
I:2462,VARIOS :AC.BUCLEBUCLE 1: 1 0 1D (Tempor: 0) 20/07/12 01:04:54
I:2463,VARIOS :AC.BUCLEBUCLE 1: 1 0 1D (Tempor: 0) 20/07/12 01:04:54
I:2464,ACTIVA :ALARMA (255) : 1 6 E1 (Tempor: 0) 20/07/12 01:04:54
I:2465,VARIOS :AC.BUCLEBUCLE 1: 1 0 1E (Tempor: 0) 20/07/12 01:04:54
I:2466,VARIOS :AC.BUCLEBUCLE 1: 1 0 1E (Tempor: 0) 20/07/12 01:04:54
I:2467,VARIOS :AC.BUCLEBUCLE 2: 1 0 1E (Tempor: 0) 20/07/12 01:04:54
I:2468,VARIOS :AC.BUCLEBUCLE 2: 1 0 1E (Tempor: 0) 20/07/12 01:04:55
I:2469,VARIOS :KBD.Niv2CONTROL PANEL: 27 0 0 (Tempor: 0) 20/07/12 01:05:28

```

Here:

- I:Event identification number
- The text as follows could be:
  - PRESENCE: Means the event has been activated when starting up the control panel
  - DETECT: It detects an alarm or a failure.
  - CLOCK: Means the clock has been turned on.
  - ACTIVATE: Shows an action taken after a detection has occur.
  - VARIOUS: It could mean a change in the level of the Access Level (KBD.Nivx), an access error (KBD.ERR) or the confirmation that a command has been sent to the Loop (AC.BUCLEx).
- The output we are acting on. Could be a particular device or a group.
- The parameter that is being sent.
- If it's immediate or if it's programmed.
- Date and time.

#### 6.2.1.2.- Reports → Configuration

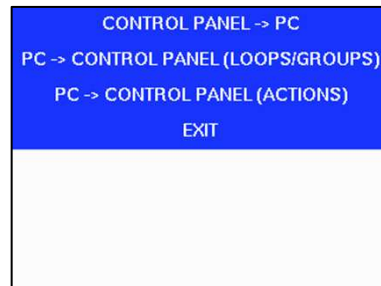
The Info that has been generated contains the added devices, the groups and the actions to be carried out depending on the events that are generated.

This information is shown in the screen in a similar way than the event list is shown.



### 6.2.1.3.- Reports → BackUp

There are three options:



- CONTROL PANEL → PC: It sends all the information from the control panel to the PC so a backup can be created. It sends:
  - Information about the devices of the control panel.
  - Information about each one of the devices of a loop.
  - Information about each one of the 60 groups.
  - Information about the actions.
- PC->CONTROL PANEL (LOOPS/GROUPS) it restores the configuration of the devices and the groups in the control panel. It is received from the PC and it is kept on the control panel:
  - Information about the devices of the control panel.
  - Information about each one of the devices of a loop.
  - Information about each one of the 60 groups.

Once all the information has been downloaded it will be asked if the group number has to be overwritten on each device on each loop. This is needed if any device has changed groups. In case of hesitation, press YES. **In case the loop is not available at the moment, the option MENU->Configure->Groups->Overwrite groups should be carried out later on, before leaving the control panel working.**

- PC->CONTROL PANEL (ACTIONS) it allows to restore the actions.

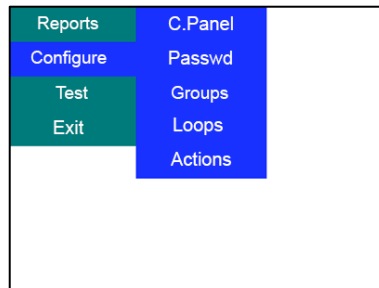
If for any reason there is a problem with the communication any of this downloads would be interrupted, an error message will appear on the screen, and the process has to be started over again.

When sending information from the PC to the control panel, once all the data has been transferred, we have the option of restart the control panel. **It is mandatory to do this restart.** However, if we want to restore the device information as well as the information about the groups and devices (second option), and also the information about the actions (third option), we can choose the option “NO” when asked about the reset, so we can then restore the information about the actions and then do the restarting.

**These actions require an specific software, as well as a connection wire from the PC to the control panel, please ask your provider about its availability.**

### 6.2.2.- Configure

By clicking on “Configure” the following screen is shown:



#### 6.2.2.1.- Configure → Control panel

This option is used to configure the control panel: location data and to adjust device parameters of the control panel (for a detailed list of the devices of the control panel, see section B.1 – List of devices of the control panel).



There are three options:

- **CONTROL PANEL DATA:** the control panel can be given a name, as well as an address and contact details. Three lines of text can be introduced to substitute the manufacturer’s logo.
- **MODIFY DEVICE:** the devices of the control panel can be given a group in here. Also, their description can be changed.
- **LIST DEVICE:** it shows a list of the devices connected to the control panel, as well as those connected in the different loops.
- **DEVICE PARAMETERS:** (this option should not be used by personal without the convenient preparation. Access level 4 is required). The behaviour of the devices of the control panel can be adjusted. For more information please see section B.3 Device parameters optional configuration.

#### 6.2.2.2.- Configure → Passwords

Access passwords can be changed here. The standard passwords are:

- Level 2: “2”
- Level 3: “3”
- Level 4: ask your provider

To change a password it is needed:

- The access level for which the password is to be changed.
- The actual password (this is to check that the user is authorized to do such a change). In case of entering a wrong password, the menu will be closed down
- If the password has been correctly introduced, the new password is asked for.

The password 4504 is reserved as a password to reset all the others and to return to the standard passwords, so no access level can have that code as a password.

**PASSWORD RESETTING:** This option resets all the passwords and set them in the standard ones. To carry this out, introduce the code 4504 during the 2 minutes period after having cut the power supply and restore it again to the control panel (including batteries)

### 6.2.2.3.- Configure → Groups

The groups consist of devices that could be physically associated to different controllers. A group allows sending orders at the same time to the mentioned group of devices, as well as acting in case one or more devices of the same group generate an event.



The option **MODIFY GROUPS** allows to give names to the groups and assign them to alarms, actions or both.

First it is asked the **group number** (1-58), since the control panel can manage up to 58 groups (by selecting 0 we are sent to the previous menu).

Then a **descriptive text** can be introduced.

The group mask should be given a value. The group mask is used so the alarms received by that group can be clearly differenced activating **alarms (= 1)**, y/o **actions (= 2)**. This means, if the value of the group mask = **3** (by default), whenever there is an alarm of any kind all the behaviour rules that are filtered as an alarm or action will be activated (see "definitions"). When selecting 1 in the mask, only the actions that are filtered as an alarm will be executed. When selecting 2 in the mask, only the actions filtered as actions will be executed. When selecting 0 in the mask, there is no action that will be executed when receiving an alarm from that group (this is useful to deactivate groups when carrying tests out).

Taking into account that the behaviour rules are set by default:

- In alarm or action (rule 4): Activate buzzer.
- In action (rule 5): Activate the corresponding group outputs.
- In alarm (rule 6): Activate the group sounders corresponding to the event.
- In alarm (rule 7): Activate Group 58 outputs.
- In alarm (rule 8): Activate Group 56 sounders.

When one group is assigned only as an action, the outputs of group 58 and the sounders of group 56 will not be set on. By default all the groups are assigned as alarm or action, so normally all the rules mentioned before are executed.

The option **LIST GROUPS** shows in the screen the devices that are part of a group.

The option **OVERWRITE GROUPS** resends the group number to each device connected to the loop.

**GROUP 59:** it is a special Group where ALL the sounders of ALL loops are included. This means that, apart from responding to the group they are assigned to, ALL the sounders will also respond to the Group 59. By pressing during 10 seconds the **SOUNDER** button of the control panel, this will send a set on order to the sounders of the group 59, meaning ALL the sounders of the system.

Also, even though is not compulsory as in the Group 59, it is recommended to save group nº 57 for failures (by default related to the potential contact free relay 3, nº 58 to activate outputs during global alarms (by default related to potential contact free relays nº 4, 5 and 6 and nº56 to activate the sounders during global alarms (outputs supervised by the control panel SND1 and SND2 by default). If we want one output to be activated when a failure happens, we can do so by assigning that output to the group 57, and if we want an output to be activated in case of any alarm, we can do so by assigning it to either group 58 (immediate set on) or 56 (delay set on). By default, relay nº3 is assigned to Group 57, relays 4,5 and 6 are assigned to Group 58 and the supervised sounders output are assigned to group 56.

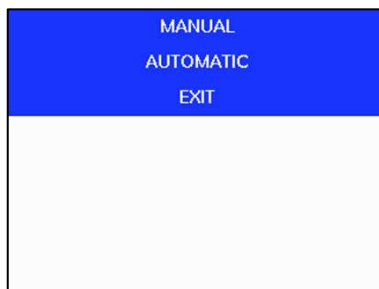
6.2.2.4.- Configure → Loops

This option is used to configure the loops.

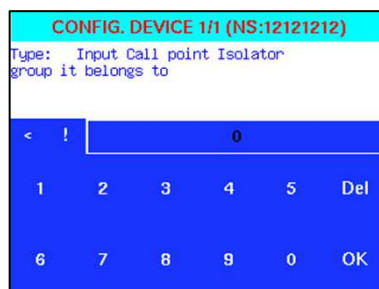


There are the following options:

**ADDING DEVICES:** Within this option there are two other options:



MANUAL ADDITION: Exactly as explained on section 4. The information requested is as follows:



The group that the devices is connected to.



Then, the descriptive text can be introduced.

**AUTOMATIC ADDITION:** it allows assigning the group 1 and the text “Automatic addition” to all the devices that are pending to be added. It is useful to set up an installation very fast.

**MODIFY DEVICE:** it allows modifying the group assigned to a device and the descriptive text.

**ERASE DEVICE:** it definitively erases a device from the data base of the control panel. The loop number and device number should be introduced. This option requires a confirmation to ensure that no device is erased by accident. It is possible to reset the device as well. Press NO. If YES is pressed, the device will appear in the control panel as “pending to be added”.

**LIST DEVICES:** shows a list of the devices added in the control panel and in the loops.

**DEVICE PARAMETERS:** this option requires access level nº4 and should be only used by a certified technician. It allows modifying or adjusting a device (for example, the level it will be set on). For more information, see section B.4 – Loop devices optional configuration parameters.

By pressing this option, the loop number will be required, as well as the device number. After that, the position and ID of the device will be asked. This information is specific of each device and it is specified in the data sheet of the device.

**ERASE LOOP:** it totally erases the configuration of a loop. Useful when several mistakes have been done and it is needed to restart again from the beginning.

#### 6.2.2.5.- Configure → Actions

This option makes it possible to define the actions to be carried out in case of an event (alarms, faults, etc). From here, the sounders and / or relays to be activated when there is an alarm can be chosen, and the delay before they are set on.

The default configuration is as follows:

- Resting mode: Potential free contact relay nº 3 is activated, being assigned to faults (group 57)
- In case of a fault: Potential free contact relay nº 3 is deactivated (group 57).
- In case of an alarm:
  - Potential free contact relays nº 4, 5 and 6 are activated (group 58).
  - Two supervised sounders output are activated: SND1 and SND2 (group 56).
  - The sounders of the group where the alarm has been detected are activated (delay controllable from level 3).
  - The outputs of the group where the alarm has been detected are activated (delay controllable from level 3).

This option is accessible from two different levels (3 and 4), with access to different menus. By pressing ACTIONS once entered from level 3, the following screen is shown:



The option **LIST ACTIONS** shows a list of the actions to be taken. The actions by default are as follows:

- When starting the control panel: activate group nº57 assigned by defect to faults.
- In case of a fault: activate buzzer.
- In case of a fault: deactivate group nº 57 (to indicate fault by means of the potential free contact relay nº3).
- In case of alarm or action: activate buzzer.
- In action: activate the corresponding outputs in the group where the event has taken place.
- In alarm: activate the sounders corresponding to the event.
- In alarm: activate the outputs of group 58 (potential free contact relays 4, 5 and 6).
- In alarm: activate the sounders of group 56 (supervised control panel outputs SND1 and SND2).

Option **MODIFY DELAYS** allows modifying the delay time of the defined actions.

Manual call points activate the sounders immediately. The alarms from a detector activate the sounders with a delay that can be programmed from level 3.

When entering this option, for each action where the delay can be programmed from level 3, the descriptive text can be introduced, and the delay has to be set between 0 and 1023 seconds. It must be taken into account that, due to regulation reasons, the delay should be shorter than 1023 seconds.

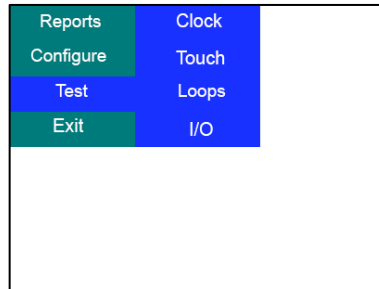
When clicking on ACTIONS from **access level 4** the following menu is opened:



Please be reminded that access level 4 is a restricted level only for qualified staff. Please contact your provider.

### 6.2.3 -Test

By clicking on test the following screen is shown:



#### 6.2.3.1- Test → Clock

This option is used to set the date: year, month, day of the month and day of the week should be introduced (1= Monday, 7= Sunday). Also the time (hour, minutes,seconds) should be introduced. This is useful when activation actions are programmed depending on the moment of the day, as well as to visualize correctly the date and time of the events,

#### 6.2.3.2.- Test → Touch

We can calibrate the touch screen. It is recommendable to use a pointer to do so. A cross will appear in the lower right corner of the screen. Press in the middle of the cross. The same cross will appear after in the upper right corner. Press in the middle of the cross. This will calibrate the touch screen.

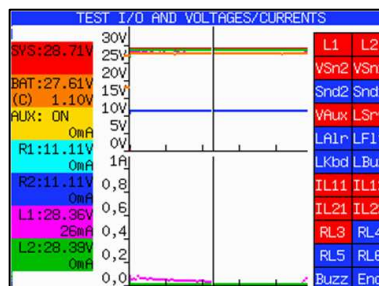
#### 6.2.3.3.- Test → Loops

It verifies the communication in the loops. A PC connected to the serial port is needed.

#### 6.2.3.4.- Test → I/O (Inputs / Outputs)

This option allows to activate and deactivate the outputs (relays and power supplies) of the control panel, as well as visualizing the voltage in the main supply, the battery, the auxiliary output, the two supervised outputs and the two loops.

Red buttons on the right means it's activated. Blue buttons means it is deactivated. In the left, the voltage is shown in a numeric value, as well as the consumption measured in mA. In the center there is a graphic with the voltage. The black marks in the X axis indicates the seconds. The screen shown is:



The upper part of the graphic shows voltage levels (system, batteries, auxiliary output, sounders outputs and loops), the lower part, real time consumptions.

- L1, L2 activates the power supply on the loops.
- V.Snd1, V.Snd2 y Snd1, Snd2 activates the voltage and the sounder outputs respectively.
- V.Aux activates the voltage of the auxiliary output.
- L.Srv, L.Alr, L.Flt activates the service LED, alarm LED and fault LED respectively. (L.Tec y L.Zum are not implemented).
- IL11, IL12, IL21 y IL21 activate respectively the loop isolators.

- RL3, RL4, RL5 y RL6 activate the potential free contact relays
- Buzz activates the buzzer

By pressing the indicators on the left side, visualizing the corresponding voltage can be activated / deactivated.

The output voltage of the batteries is shown in orange. In this case the batteries were at 27,61V. In pink is the consumption of loop 1 while doing a presence test and consuming a total of 26mA.



## ANNEXES

### **A.- Definitions**

Controller: equipment that contains devices. The printed circuit board of the analogue addressable control panel is controller nº 0, the loop is the controller nº 1 and (in case of having two loops), the second loop is controller nº2.

Device (definition): individual element. Examples of devices are: a heat detector connected to any of the loops, a sounder connected to any of the loops, any of the relays soldered to the printed circuit board of the control panel, the 230 VAC input, etc.

Device (type of devices): devices physically installed in the controller nº 0 (printed circuit board of the control panel, there is a list of them: B.1 List of devices of the control panel) from those that can be installed in the loops (listed on the list B.2 – Type of loop devices).

Devices (maximum number of devices per controller): there is a maximum of 120 devices per controller. The device number is automatically given by the control panel when the device is connected to the loop. Devices with two functions, such as heat optical detectors, sounders with isolator, etc counts as just one device. Each device has two numbers, the first one indicates the nº of controller and the second one is the device number assigned by the control panel. For example, 1/37 represents the device nº 37 of the nº 1 loop.

Groups (definition): a logic organization of the devices. A group includes a certain number of devices that can be part of different controllers. Organizing the devices in groups allows the user to activate outputs (sounders, relays, etc) depending on the number of devices that are in alarm / fault within the same group.

Groups (maximum number of groups): the control panel can manage up to 58 groups. There is a special group (nº59) that includes ALL the sounders of the loops and the supervised ones from the control panel, so all the sounders will be included in two groups, the groups they are added and assigned to and group nº59. This is why the option “Silence sounders” sends that order to group nº 59. Even though it’s not compulsory, it is very recommendable to save group nº 58 for immediate alarm set on outputs, group nº 56 for sounders (with delay) and group nº 57 for relays of failure.

Relations between devices and groups: when adding (or modifying) a device, it can be assigned to a group. Even though it is not compulsory, it is very recommendable to assign the potential free contact relays that should act as a fault indication to the group 57, while the ones that should act as an immediate alarm to the group 58. Supervised sounders with the possibility of a delay should be assigned to group 56.

Events (definition): the act of a device communicating a presence, fault or alarm to the control panel.

Events (types of events): there are three types of events:

- PRESENCE: it happens the moment that a device is registered after receiving power supply.
- FAULT: it happens when a device sends a specific fault sign to the control panel or when after 3 consecutive attempts of communicating (that are carried out every 30 seconds) with the device, there is no answer, either due to a fault or because the device has been removed.
- ALARM: it happens when a device sends an alarm message to the control panel.

Backup: it is the act of registering into the external flash memory of the control panel, all the events that have happened, as well as the actions taken due to those events and the rules defined in those actions.

Actions or actuation rules due to events (definition): the actions determine the behaviour of the control panel in case of an event. They have two parts, the first one determine if that rule should be activated and the second one determines if the activation should be immediate or delayed.

## B.- Devices

### B.1.- List of devices of the control panel

The devices of the control panel (relays, memories, CPU, outputs, power supply) also have a default device number, just like it happens with the loop devices. This way, they can be assigned to groups so it is possible to work with the different parts of the system coherently. The list of numbers is as follows:

MAIN SUPPLY	1	// Main supply
BATTERY	2	// Battery
V_AUX	3	// Auxiliary Power Supply
SOUNDER OUTPUT 1	4	// Sounder output 1
SOUNDER OUT. VOLT. 1	5	// Sounder output voltage 1
SOUNDER OUTPUT 2	6	// Sounder output 2
SOUNDER OUT. VOLT. 2	7	// Sounder output voltage 2
RELAY 3	8	// Potential free contact relay 3
RELAY 4	9	// Potential free contact relay 4
RELAY 5	10	// Potential free contact relay 5
RELAY 6	11	// Potential free contact relay 6
SYSTEM CLOCK	12	// System data clock
FLASH MEMORY	13	// External data memory (logs recording)
COMS RS232	14	// RS232 comms
COMS USB	15	// USB comms
COMS EXPANSION	16	// BUS Expansion
COMS MODULOS	17	// Bus Modules
CPU HARD	18	// Indicates non determined hardware CPU faults
CPU SOFT	19	// Indicates non determined software CPU faults
CONTADOR_1_S	20	//
74595_4014	24	// 74HC595 error
BUZZER	25	// Buzzer
SLOTS_INT	26	
TOUCH	27	// Touch screen
DISPLAY	28	
EXPANSION_1	29	
EXPANSION_2	30	
EXPANSION_3	31	
MODULO_1	32	
MODULO_2	33	
CONTROL PANEL	34	// Check the control panel when starting up
ALAV	36	// Automatic reset of faults of power supply
VLOOP1	60	// Loop 1
ISOLATOR_B11	61	// Isolator branch 11
ISOLATOR_B12	62	// Isolator branch 12
TX_B11	63	// Transmitter branch 11
TX_B12	64	// Transmitter branch 12
RX_B11	65	// Receiver branch 11
RX_B12	66	// Receiver branch 12
VLOOP2	68	// Loop 2
ISOLATOR_B21	69	// Isolator branch 21
ISOLATOR_B22	70	// Isolator branch 22
TX_B21	71	// Transmitter branch 1
TX_B22	72	// Transmitter branch 2
RX_B21	73	// Receiver branch 21
RX_B22	74	// Receiver branch 22

So when a fault on the device control panel nº2 is indicated, it means that there is a battery fault (the word "Battery" does appear as well. It is useful to assign a group to the following devices.

Potential free contact relays, to be assigned to faults or alarms:

RELAY 3	8	// Potential free contact relay 3
RELAY 4	9	// Potential free contact relay 4
RELAY 5	10	// Potential free contact relay 5
RELAY 6	11	// Potential free contact relay 6

The supervised relays, to set them on as alarms:

SOUNDER OUTPUT 1	4	// Sounder output 1
SOUNDER OUTPUT 2	6	// Sounder output 2

### **B.2.- Types of devices of the loops**

See section 2.1 for a list of the devices available.

The default numbers used to describe the type of devices are as follows:

<u>Nº TIPO</u>	<u>MODELO</u>	<u>DESCRIPCIÓN</u>
0002	M501A	Heat detector
0004	M500A	Optical detector
0006	M502A	Optical and heat detector
0041	M100A-FI,M100A-FE	Loop sounder with isolator
0019	M101A	Manual call point with isolator
0001	M450A-A	Isolator module
0031	M450A-ES	Input/output module with isolator
0081	M450A-C	Conventional zone module with isolator
0101	M450A-4.20	4-20mA input module with isolator

### **B.3.- Optional configuration parameters of the devices of the control panel**

Some of the devices of the control panel can be customized:

- **Device 19 (CONTROL PANEL DEVICE CPU SOFT)** allows to **change the language** in case of multilingual panels. Possible values: 0: Spanish, 1: English. When language is changed, indications on screen will change to the new idiom. Any name about address or groups set will continue as wrote during configuration.
- **Device 25 (CONTROL PANEL DEVICE SONIDO)** can be permanently MUTED. From “Menu->Configuration->Control panel->Device Parameters” introduce “25” as the device number and “2” as the parameter. This cancels the buzzer until “0” is introduced as the parameter. Even in case of power supply faults or a resetting of the control panel, this value will be kept.
- **Device 36 (CONTROL PANEL DEVICE ALAV)** enables the automatic reset of the control panel after a power supply fault. By default it is set as 1. By introducing 0, faults are not resetted automatically.
- **Devices 65 (CONTROL PANEL DEVICE RX B11), 66 (CONTROL PANEL DEVICE RX B11), 73 (CONTROL PANEL DEVICE RX B11) y 74 (CONTROL PANEL DEVICE RX B11)** : Enables the configuration of the communication frequency on each branch. IT IS IMPORTANT THAT THE DEVICES HAVE BEEN CORRECTLY TUNED, TO SAVE THE VALUE INDICATED ON THE SCREEN IN THE INFORMATION SCREEN FOR EACH DEVICE (by default they should be correctly saved).
- **Device 27 (CONTROL PANEL DEVICE TOUCH)**: Disables the keyboard timeout and enters the control panel in access level 1.

## **C.- Specifications**

### **C.1.- Mechanical specifications**

- Galvanized steel base.
- ABS plastic cover.
- IP30
- Dimensions: 339 x 332 x 90 mm

### **C.2.- Electrical specifications**

- 2.5A 28V power supply.
- Auxiliary output: controlled voltage of 28V (with power supply) and battery voltage (when there is no power supply) limited to 400mA with resettable fuse.
- Supervised sounders outputs: controlled voltage of 28V (with power supply) and battery voltage (when there is no power supply) limited to 400mA with independent resettable fuse. 4K7 Ohms end of line resistor.
- 4 potential free contact relays able to manage up to 2A @ 30V.
- 1 or 2 Analogue loops (depending on the version) able to have a 400 mA consumption each one.
- 7Ah 24V battery system with a charging capacity of 300mA.
- 3A battery protection fuse
- TFT 3,5" color touch screen with 320x240 pixels resolution.
- Maximum consumption of the control panel during rest mode (with no device in any loop and deactivated relays): 70mA.

### **C.3.- Environment specifications**

- Working temperature from -10°C to 50°C.
- Storing temperature from -20°C to 70°C:
- Maximum working humidity: from 20% to 90% of relative humidity with a temperature  $\leq 45^{\circ}\text{C}$
- Maximum storing humidity: from 20% to 90% of relative humidity with a temperature  $\leq 45^{\circ}\text{C}$

**D.- NOTES**





**E.- DEVICE ADDRESSING MATRIX**

**INSTALLER:**

**INSTALLATION REFERENCE:**

**DATE:**

**LOOP 1**

<u>Nº.</u>	<u>Serial number</u>	<u>Device number</u>	<u>Type of device</u>	<u>Group</u>	<u>Text</u>
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
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25					
26					
27					
28					



<b>Nº.</b>	<b><u>Serial number</u></b>	<b><u>Device number</u></b>	<b><u>Type of device</u></b>	<b><u>Group</u></b>	<b><u>Text</u></b>
29					
30					
31					
32					
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38					
39					
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41					
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57					
58					
59					
60					
61					

<b>Nº.</b>	<b><u>Serial number</u></b>	<b><u>Device number</u></b>	<b><u>Type of device</u></b>	<b><u>Group</u></b>	<b><u>Text</u></b>
62					
63					
64					
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94					

<b>Nº.</b>	<b>Serial number</b>	<b>Device number</b>	<b>Type of device</b>	<b>Group</b>	<b>Text</b>
95					
96					
97					
98					
99					
100					
101					
102					
103					
104					
105					
106					
107					
108					
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117					
118					
119					
120					

**LOOP 2**

<u>Nº.</u>	<u>Serial number</u>	<u>Device number</u>	<u>Type of device</u>	<u>Group</u>	<u>Text</u>
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
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22					
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27					
28					
29					
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31					

<b>Nº.</b>	<b><u>Serial number</u></b>	<b><u>Device number</u></b>	<b><u>Type of device</u></b>	<b><u>Group</u></b>	<b><u>Text</u></b>
32					
33					
34					
35					
36					
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38					
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41					
42					
43					
44					
45					
46					
47					
48					
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60					
61					
62					
63					
64					

<b>Nº.</b>	<b><u>Serial number</u></b>	<b><u>Device number</u></b>	<b><u>Type of device</u></b>	<b><u>Group</u></b>	<b><u>Text</u></b>
65					
66					
67					
68					
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<u>Nº.</u>	<u>Serial number</u>	<u>Device number</u>	<u>Type of device</u>	<u>Group</u>	<u>Text</u>
98					
99					
100					
101					
102					
103					
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118					
119					
120					



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