

CONVENTIONAL FIRE ALARM CONTROL PANELS

M402C, M404CP, M404CG, M408C, M412C

Installation, maintenance and user manual.



Please read carefully this manual before use or install this device, and keep it for future references.

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2,4,8 AND 12 ZONES CONVENTIONAL FIRE PANELS

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1.- INTRODUCTION

1.1.- Product description

This manual explains the procedure for installation, use and maintenance of the M400 range of control panels.

This range of control panels are conceived for fire alarm systems equipped with automatic fire detectors or manual call points

Two sizes of panels are available, the compact model with 2 or 4 zones and the large model with 4, 8 or 12 zones

1.2.- Standards

This product has been manufactured in conformance with the EU directives and complies all the EN54-2 and EN 54-4 regulations.

Fire alarm systems must be designed by suitably competent person in accordance with the relevant National Standards.


This equipment must be installed, maintained and serviced by an experienced and technically qualified person.

 0370
SISTEMAS DE SEGURIDAD MIRA, S.L. C/ Industria, 5 – nave A 08800 Vilanova i La Geltrú - Barcelona 11 0370-CPD-1020
EN 54-2:1997, EN 54-2:1997/AC:1999, EN 54-2:1997/A1:2006, EN 54-4:1997, EN 54-4:1997/AC:1999, EN 54-4:2001/A1:2002, EN 54-4:1997/A2:2006 CONVENTIONAL FIRE ALARM CONTROL PANEL WITH INTEGRATED POWER SUPPLY MODELS: M402C Y M404CP DE 2 Y 4 ZONAS, Technical data – see installing and maintenance instruction

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EN 54-2:1997, EN 54-2:1997/AC:1999, EN 54-2:1997/A1:2006, EN 54-4:1997, EN 54-4:1997/AC:1999, EN 54-4:2001/A1:2002, EN 54-4:1997/A2:2006 CONVENTIONAL FIRE ALAR MCONTROL PANEL WITH INTEGRATED POWER SUPPLY MODELS : M404CG, M408C Y M412C DE 4, 8 Y 12 ZONAS. Technical data – see installing and maintenance instruction

<p>The product consists of any parts that can be dangerous for human health. Used up product must be passed to the nearest point of collection of electric and electronic equipment.</p>	
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2.- INSTALLATION

2.1.- Recommendations

Be sure that the equipment is in perfect condition in his original packing.
Do not handle inside the panel if it is connected to mains power.

2.2.- Mounting the panel

Remove the plastic cover unscrewing the 4 frontal screws. Be carefull to avoid accidental damage to the PCB.

Only remove the grommets to be used. The left hole should be used for the main power connection. The other entries should be used for other wiring of detector and sounders circuits or other periferical devices.

Fix the back box to the wall using the the 3 mounting holes with suitable screws and fix it at the right height (1,5 mts).

2.3.- Wiring

The 230 V mains power cable must be 3-core (0,75 to 2 mm²). The panel must be earthed

Each detector circuit (Zones) and sounders circuit must be fitted with a 4K7 end of line resistor (supplied with the panel).

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2.4.- Commissioning

Before commissioning the system, please verify that :

- Mains power 220 V is connected to the panel.
- Both batteries are connected and the the voltage in the terminals is 24 V.
- The detection circuits are right connected and polarished, and fitted with the 4K7 Ohms resistors (if any detectors zone is not used, the resistor must be fitted in the panel connector of the zone).

2.5.- Checking the installation

When connecting the mains power and the batteries all the LEDs will light for test while the buzzer sounds to verify that both are working correctly

2.6.- Maintenance

That control panels are designed to require a minimun of maintenance.

Please consult your local or national regulations and standars in order to brief the user's responsability about the mianteniance of the system according to that regulations.

Anyway, the manufacturer recomends the following tests:

Check daily that panel is in order and the Power LED is lit.

- Weekly test any detector or manual call point..
- Quarterly activate a device from each zone and test the fire alarm and sounders. Check bateries and connections
- Annual test must check every detector and call point, sounders and auxiliary equipment. Output voltages from transformer, charger, and batteries must be checked.
- Batteries should be replaced every 4 years..

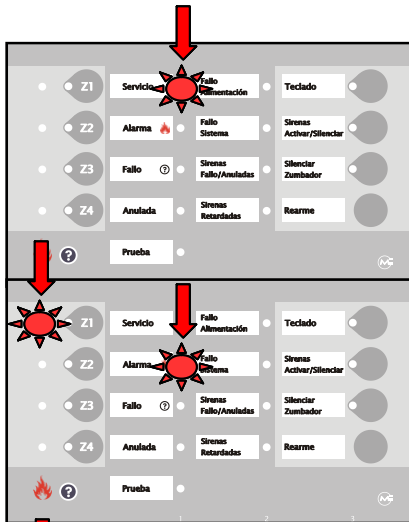
It should be recommended a log book to record all the events as fire alarms, failures, tests, etc.

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3.- USING THE CONTROL PANEL

3.1.- Panel indications:



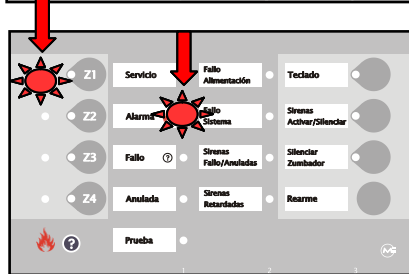
- "Normal" condition

The panel is in "normal" condition when the POWER green LED is constantly on. In this way, the panel is prepared to detect fire signals coming from the detectors or manual call points.

- "Fire" condition

Fire alarm coming from a detector:

- Zone red LED flashing.
- ALARM LED constant on.
- Buzzer constant on.
- Sounders output activated (possible delay 0/10min.)
- Fire relay activated.
- External zones output relay activated.



Fire alarm coming from a call point:

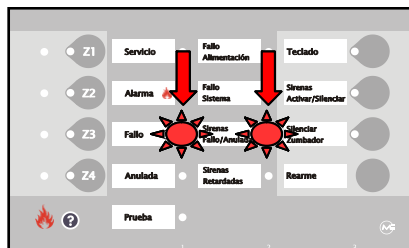
- Zone red LED constant on.
- ALARM LED constant on.
- Buzzer constant on.
- Sounders output activated (no possibility of delay).
- Alarm relay activated.
- External zones output relay activated.



- Fault condition (short and open circuit).

Short or open circuit in zone wiring

- Zone yellow LED flashing.
- FAULT LED constant on
- Buzzer constant on
- Fault relay activated.



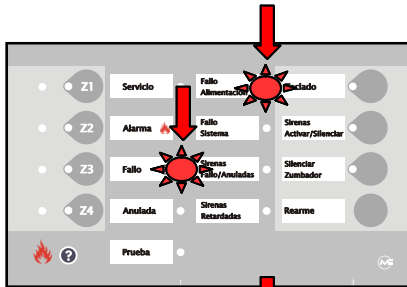
Short or open circuit in sounders wiring:

- SOUNDER FAULT/DISABLED LED flashing.
- FAULT LED constant on
- Buzzer intermittent
- Fault relay activated.

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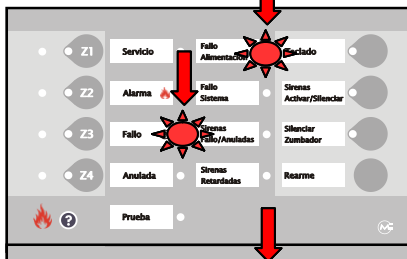
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- Main supply and battery faults



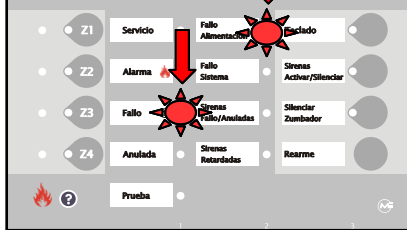
Main supply 230V fault:

General FAULT LED constant on.
Power supply fault LED constant on.
Buzzer intermitent.



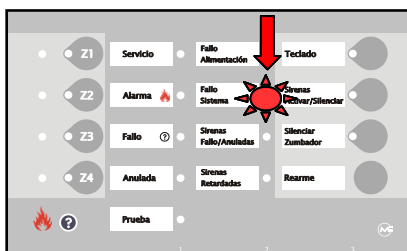
Battery fault:

General FAULT LED constant on.
Power SUPPLY FAULT LED flashing slow.
Buzzer intermitent



Auxiliary output fault:

General FAULT LED constant on.
Power SUPPLY FAULT LED flashing fast.
Buzzer intermitent



System fault:

General fault LED constant on.

If the problem persists, please contact with your installer or dealer.

Note: SOUNDERS DELAY:

The panels have a feature that permits a sounders delay up to 10 minutes when an alarm becoming from any detector occurs, allowing verification proceed. However, when an alarm becoming from a Manual Call Point activation (provided with zenner diode), the sounders will be instantaneously triggered. (The "Alarm Relay" output cannot be delayed)

The yellow led "SOUNDERS DELAY" will indicate an existing delay, and will be set off when no delay is programmed.

A delay can be set from the keypad, as indicated:

Being the panel without both main power and battery supply, give 230V main supply while the "SOUNDERS ACTIVATE/SILENCE" button is pressed. Then led starts blinking, allowing delay changes by pressing "BUZZER SILENCE" to increase delay (+) or pressing "REARM" to decrease (-). This is showed by illuminating the different leds from the panel, each one equivalent to a 50 seconds delay, to the maximum of 12 leds, corresponding to 600 seconds (=10 minutes).

To save and exit from programming status, press "KEYPAD" button.

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3.2.- Access to control state.

Keypad control enable:

Pressing "KEYPAD" button, press at the same time the following: Z1, Z2, Z2, Z1 and then all the keypad buttons will be enabled and the "KEYPAD" LED turns on

Keypad control disable:

Keeping pressed the "KEYPAD" button until the LED turns off, or just wait 3 minutes without pressing any key .

AUTHORISED CONTROLS OVER THE PANEL:

With the keypad disabled:

Only is possible to cancel the buzzer, pressing "BUZZER OFF" button. The LED turns on.

With the keypad enabled:

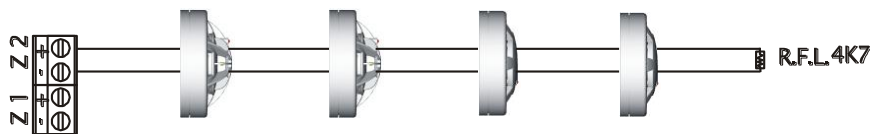
- Cancel sounders
During an alarm with the sounders activated, pressing SOUNDERS ON/OFF the sounders will turn off and the LED will lite. To turn the sounders on again, press the button once again and the sounders will be activated. The LED turns off.
- Sounders disablement (DAY FUNCTION)
Pressing SOUNDERS ON/OFF button:
DISABLED LED constant on.
SOUNDERS FAULT/ DISABLED LED constant on.
All sounders outputs should be disabled even if an alarm occurs.(The relay output should work normally)).
- System Reset.
Pressing the RESET button the sounders (and alarm relay and buzzer) will stop and the panel turns to "normal condition " until a new event takes place. (The alarm input must have disappear)
- LED,s Test.
Turning out from Keypad Enabled, the panel makes an automatic LED test.
- Turning the sounders on (Evacuation).
Pressing SOUNDERS ON/OFF for 3 secs. the sounders will start sounding.
- Zones disablement
Pressing any zone button the yellow LED turns on, the zone turns to disabled mode and the LED of general DISABLED constant on. Any incoming alarm in that zone will be ignored.
- Test mode (One man test)
Any zone can be tested, checking the detectors and call points connected to it. Pressing the button of the zone to check for two times, the zone will turn to test mode , the yellow led will flash and TEST MODE LED constant on. When an alarm is triggered in the zone to test, the alarm sounders will activated for 10 secs. after the zone automatically resets allowing to check all the detectors/call points without having to reset the panel.

4.- CONNECTION MODULES AND PERIFERICS

4.1.- Input connection modules (Zones)

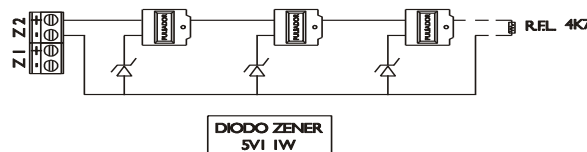
- Detectors

The number of detectors suitable to one zone is determined by its power consumption. The power required by all the detectors connected to one zone must not exceed the maximum allowed by the panel. (See Electrical Specifications)



- Manual Call Points

Any number of MCP can be connected to any zone. A MCP to be considered like that by the panel must be connected with a Zener Diode (5,1 V), and keeping polarity in all the line.



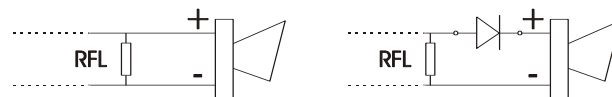
- There must be taken into account that no more of 32 devices could be installed in each zone (EN54-14 directive).

4.2.-Output connection modules (Sounders connectors and aux. fire/ fault relays)

- Sounders

There are 2 sounders output. If any non polarised device is used, a diode must be placed in line to prevent a fault alarm.

Each output is protected by an automatic electronic fuse. Take into account that cannot be exceeded a 160 mA consumption in each one, or 320 mA in both



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- Alarm relay
This changeover contacts is voltage free and changes over any fire condition to operate any auxiliar equipment like magnetic holders, external sirens, ventilation shut-off, etc.
- Fault relay
This changeover contacts is voltage free and changes over any fault condition to operate any auxiliar equipment like repetitors, indication panels, etc
- Auxiliary output
This output provides constant power supply for external auxiliar devices as magnetic holders, etc. Maximum consumption: 320 mA

4.3 Expanding connexion modules

- Zones relay module
M404CP, M408C and M412C can be equipped with relay modules. Each módulo has 4 relays to be triggered independently in response to diferent events.
- RS232 Output module
Not available yet.
- Módem RTB or GPRS
Not available yet.

5.- SPECIFICATIONS

5.1.- Enclosure specifications

- Back: Steel plate 1 mm galvanized.
- Cover: plastic material ABS.
- IP protection grade: IP25
- Size (2-4 zones model): 281x231x98 mm
- Size (4 to 12 zones model): 339x332x90 mm

5.2.- Electrical specifications

- System power supply and batteries

Mains supply is 230VAC/50Hz with ground connection.

The power supply output to the panel circuits is 29,3 VAC.

The recommended batteries are 2 x 12V 2 Ah (M402C and M404CP) and 2 x 12V 7Ah (M404CG to M412 CG) . Proper calculations should be done in order to assure the standby required time.

The panel (without any device) standby power consumption 120 mA.

- Inputs and outputs voltages

Zones connectors

The zone voltage is 22 to 28V . Is very important to not exceed the maximum consumption in each zone connection, as the panel determines the fire, fault or normal condition by the current consumption of each zone. End of Line Resistors: 4K7

- Sounders connectors

This output provides 24V. Maximum load for the both outputs: 320 mA. End of line resistors: 4K7

Alarm and fault relays

Voltage free turnover contact 1A

Expanding connector

- Auxiliar output

Provides constant 24V 320 mA

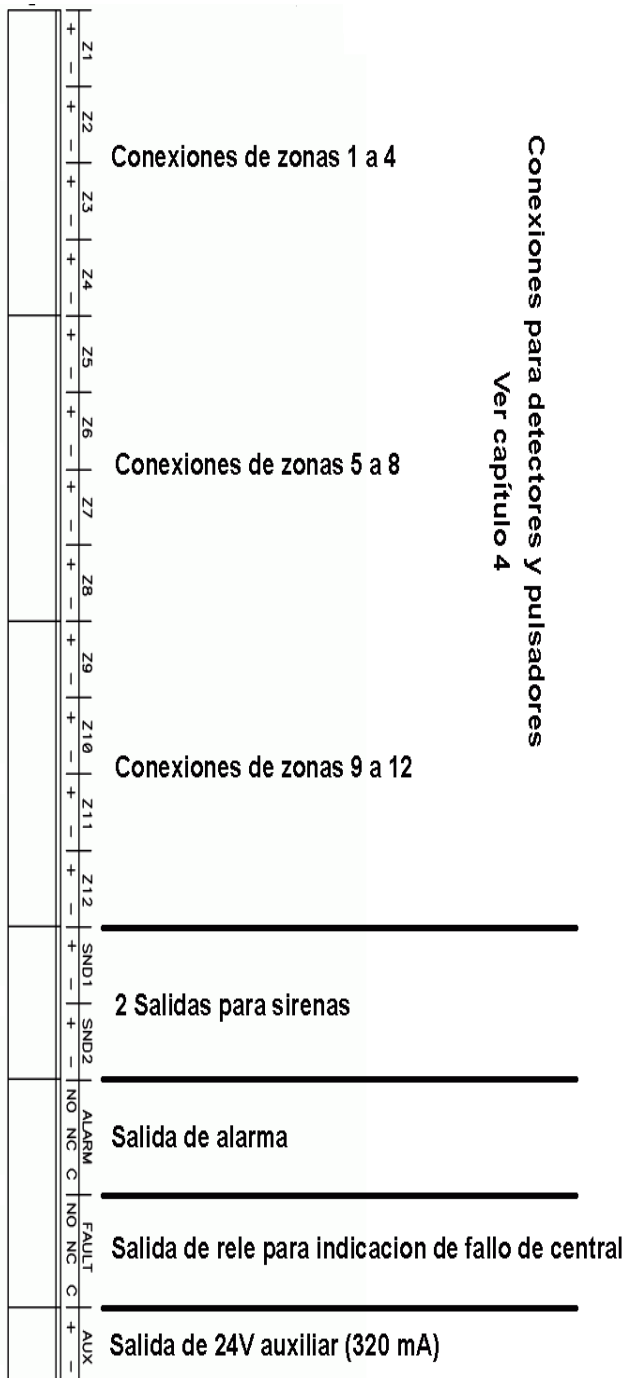
Fuses

- Power supply fuse: 3 A.
- Battery fuse F1 (BAT) 3 A.
- Auxiliar output automatic electronic fuse 350 mA.
- Sounders output automatic electronic fuse 350 mA.

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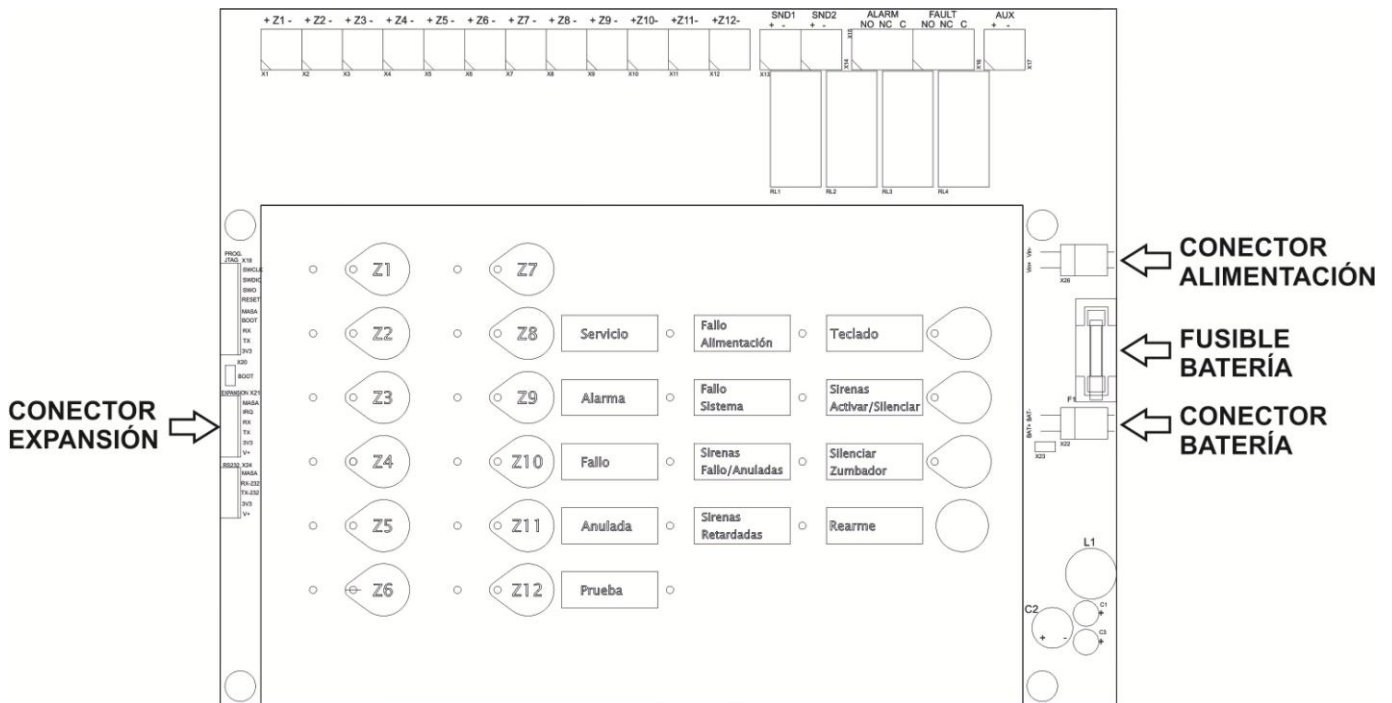
- Module connections in the PCB



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- Power connexion (transformer) keypad, batteries and expander modules on PCB



Accessories bag:

- Manual
- 1 Battery shut
- 1 set of fuses:

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6.- USUAL QUESTIONS

- Can be checked the charge-status of the batteries?
Desconecting the batteries from the PCB and testing the terminals voltage. It should be something more than 24 V (Both batteries serial connected)
- Is it necessary to connect an end of line (EOL) resistor to the zones and sounders wiring?
Yes. Because this is the way to allow the wiring to be monitored by the panel if a cut or short circuit occurs. The EOL (4K7 resistance) must be placed in the last device of each line.
- The keypad dont works.
After 3 minutes without activity the keypad gets disabled by itself. See 3.2 "Access to Control State" in order to enable it again
- Can be silenced the sounders in alarm condition?
Yes. Pressing the SOUNDERS ON/OFF button the sounders will be silenced and the correspondent LED will light.
- Can be silenced the buzzer of the panel ?
Yes. Pressing BUZZER ON/OFF button the buzzer will be silenced and the correspondent LED will light.
- Can be turned on the sounders to evacuate the building?
Yes. With the keypad enabled, press SOUNDERS ON/OFF for 3 seconds and the sounders will activate
- How can be a zone disabled?
With the keypad enabled, press the zone button and it will turn to disabled mode showing the yellow LED constant on

How can be checked all the devices of the system?

With the keypad enabled, press 2 times the zone button to check and the zone will turn to test mode, the yellow led will flash and TEST MODE LED constant on. When an alarm is triggered in the zone to test, the alarm sounders will activated for 10 secs. after the zone automatically resets allowing to check all the detectors/call points without having to reset the panel