



CONVENTIONAL FIRE EXTINGUISHING CONTROL PANELS

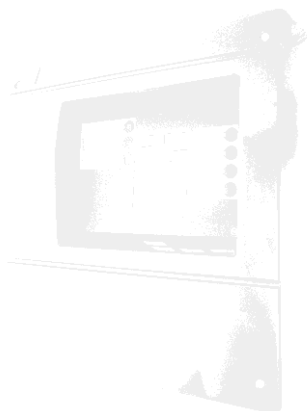
M401EXT and M402EXT

FIRE ALARM CONTROL PANEL

M400EXT

EN 12094-01 CERTIFIED

INSTALLATION AND USER MANUAL



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1.- INTRODUCTION**1.1.- Product description**

The conventional M400EXT control panel range has been designed to control automatic fire extinguishing systems in 1 or 2 different sectors and with all type of extinguishant agents.

This manual contains the necessary information for the start up and correct operation of the M400EXT extinction control panels.

1.2.- Standards

The M400EXT control panels have been manufactured in concordance with the EU **0370-CPD-1020** certification awarded by the accredited laboratory number 03070 APPLUS, which meet all the requirements of the European regulation EN-12094-1 established as compulsory, as well as most of the optional regulations.

Specific standards and guidelines exist or may exist from different jurisdictional authorities, that condition the design and planning of system's installation and its components, as well as its maintenance and that can even differ from the exposed herein, and that should be thoroughly studied (EN 54 Regulations, local authorities, insurance companies, etc).

The manufacturer will not be held responsible for any damage caused by inappropriate use of the equipment and reserves the right to make changes in the future.

It must be emphasized that the installation and maintenance of a fire detection system requires specialized personnel.

Once the use of this equipment has been completed, it must be delivered to an authorized withdrawal of electrical or electronic material body.



2.4.- Verifying the installation

Once the installation of the various devices is completed and before starting up the control panel, verify that:

- Voltage is 220V.
- Batteries (two 12V batteries in series) provide a voltage of 24V.
- The detection lines of each area are correctly polarized and have resistors at the end of the line of 4K7 Ohms installed (or that they have a resistor in the circuit board terminals in the event that the corresponding area is not in use).
- The switch line (stop and release) are correctly polarized and have resistors at the end of the 4K7 Ohms lines installed (or that they have a resistor in the circuit board terminals in the event that the corresponding area is not in use). Also, the manual call points have a corresponding zener diode of 5,1V 1W for the correct discrimination of other elements.
- The releasing solenoid lines, as well as the pressure switch ones are correctly installed in the corresponding extinction module. The solenoid line must have an end of the line resistor, as well as the polarization diode if due. (See section "4.1.- Extinction Modules").
- The pre-trigger and release triggered lines are correctly installed and have the corresponding end of line resistors, as well as are polarized. (See section "4.1.-Extinction Modules").
- The close-door control line, if any, is installed properly.
- Each extinguishing module has a correct pre-trigger time value. The configuration of delay times, both of the sounders and the extinguishing release, will be put into effect by pushing the SOUNDERS button when powering the control panel. See the following point "Installation Configuration".

2.5.- Commissioning

After verifying the installation, connect the 230V network and batteries (be careful not to short-circuit). LED sweep and a beep will be generated at the buzzer to verify that both LEDS and buzzer are working correctly.

2.6.- Control panel configuration.

To modify the **sounder delays and the extinction delays**, the following must be carried out:

- Hold down the SOUNDERS button when powering the control panel up through the network.
- The sounders led will begin to blink indicating that we are in configuration mode.
- Pressing the SOUNDERS button, we will choose the option to modify. Pressing BUZZER and RESET, we will modify the values of the chosen option, increasing times with BUZZER and decreasing times with RESET.
- The different modifiable options available are:

Sounder delay: Blinking sounder LED.

Extinguishing group number 1 delay: Keyboard LEDS and sounders blinking.

Extinguishing group number 2 delay: Sounder LEDS and buzzer blinking.

These options appear each time the SOUNDERS button is pressed.

- The delay times of the sounders are indicated by lit-up LEDS. Each led corresponds to a 50 second time space. No lit-up LEDS indicate that there is no delay in the sounder. The maximum time is indicated by 12 lit-up LEDS = 10 minutes (with 50 second increases). The control panel is originally supplied with no delays.
- Equally, the delay times of the extinguishing release are indicated with LEDS. Each LED corresponds to a 9 second time space. No LED indicated that there is not an extinction delay. It allows for a maximum of 10 lit LEDS = 90 seconds (in 9 second increases). The control panel is originally supplied with no delays.

Once the required configuration is done, we will leave this mode by pressing the KEYBOARD button once. Then, a LED sweeping will be carried out to confirm that the exit has been completed.

2.7.- Installation maintenance

The M400EXT control panels are designed to require minimum maintenance. Notwithstanding, and taking into account the aim of this product, it is highly recommended to follow the procedures stated below:

- Check daily that the control panel is in order and the Power LED is lit.
- Test weekly any of the detectors or manual call points, as well as checking the charge of the extinguishing equipments.
- Quarterly activate a device by area, check the operation of the activation system, and check the battery voltage.
- Annually check all of the installation devices.
- Replace the batteries every four years.
- It is recommended to keep a historical record of incidents.

Wider standards and recommendations may exist respecting to maintenance of fire alarm and detection systems, which should be carried out by specialists. Please refer to the Standards regarding this matter.

3.- OPERATION OF THE CONTROL PANEL

Note. Pre-trigger and Triggered states:

The control panel allows us to regulate the pre-trigger time of each extinguishing module between 0 and 90 seconds, independently. The delay time is established in the configuration (2.6).

For adjustment to 0 seconds, there will NOT be a pre-release period, triggering therefore the extinction automatically at the same time the fire detection occurs in the two zones corresponding to the same extinction module.

In the event there is a pre-trigger time, during this period an external stop call point or the keypad's STOP key on the control panel could be pressed to **stop the triggering process, but not the delay time count**, so that **a second press on the STOP button will activate the process again and if it had already exceeded the programmed delay time, the release will start instantly.**

At any time, pressing the trigger call point will IMMEDIATELY activate the extinction.

Note. Sounder delay:

The control panel can delay the sounders activation up to 10 minutes, in alarms triggered by detectors (to perform verification processes). However, an alarm triggered by a Manual Call Point (installed with the corresponding zener diode to distinguish it) will trigger the sounders instantly.

The delay acts only on sounder outputs and not on the alarm relay.

The yellow LED "**Delayed Sounders**" will indicate an existing sounders delay. The delay time is established in the configuration (2.6).

3.2.- Access mode and control panel features.

Enable keypad:

While pressing "KEYPAD" button, press the Z1, Z2, Z2, Z1 sequence and the KEYPAD LED will be enabled.

Disable keypad:

Hold down the KEYPAD button until the LED light switches off or wait 3 minutes without pressing any key and it will automatically be disabled. Note that upon disabling the keypad, a sweeping will occur to check the LEDs.

Available operations on the control panel:

With keypad disabled:

While the keyboard is disabled the only possible operation is to **Silence Buzzer** by pressing the corresponding key.

With keypad enabled:

Once keypad is enabled, the following operations are available:

- Silence sounders.
During an alarm, with the sounders activated, pressing the "**Sounders ON/OFF**" the sounders will turn off and the corresponding LED will light up. To reactivate, press the button again and the sounders will activate and the Led will turn off.
- System reset.
Pressing the **Reset** button, all of the alarms will deactivate and the panel will return to "Normal" condition until a new event takes place.
- LED TEST.
Exiting the activated keypad, the panel will carry out an automatic LED test.
- General evacuation.
Pressing the **Sounders ON/OFF** button for 3 seconds will activate sounders.
- Zone out of service.
With keypad activated, pressing the zone to disconnect button once, zone LED and general LED will remain fixed. **Disabled.**
- Zones in test mode.
With keypad enabled, pressing the button of the zone to test twice, zone LED and general LED will remain fixed. **Test.**
When an alarm is triggered in the zone to test, the zone alarm red LED will light up and sounders will be activated for 10 seconds, after which, they will automatically silence, keeping the test mode, allowing, thus, detectors to be checked by a single technician and avoiding to reset the panel after each triggering.

4.- Peripheral Modules And Connections.

4.1.- Fire extinguishing modules.

Each fire extinguishing module has the following connections:

- Monitored release solenoid trigger output: Requires end of line resistor and polarization diode.
- Pressure switch Monitoring: In the event of a NA pressure switch contact, a 4K7 end of line resistor should be put in parallel to the connection terminals of the pressure switch, in a similar assembly to

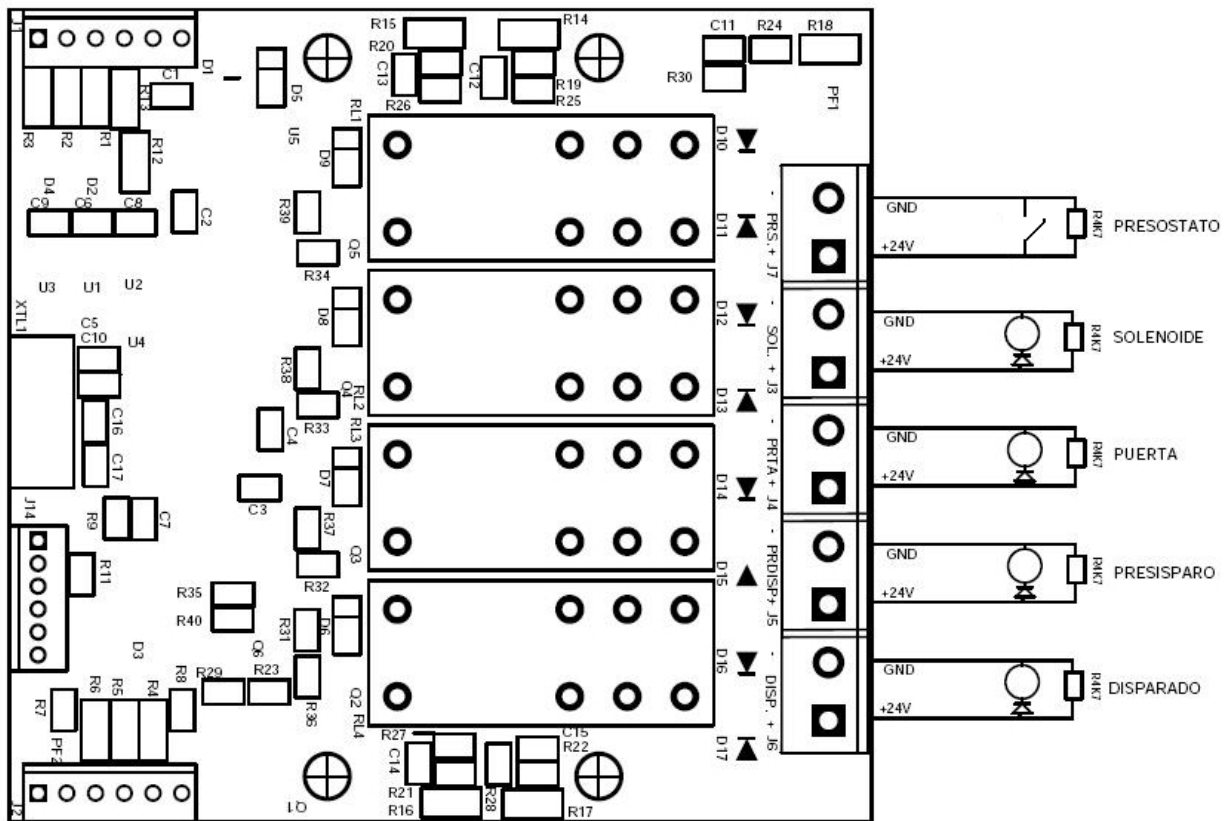
detector lines. For NC pressure switch contact, resistor shall be in series with the switch.

- Door lock control. Requires an end of line resistor. In standby mode this output supplies voltage for door holder or similar. In alarm condition (pre-trigger condition and triggered condition) the output is disabled, allowing the door to close.
- Monitored release pre-trigger signal. Requires end of line resistor and polarization diode. This output remains active from alarm triggering to delay completion.
- Monitored release triggered signal. Requires end of line resistor and polarization diode. This output is activated upon delay completion and while the trigger output.

The output protection is carried out by electronic fuse. The output voltage is 24V and a maximum current of 600mA.

The pre-trigger time can be programmed from CONFIGURATION (2.6).

Extinguishing module chart:

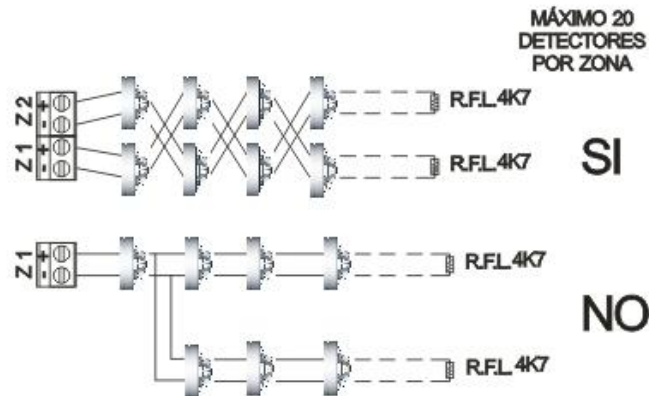


Note:

The maximum consumption for all outputs is 600mA. The activated outputs are:

- In normal mode: Door (Recommended not exceeding 300mA).
- In pre-trigger mode: Pre-trigger signal (Recommended not exceeding 300mA).
- In triggered mode: triggered and solenoid signal (maximum of 600mA between both outputs for 5 minutes).

4.2.- Input connection modules (zone connectors)



- Detectors

The number of installable detectors in each zone is limited by the consumption and other constraints like wiring length and section.

It may be advisable installing it with cross detectors, as shown in Figure.

The zones to connect the detectors to are: 1 and 2 for the first extinguishing sector and 7 and 8 for the second extinguishing sector.

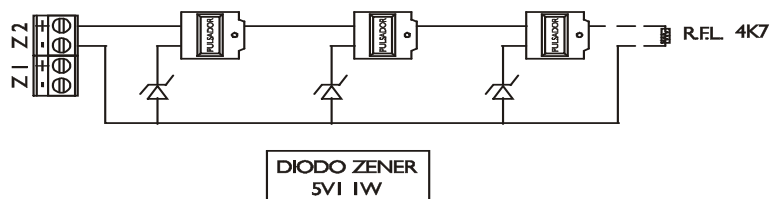
The total consumption of current in outputs must not exceed, under any circumstances, control panel's maximum allowed consumption in standby (See the Electrical Specifications chapter).

- Stop and trigger call points.

The manual call points **should have a 5,1V zener diode** to be able to carry out its specific treatment and the corresponding end of line monitoring resistor.

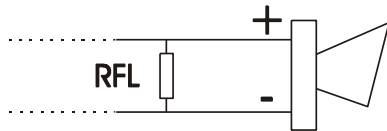
Zones where the call points connect are:

- Stop call points: in zone 3 for the first extinguishing sector and zone 9 for the second extinguishing sector.
- Trigger call points: in zone 4 (and 5) for the first extinguishing sector and zone 10 (and 11) for the second extinguishing sector.

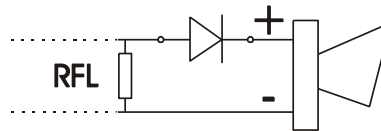


4.3.- Output connection modules (sounders and auxiliary relays / fault / alarm)

- Sounders
If the sounders are not polarized, a polarizing diode should be added. Consumption cannot exceed 250mA per output (independently). The last sounder should have the corresponding end of line monitoring resistor.



Conexión con sirena polarizada



Conexión con sirena no polarizada

- As well as the sounder outputs, the control panel has two potential-free relays that act in alarm and fault condition respectively (see electrical specifications).

It also has a 24V 350mA constant output power for accessories that require constant feeding (electromagnets, communicators, etc.).

4.4.- I/O Expanding connections:

- RS232 connection: All control panels carry a RS232 port originally, where we can connect:
 - Repeaters: Another conventional control panel can be connected as a repeater. (Work in progress. Check availability).
 - GPRS modem: With this module, we can monitor the system status from internet. (Check availability).
- Expansion connection: extinguishing modules are plugged to the expansion connector. 1 or 2, depending on the control panel being 1 or 2 extinguishing sectors.

5.- SPECIFICATIONS

5.1.- Mechanical specifications

- Cover of ABS plastic material.
- IP41 protection level.
- Dimensions: 339x332x90
- Galvanized steel sheet 1 mm base.

5.2.- Electrical specifications

- Power system / Batteries

Main supply of 230V/50Hz for transformer. Must be ground connected.

Switched mode power supply output of 29V.

Two 12-volt/7,2 amps lead batteries are recommended. They must be sealed, connected in series, for a total of 24 volts.

Control panel consumption in standby (with terminating resistors and no module connected): 150 mA

- Connector consumption and voltages:

Zone connectors

It is important not to exceed the consumption limit of 15mA per standby zone, such control panels (conventional) differentiate a fire detection signal by a call point, a short-circuited line or a cut in the wire through voltage control of the connection terminals of each zone, which is obtained from the consumption at that time.

Sounder connectors

Maximum consumption for each sounder output: 250mA with 1 electronic fuse for each sounder.

Alarm relay connectors, Fault

All relays are voltage free of: 5A, 30VDC, 5A 230VAC

Auxiliary output connector:

Output limited to 350mA by means of an electronic fuse.

Expansion connector:

Used to plug in the extinction modules. (1 or 2, depending on model).

Fuses

The control panels have 2 fuses:

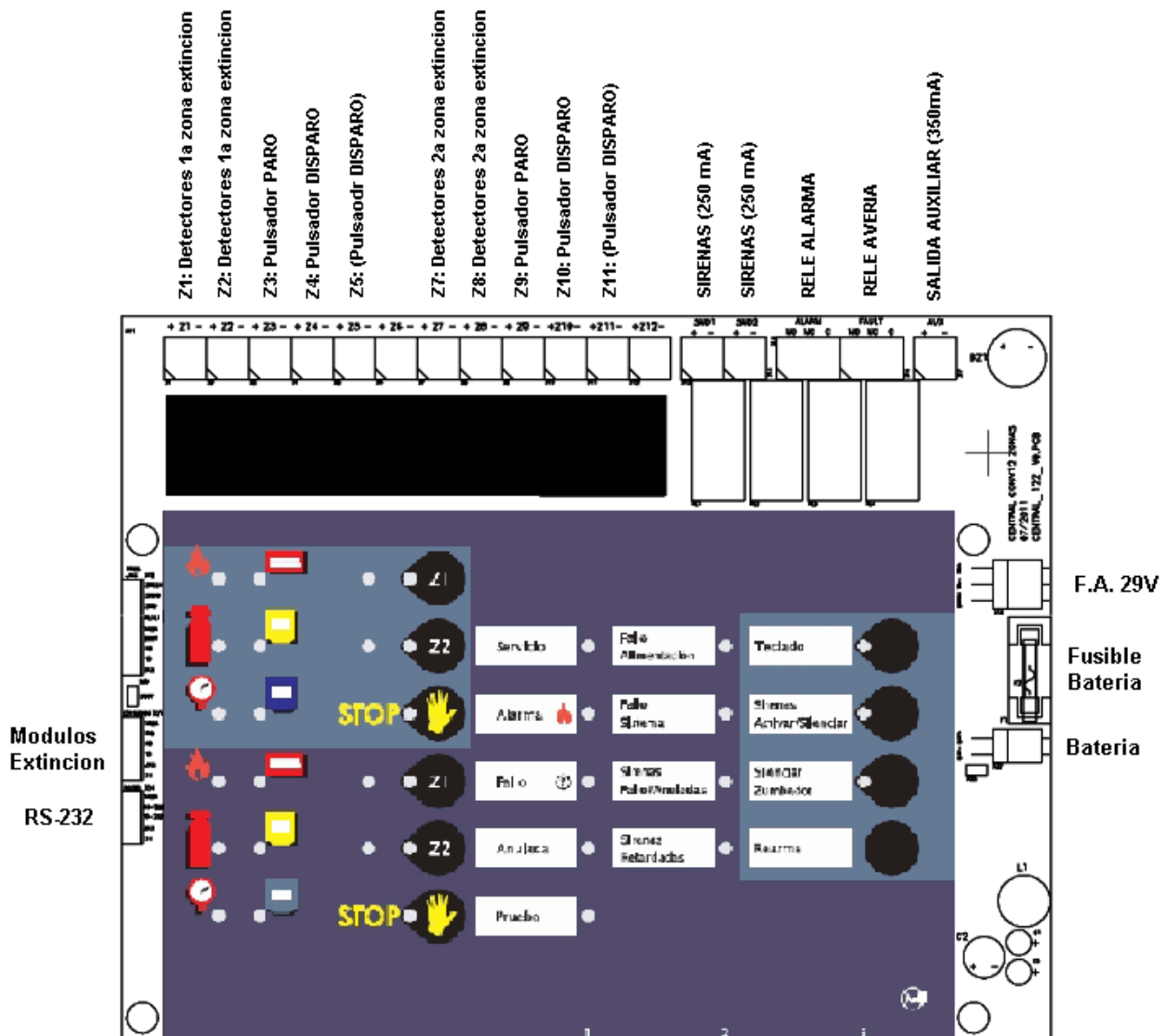
3 A Mains Fuse.

3 A Battery fuse.

5.3.- Accessory bag:

- Manual
- 1 battery jumper.
- 1 fuse set.
- 4K7 End of line resistors.

- Main board connections:



Note:

The battery connection has a near jumper to enable the power supply to control panel from batteries on loss of AC source.

The battery connection is originally disabled, since the control panel has a system to prevent deep-discharge of the batteries, in the event the control panel must be powered up from batteries, without network, starting from a previous non supply state.

To enable this connection, an instant contact of the jumper terminals will be made (Only in the case described).

6.- FAQ

- **The keypad does not respond**
The keypad is automatically turned off after 3 minutes of idle time. To turn it on, press the following sequence:
While pressing the "Keypad" button, enter the following sequence Z1, Z2, Z2, Z1 and the keypad will be enabled.
- **How to disable the sounders to prevent them to sound in case of alarm**
The "Sounders ON/OFF" button allows us to disable the sounders, leaving the LED lit up.
- **How to silence the buzzer in control panel**
The "Silence buzzer" button allows us to disable the buzzer sound. It does not affect the sounders.
- **How to carry out a general evacuation**
With keypad enabled, press the "SILENCE SOUNDERS" for 3 seconds.
- **How to disconnect a zone**
With keypad enabled, pressing the zone button to disconnect once, zone LED and main LED will stay fixed "DISABLED".
- **How to test the installation**
With keypad enabled, pressing the zone button to check twice, zone LED and main LED will stay intermittent "DISABLED".

When an alarm is triggered in the zone to test, the red LED zone alarm will activate, as well as the sounders for 10 seconds, automatically returning to test status, repeatedly, allowing, thus, detectors to be checked by a single technician and avoiding to reset the panel.
- **A faulty zone not showing voltage in the output terminals:**
When the control panel detects a crossover fault, faulty zone gets power supply turned off to limit the system consumption. It is necessary to fix the fault and reset the system.



sistemas de seguridad

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