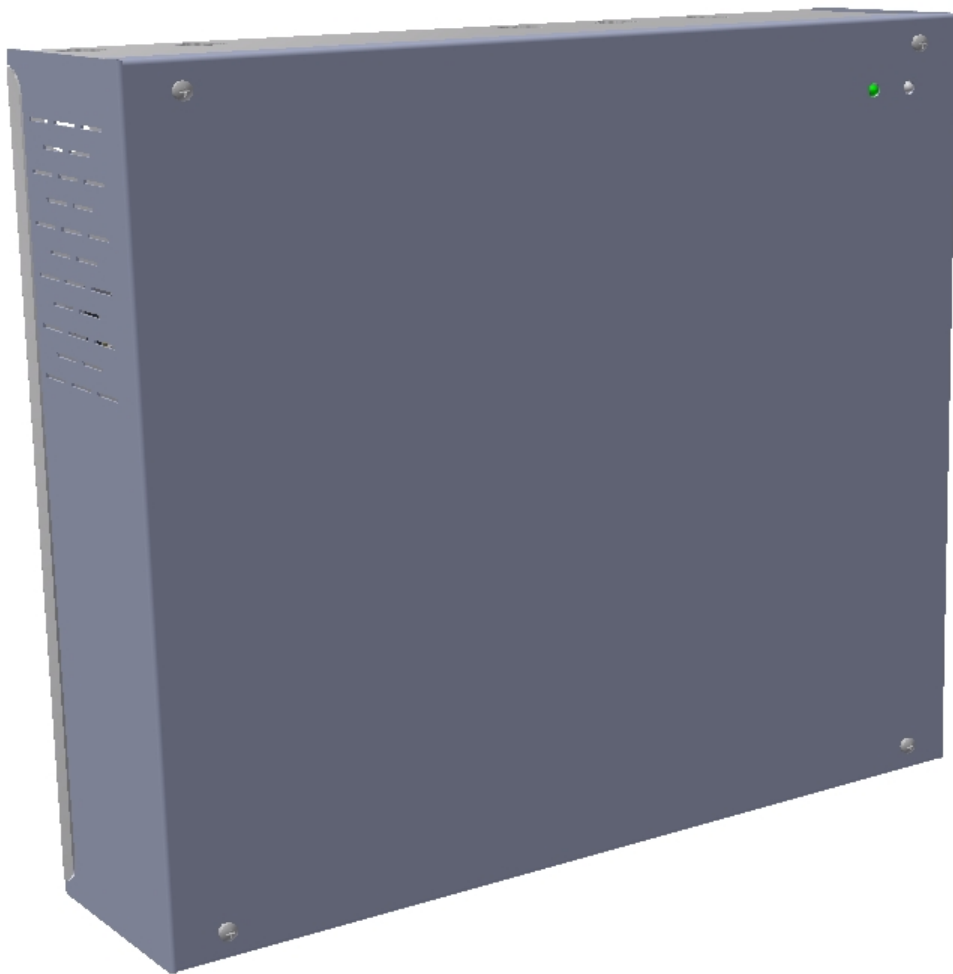




*sistemas de seguridad*

## **POWER SUPPLY UNIT**

# **M24-2F-CE**



## **INSTALLATION AND USER MANUAL**

P3360EN – INSTRUC. M24-2F-CE – ING DIC17



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## 1.- INTRODUCTION

### 1.1.- Product description

This manual contains all the necessary info for the installation and commissioning of the M24-2F-CE power supplies. This product should be used as an auxiliary component to power the elements and devices that are part of a fire alarm and detection systems.

### 1.2.- Regulations

M24-2F-CE Power Supply Units are certified in conformity with the EN54-4. There might be regulations and / or specific norms that could be applicable to the design and installation of this fittings, and they also should be taken into consideration, even if they differ in some points with what is explained in this manual. The manufacturer will not be responsible for any damaged caused by the inappropriate use of this fitting or by not following the instructions in this manual. Installation and maintenance of fire alarm and detection systems must be only carried out by specialized personnel.

 0370
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<b>EN 54-4:1997/AC:1999, EN 54-4:2001/A1:2002, EN 54-4:1997/A2:2006</b>  POWER SUPPLY UNIT MODEL: M24-2F-CE

## 2- INSTALLATION

### 2.1. Prior requirements and precautions

It must be installed in a place with a clean environment, with a temperature between -5° and 40° C and with a relative humidity under 95%. Do not place the equipment in places with a high concentration of dirt or humidity, or where it can be exposed to mechanical damages due to vibrations or impacts. Also, avoid installing the device in a place exposed to electromagnetic interferences that may damage or cause a malfunction.

It should be installed in a place with proper lighting so the indications can be seen easily.

## 2.2. Elements of the PSU

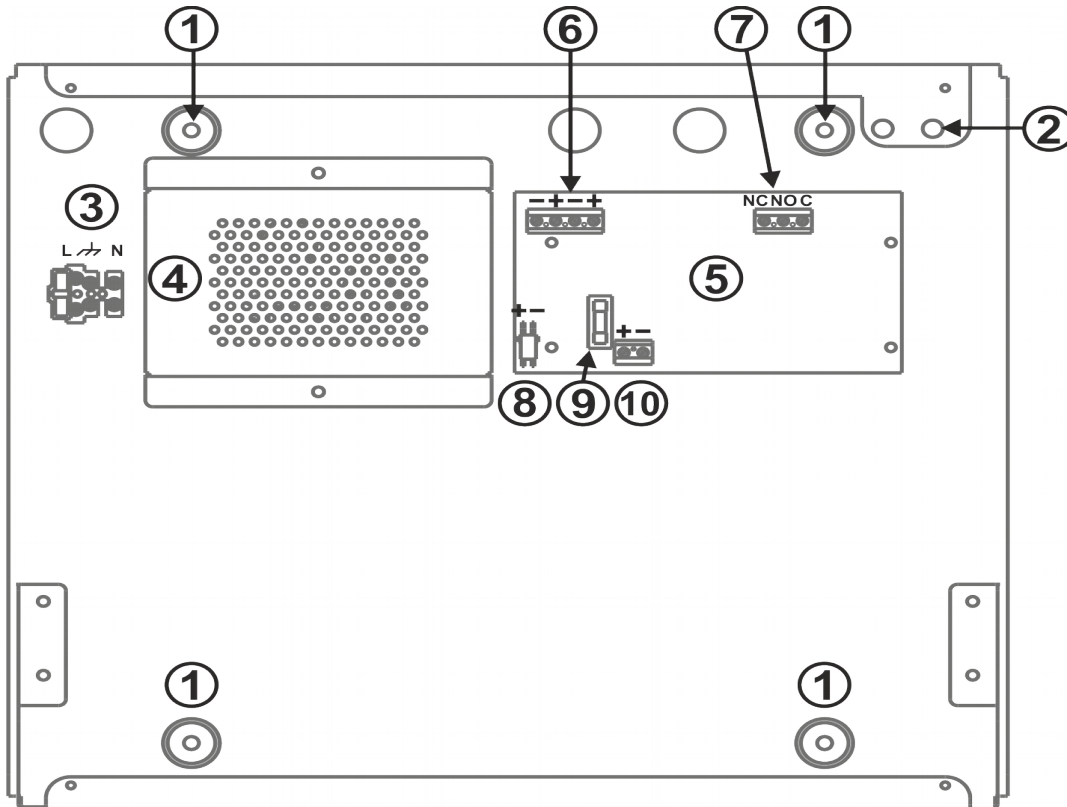


Figure 1

1. - FIXING DRILLS: Separated by 285 mm from top to bottom and by 255mm from left to right.
2. - LED INDICATORS
3. - MAIN POWER SUPPLY CONNECTOR
4. - AC / DC SWITCHING POWER SUPPLY CIRCUIT
5. - CONTROL CIRCUIT
6. - 24V DC OUTPUT CONNECTOR
7. - FAULT RELAY CONNECTOR
8. - CONTROL CIRCUIT MAIN SUPPLY INPUT
9. - BATTERY FUSE
10. - BATTERY CONNECTOR

## 2.3. Mounting the cabinet

Once the location where the PSU will be installed has been chosen, mark the fixing holes using the cabinet as a template. Drill and fix the base to the wall using plastic plugs and screws. The cable entry should be carried out using the precut entries in the upper part of the housing, avoiding to mix the main supply entry cables with the rest of the wiring. To guarantee the IP 30 rating use compression glands.

## 2.4. Wiring

Main power supply is connected in to the terminal block marked as “3” in the figure 1, so the phase will go through the fuse located there, according its own indication.

Two 12V lead acid batteries should be connected in series to the battery connector (marked as “10” in the figure 1). For its proper connection, the PSU includes two cables to make a bridge between the two batteries, one with faston terminals and the other one with M5 terminals, and with two cables to connect to the control circuit, also one with faston terminals and one with M5 terminals.



**To carry out any manipulation of the connection in the batteries, it is important not to have the bridge between them connected, and connect it only after ensuring that the other ends are properly connected to the control circuit.**

The load is connected to the output connections (marked as “6” in the figure 1), respecting the polarity indicated in the connections. Do not connect or disconnect the wiring to the load terminals with mains or battery power on.

The PSU has an output relay (marked as “7” in the figure 1) for the indication of fault to other devices.

The cross section needed for the wiring will depend on the length and the current required. As a general rule, a minimum of 1.5mm<sup>2</sup> cross section is required.

### **3. OPERATION**

#### 3.1. Starting up

For the PSU to start up the main supply must be present. **If the start up needs to be done by means of the batteries, the pins from connector JP1 must be short circuited.** This connector is located next to the battery connection in the control circuit.

During the start up process the LED indicators will simultaneously blink. The process is finished when the green LED remains on permanently.

#### 3.2. Indicators

There are two LEDs in the device, one is green and the other one is yellow. They are located in the upper right corner of the frontal panel, and they indicate the PSU condition. The green LED will be on permanently as long as the PSU is working correctly. The yellow LED will indicate the type of fault in case there is one.

The different operating modes are indicated as follows:

- **Normal or quiescent condition**

*Green LED is on and yellow LED is off.*

- **Main supply fault**

*Both LEDs on.* It might be caused by the absence of the mains, or because the voltage reaching the circuit is incorrect (it should be approximately 28.5V DC), or because the output is overloaded (the current is greater than 2 Amp.) and the PSU is working from the batteries.

- **Battery fault**

*Green LED on and yellow LED blinking.* Batteries might not be properly connected or damaged, battery fuse might be burnt, battery charge is lower than expected or the battery charger is damaged.

- **Output voltage disconnected**

*Green LED on and yellow LED blinking fast.* The output is protected by a resettable fuse, so when the voltage in the output is higher than what is advisable, the fuse acts. To reset the fuse is necessary to completely disconnect the charge.

- **Battery charger disabled**

*Green LED on and yellow LED blinking every 5 seconds.* This means that the output voltage is higher than 1.2 Amp. and the PSU disconnects the charger to be able to provide the required output voltage.



### 3.3. Fault relay

In case of any fault, including the total loss of power supply, the relay switches so there is electrical continuity between C and NO.

In quiescent condition, there is electrical continuity between the C and NC connection terminals.

## **4. MAINTENANCE**

The PSU should be checked periodically. It must be checked that disconnecting it from mains, it starts working from the batteries, that the fault relay switches and that the visual indication of fault is correct. It also must be checked that, having it connected to mains and disconnecting the batteries, the visual sign for that fault is correct as well.

Clean the PSU periodically, avoiding dust accumulation.

## **5. TECHNICAL SPECIFICATIONS**

Dimensions	400 x 350 x 100 mm
IP protection degree	IP30
Main supply voltage range	195 – 255 VAC; 50/60 Hz
Number of outputs	2
Output voltage range	20 – 28 VDC
<b>Maximum output current* (between both outputs)</b>	<b>2 A with the battery charger disabled. 1,2 A charging the batteries.</b>
Room for batteries	380 x 175 x 90 mm (room for two 12VDC / 20Ah batteries)
Battery load current	0,8 A
Maximum consumption of control circuit	24 mA
Maximum resistance of batteries	1,5 ohms
Fault relay	C, NC, NO contacts. 1 Amp/30 VDC maximum
Main supply fuse	4 A
Battery fuse	4 A

*\* Operating from batteries the PSU can supply up to 2,5 A for a short time.*



## 6. BATTERY CAPACITY SELECTION

Table 1 shows the battery capacity in Ah needed to supply the specified current during the number of hours shown in the first row.

CURRENT	CASE A (72h)	CASE B (30h)	CASE C (4h)
0 mA	7	7	7
50 mA	7	7	7
100 mA	18	7	7
150 mA	18	7	7
200 mA	18	9	7
250 mA		18	7
300 mA		18	7
350 mA		18	7
400 mA		18	7
450 mA		18	7
500 mA		18	7
600 mA			7
700 mA			7
800 mA			7
900 mA			7
1 A			7
1,1 A			7
1,2 A			7

Table 1

Table 2 shows the battery capacity in Ah needed to supply the specified current during the number of hours shown in the first row and an alarm current of 2A for half an hour.

CURRENT	CASE A (72h)	CASE B (30h)	CASE C (4h)
0 mA	7	7	7
50 mA	7	7	7
100 mA	18	7	7
150 mA	18	7	7
200 mA	20	9	7
250 mA		18	7
300 mA		18	7
350 mA		18	7
400 mA		18	7
450 mA		18	7
500 mA		20	7
600 mA			7
700 mA			7
800 mA			7
900 mA			7
1 A			7
1,1 A			7
1,2 A			9

Table 2



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