



RX 4000

Evacuation System EN 60849

Service Manual

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1 Safety Instructions

Before connecting and using this product, please read this instruction manual carefully and keep it on hand for future reference. The manual is to be considered an integral part of this product and must accompany it when it changes ownership as a reference for correct installation and use as well as for the safety precautions.

RCF S.p.A. will not assume any responsibility for the incorrect installation and / or use of this product.

WARNING: To prevent the risk of fire or electric shock, never expose this product to rain or humidity. This device is intended for indoor use only.

1. All the precautions, in particular the safety ones, must be read with special attention, as they provide important information.
2. **POWER SUPPLY BY MEANS OF AN EXTERNAL ADAPTER**
 - a) Use a suitable adapter only. Verify the mains voltage corresponds to the voltage shown on the adapter rating plate and the adapter output voltage value and type (direct / alternating) corresponds to the product input voltage, if not, please contact your RCF dealer; verify also that the adapter has not been damaged due to possible clashes / hits or overloads.
 - b) The mains voltage, which the adapter is connected to, is sufficiently high to involve a risk of electrocution: pay attention during the connection (i.e. never do it with wet hands) and never open the adapter.
 - c) Make sure that the adapter cable is not (or cannot be) stepped on or crushed by other objects (pay particular attention to the cable part near the plug and the point where it leads out from the adapter).
3. Make sure that no objects or liquids can get into this product, as this may cause a short circuit. This apparatus shall not be exposed to dripping or splashing. No objects filled with liquid, such as vases, shall be placed on this apparatus. No naked sources (such as lighted candles) should be placed on this apparatus
4. Never attempt to carry out any operations, modifications or repairs that are not expressly described in this manual. Contact your authorized service centre or qualified personnel should any of the following occur:
 - the product does not function (or functions in an anomalous way);
 - the power supply cable has been damaged;
 - objects or liquids have got into the unit;
 - the product has been subject to a heavy impact.
5. If this product is not used for a long period, switch it off and disconnect the power cable.
6. If this product begins emitting any strange odours or smoke, switch it off immediately and disconnect the power supply cable.
7. Do not connect this product to any equipment or accessories not foreseen. For suspended installation, only use the dedicated anchoring points and do not try to hang this product by using elements that are unsuitable or not specific for this purpose. Also check the suitability of the support surface to which the product is anchored (wall, ceiling, structure, etc.), and the components used for attachment (screw anchors, screws, brackets not supplied by RCF etc.), which must guarantee the security of the system / installation over time, also considering, for example, the mechanical vibrations normally generated by transducers. To prevent the risk of falling equipment, do not stack multiple units of this product unless this possibility is specified in the instruction manual

8. **RCF S.p.A. strongly recommends this product is only installed by professional qualified installers (or specialised firms) who can ensure correct installation and certify it according to the regulations in force. The entire audio system must comply with the current standards and regulations regarding electrical systems.**
9. **Supports and trolleys:** The equipment should be only used on trolleys or supports, where necessary, that are recommended by the manufacturer. The equipment / support / trolley assembly must be moved with extreme caution. Sudden stops, excessive pushing force and uneven floors may cause the assembly to overturn.
10. There are numerous mechanical and electrical factors to be considered when installing a professional audio system (in addition to those which are strictly acoustic, such as sound pressure, angles of coverage, frequency response, etc.).
11. **Hearing Loss:** Exposure to high sound levels can cause permanent hearing loss. The acoustic pressure level that leads to hearing loss is different from person to person and depends on the duration of exposure. To prevent potentially dangerous exposure to high levels of acoustic pressure, anyone who is exposed to these levels should use adequate protection devices. When a transducer capable of producing high sound levels is being used, it is therefore necessary to wear ear plugs or protective earphones. See the technical specifications in manuals to know the maximum sound pressure levels loudspeakers are capable of producing.
12. Several blow-outs of the fuse (during a short period) are probably a sign of a serious defect. In this case, the defect needs to be located and repaired immediately. The blown fuse is to be replaced by a new one having the same specifications.

1.1 Attention

IMPORTANT NOTES

To prevent the occurrence of noise on the cables that carry microphone signals or line signals (for example, 0 dB), only use screened cables and avoid running them in the vicinity of:

- equipment that produces high-intensity electromagnetic fields (for example, high power transformers);
- mains cables;
- lines that supply loudspeakers.

OPERATING PRECAUTIONS

- Situate this product far from any heat source.
- Do not overload this product for extended periods of time.
- Never force the control elements (keys, knobs, etc.).
- Do not use solvents, alcohol, benzene or other volatile substances for cleaning the external parts of this product.

1.2 CE Standard

This product with the CE marking complies with the following standards and directives of the Commission of the European Community:

73/23/EEC	Low voltage directive
IEC 950/EN 60950	Electrical safety
89/336/EEC	EMC directive
EN 55103-1	Electromagnetic interference - emission
EN 55103-2	Electromagnetic susceptibility - immunity

This product is intended for use in the following electromagnetic environments:

- E1 (residential)
- E2 (commercial and light industrial)
- E3 (urban outdoors)
- E4 (controlled EMC environment, e.g. broadcast studio)

All RCF SPA products have been developed, produced and tested accurately and according to the above named directives.

IMPORTANT NOTE

Improper handling of HF equipment like radio transceivers and mobiles can cause radio interferences on RCF Spa devices. For working reliability reasons it is strongly recommended not to use radio transceivers and mobiles near the devices!

2 Description RX 4000 System

2.1 Introduction

RCF S.p.A. thanks you for purchasing this product, which has been made to guarantee reliability and high performance

Programmable 2 to 16 zone Voice Alarm / Paging / Background Music System expandable up to 64 zones by interconnecting up to 4 mainframes CP4100.

The system RX 4000 is a feature-packed, fully integrated Voice Alarm (EN 60849), Public Address (PA) and Background Music (BGM) system suitable for use in applications of up to 16 loudspeaker zones (expandable up to 64 zones).

Combining a voice alarm system with a high specification public address system, RX 4000 can be connected to virtually any manufacturer's fire detection system via monitored links from its sounder circuits.

Its heart is a 2U 19" rack mounted mainframe (CP 4100) containing all the logic, routing and prioritising components for the system in a 17- slot frame.

Slot no.1 contains the central processor card, leaving 8 audio input and 8 audio output slots.

Cards fitted into the 8 audio input slots can provide a variety of functions including zoned fire microphones, fireman's microphones, messages, contact inputs, zoned PA inputs and zoned music inputs.

The audio output slots can accommodate either logical input boards LI 4116 or audio output boards OB 4102 (2 zones / each), allowing up to 16 audio zones.

Up to 4 systems can be interconnected to handle up to 64 loudspeaker zones, ideal for high rise buildings, office blocks, sports stadiums, etc.

One of RX 4000's main advantages is its revolutionary simulator software that allows the routing and priorities of multiple audio sources to be set up and tested on a PC before assembling the hardware. This is especially useful as it allows the evacuation cause and effect scenarios to be checked and approved before any equipment is purchased.

Different audio inputs, such as fireman's microphone, alert and evacuate messages can be triggered simultaneously. However, the Integrity software allows only the highest priority to be played in a zone. The flexibility of this approach allows normally complex voice alarm systems to be easily realised, providing both the customer and designer with unrivalled confidence and control over site evacuation management.

2.2 RX 4000 system components

The RX 4000 system is composed from the follow components:

Code	Model	Description
171 70 065	CP 4100	Master unit

2.3 Glossary e Abbreviation

In this guide the following abbreviations are used:

Abbreviation	Description
1LS	IB 4001/FM Input board for BM 4631WM, BM 4601 paging consoles
A/D	Analogue / Digital
BGM	IB 4121BGM Input board for a music source with 4 inputs for external triggers.
CH	Channel
CI16	LI4116 Board with 16 inputs for external triggers
CPU	CPU board with RS 232C port for PC and 24 V dc power inputs
D/A	Digital / Analogue
GPI	IT4133 Input board for BM 4764, BM 4748, BM 4732, BM 4716 digital paging consoles and necessary to link up to 4 CP 4100 units one another.
I/O	Inputs / Outputs
MIC	Microphone
MF16	CP4100 mainboard with 16 slots for boards
MPC	BM 4716 – BM 4732 - BM 4764 Digital paging consoles
OP2	OB4102 2 audio output boards with diagnosis
PCB	Printed Circuit Board
PSE	RX 4000 power supply unit, made of either 2 PS 3400 (1+1 redundant) or a special power supply unit
RU	Rack unit = 44 mm
SVM	VB4134 Board having a flash memory on which it is possible to store (though a dedicated software) up to 4 messages (max. total time: 30 s) with 16 kHz sampling frequency and 16-bit resolution

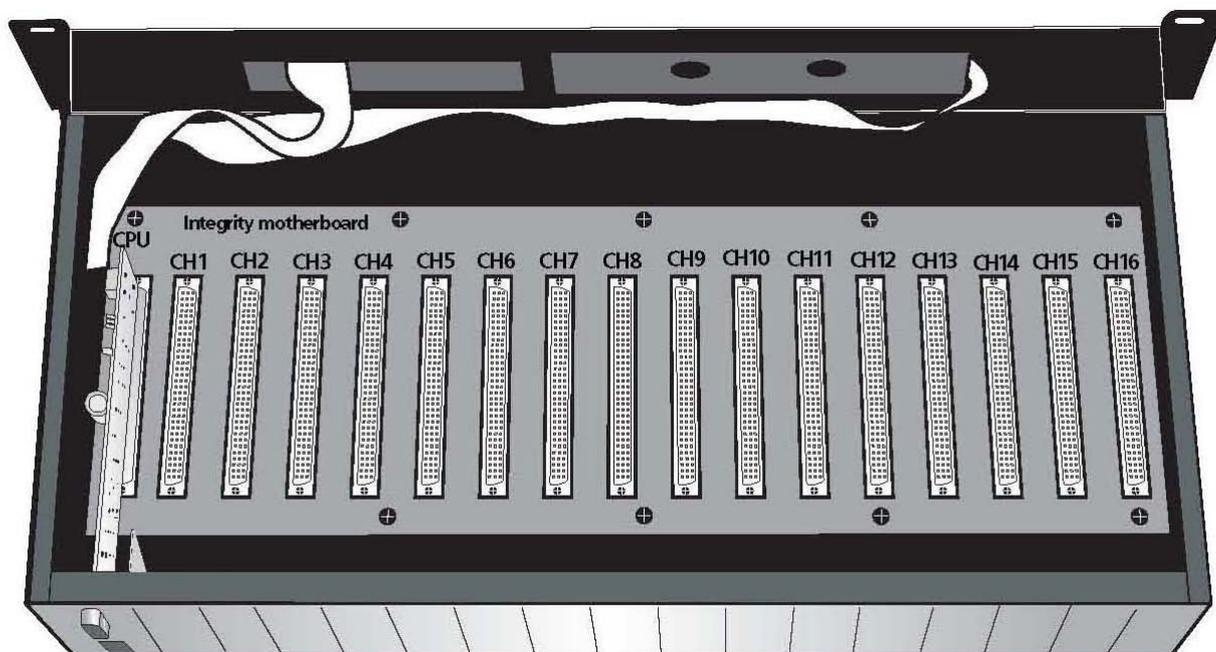
3 RX 4000 components

3.1 CP 4100 - Central Unit

The RX 4000 mainframe consists of the CPU card which controls the system, up to 8 audio input cards and up to 8 audio output cards. The choice of input and output cards depends on the application and the needs of the client. Up to 4 CP 4100 may be linked via IT 4133 cards. The configuration software is included.

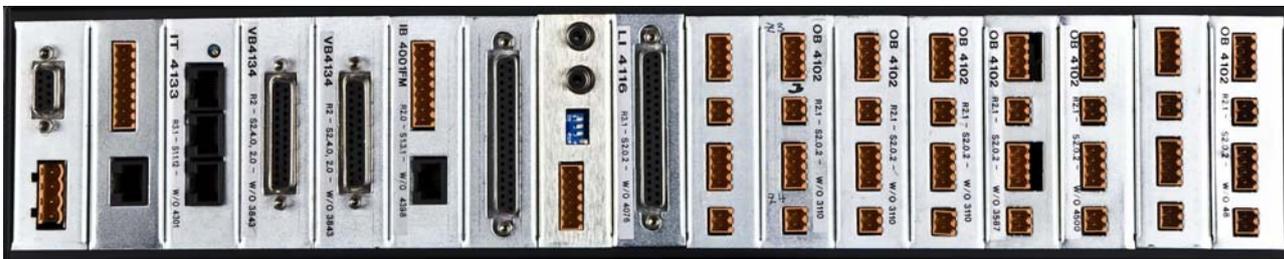


Input boards (IB4001FM, IT4133, IB4121BGM, VB4134) can be inserted into slots 1÷8 only.
 OB 4102 output boards can be inserted into slots 9 ÷ 16 only.
 LI 4116 trigger input boards can be installed into any slot.

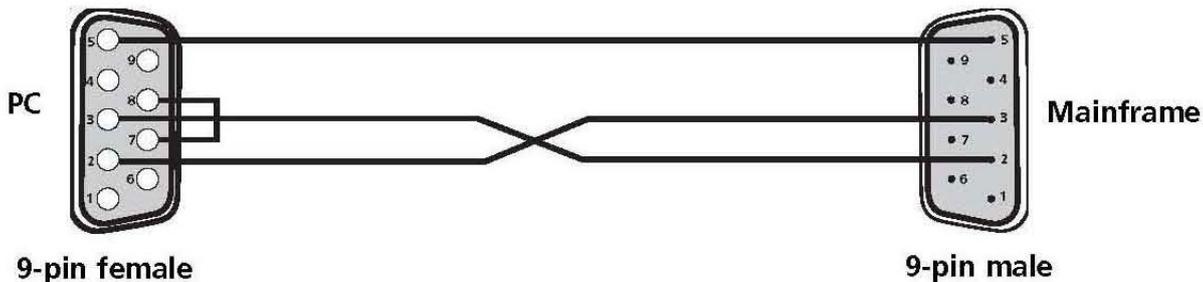


3.1.1 CP 4100 Rear panel

The CPU board (the first from the left) has 2 ports: one to link a PC, one to connect the 24 V dc power supply unit.



The CPU serial port to link a PC is RS232, 19200 Baud, 8 bits, 1 stop, no parity. When running 'Hyper Terminal' on Windows®, it is possible to visualise (in real-time) all system faults / alarms.

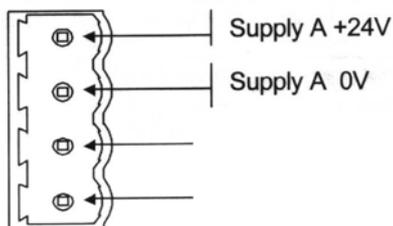


PC side = 9 pin female connector

CP4100 side= 9 male connector

Card to connect a PC to CP 4100 and power supply input (24 V dc).

Power supply connections:



CPU board specifications:

Dimensions: 155x80x25 mm.

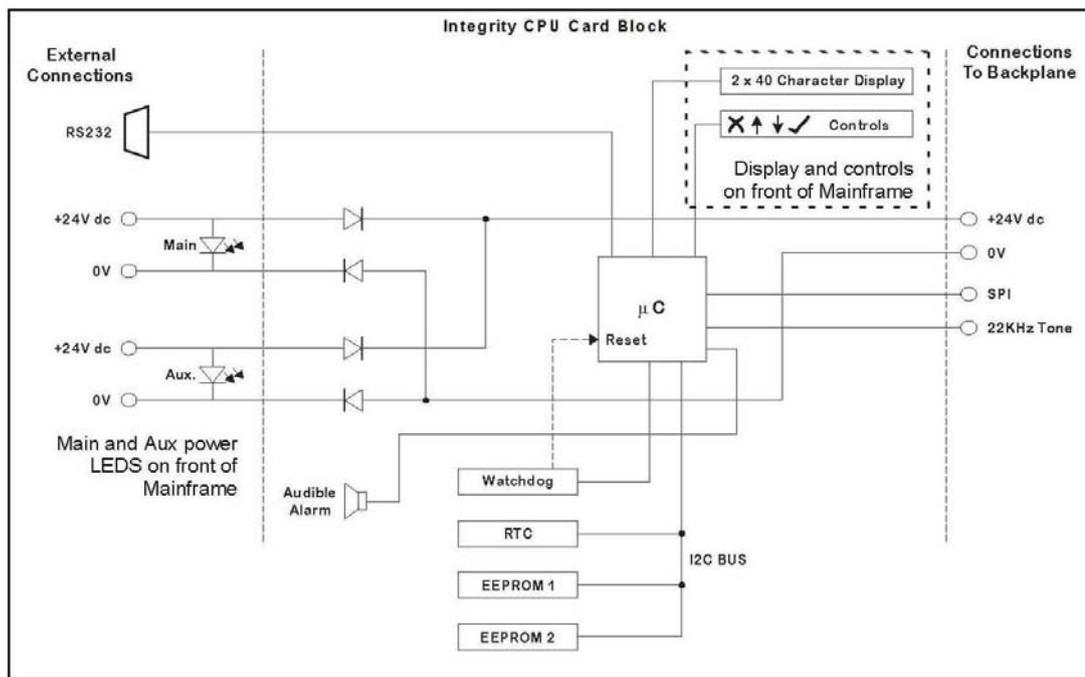
Weight: 0.16 kg

Power supply: 20÷32 V dc

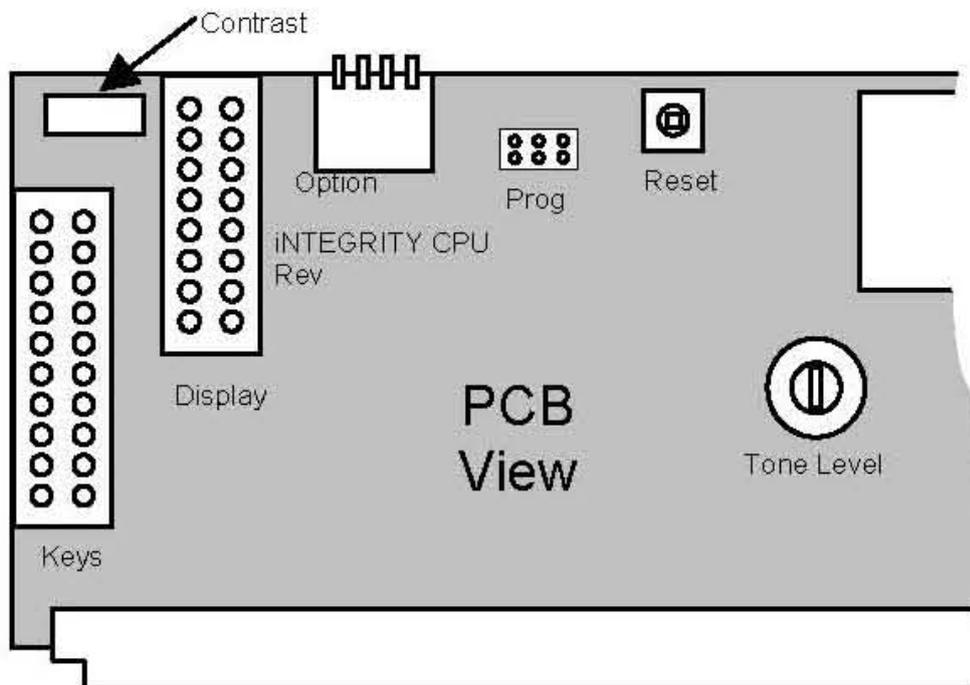
Consumption (current): 50 mA

Max. consumption (current): 465mA (with all boards inserted and a digital paging console).

Block diagram:



Contrast = Display contrast trimmer
 Tone level = 22 kHz control signal level trimmer (when used)
 Reset= CPU reset push-button

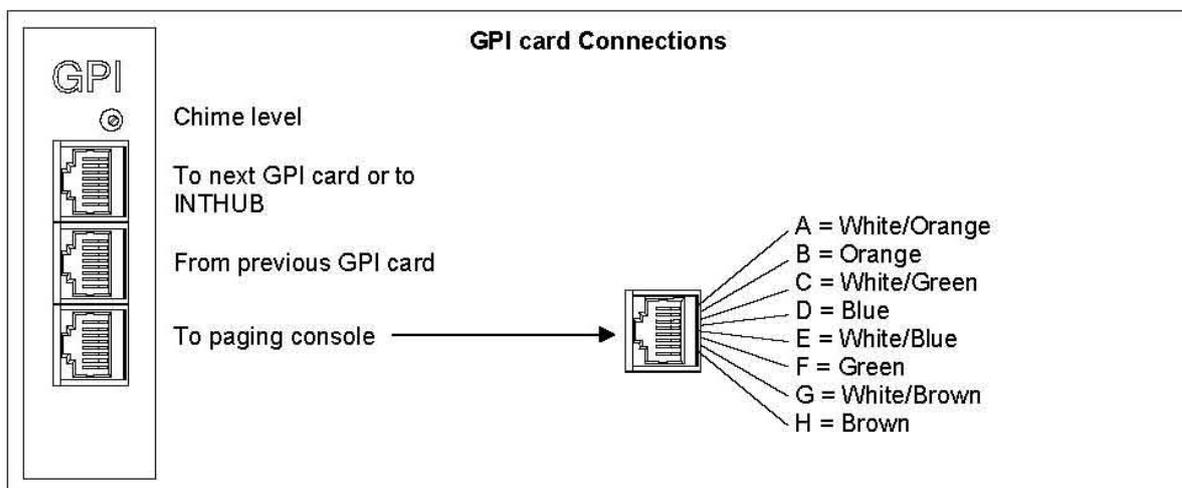


3.1.2 IT 4133 Input Board for system paging consoles



The card IT 4133 is used:

- To connect a paging console BM 4732 / BM 4716
- To connect up to 4 paging consoles by using the hub HB 4103/16
- To link together up to 4 units CP4100.



IT 4133 specifications:

Dimensions: 155x80x25 mm.

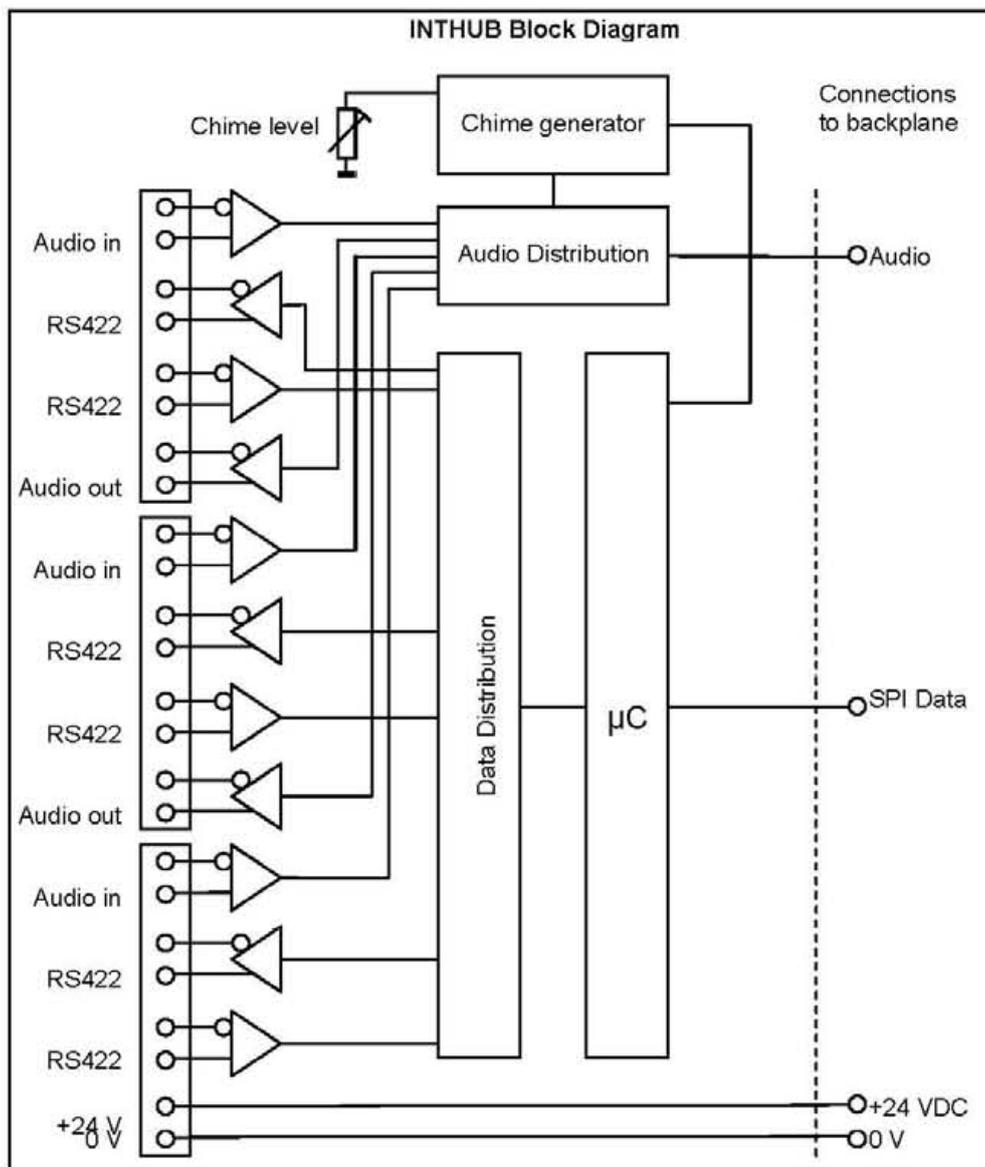
Weight: 0.1 kg

Power supply: 20 ÷ 32 V dc

Consumption (current): 16 mA (without digital paging consoles)

Consumption 8current): 166 mA (with 1 digital paging console)

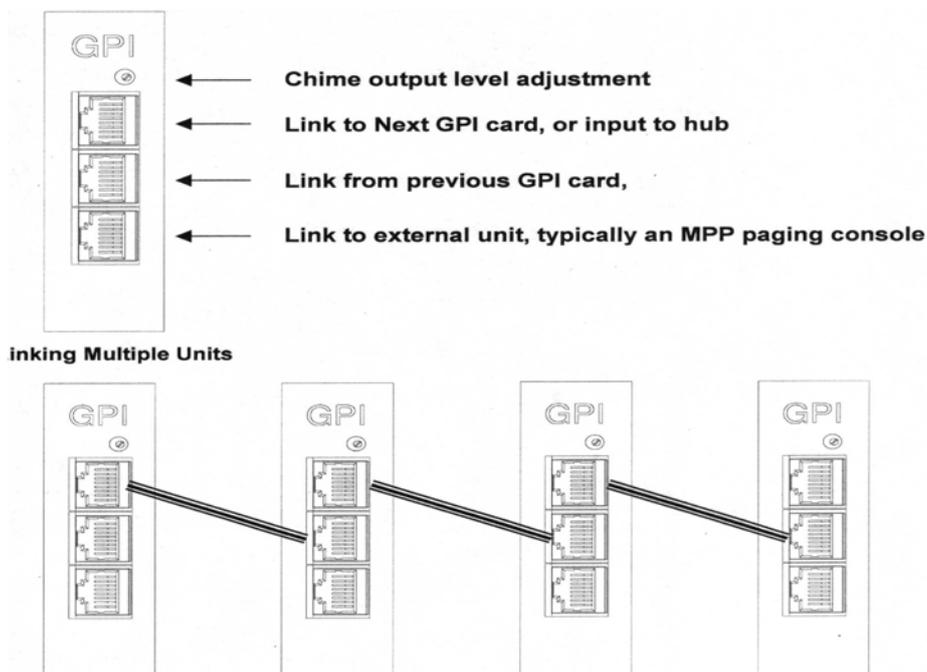
Block diagram:



When the system is made of two, three or four CP4100, each CP 4100 shall have the same number (at least 1) of 4133 boards.

CP 4100 link cable: 8 wires, category: 5, RJ45 connectors connected 'pin to pin' (as shown above). Note: it is important to connect together the GND terminals of all units CP 4100 to avoid bad RS 422 data transmission.

The category 5 cable to link units CP 4100 cannot be longer than 500 m . The paging console no.1 (BM 4732 / BM 4716) shall be always connected to the lower RJ45 input of the last CP 4100 card IT 4133. It is also important to use the cable CAT5 twisted pairs to avoid audio interferences, as indicated here below:



In order to avoid external interferences on the data line, it is really advisable to use the CAT5 cable twisted pairs as indicated in the following text:

Connection between IT 4133 and the hub HB 4103/16 (wire colours)

- Pin 1 = Audio 1 + = orange-white (coupled with the orange)
- Pin 2 = Audio 1 - = orange
- Pin 3 = RX Data + (RS422 data) = grey-white (coupled with the grey)
- Pin 4 = TX Data + (RS422 data) = blue
- Pin 5 = TX Data - (RS422 data) = blue-white (coupled with the blue)
- Pin 6 = RX Data - (RS422 data) = grey
- Pin 7 = Audio 2 + = brown
- Pin 8 = Audio 2 - = brown-white (coupled with brown)

Link between IT4133 (wire colours)

- Pin 1 = Audio 1+ (output) = orange-white (coupled with the orange)
- Pin 2 = Audio 1- (output) = orange
- Pin 3 = RX Data + (RS422 data) = grey-white (coupled with the grey)
- Pin 4 = TX Data + (RS422 data) = blue
- Pin 5 = TX Data - (RS422 data) = blue-white (coupled with the blue)
- Pin 6 = RX Data - (RS422 data) = grey
- Pin 7 = Audio 2+ (input) = brown
- Pin 8 = Audio 2- (input) = brown-white (coupled with brown)

Console BM 4732 / BM 4716 (wire colours)

- Pin 1 = +24 V dc = orange-white (coupled with the orange)
- Pin 2 = gnd = orange
- Pin 3 = RX Data + (RS422 data) = grey-white (coupled with the grey)
- Pin 4 = TX Data + (RS422 data) = blue
- Pin 5 = TX Data - (RS422 data) = blue-white (coupled with the blue)
- Pin 6 = RX Data - (RS422 data) = grey
- Pin 7 = Audio + = brown
- Pin 8 = Audio - = brown-white (coupled with brown)

3.1.3 IB 4001FM All Call fire microphone input board



Emergency / fire microphone input for all calls and activation of 2 messages (or 3 zone paging). PTT, SW1, SW2 push-buttons can be monitored through 6.8k resistors between commands and the ground terminal.

The diagnosis can be enabled/disabled when configuring the system (PC software); if enabled, a 6.8 k resistor is to be added on each unused command.

If a BM 4601 is connected to the IB4001FM RJ45 port, always insert a 6.8 resistor both between the switch 1 and the ground (0 V) and between the switch 2 and the ground.

The audio input is present (linked in parallel) on both the RJ45 port and the screw terminals: do not connect two (or more) BM 4601 paging microphone to a IB 4001FM board.

If 2 or more paging consoles are to be connected to a single IB 4001 FM board, all paging console shall be pre-amplified, connected in 'daisy-chain' and interlocked one another.

IB 4001FM specifications:

Dimensions: 155x80x25 mm.

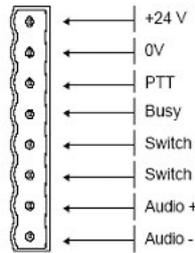
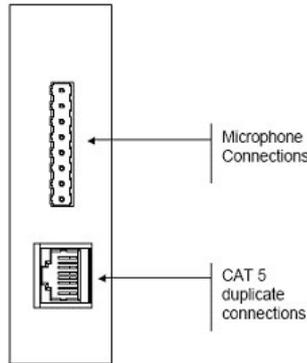
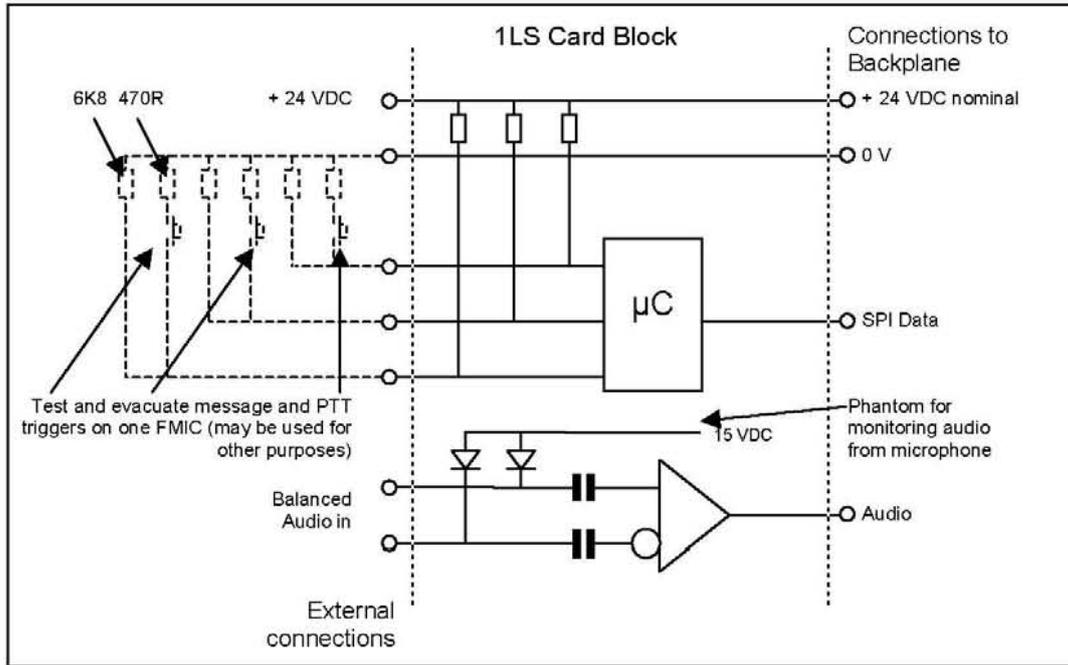
Weight: 0.1 kg

Power input: 20 ÷ 32 V dc

Power output: 20 ÷ 32 V dc (fuse: 500 mA)

Consumption (current): 16 mA

Block diagram:



Name	Function	CAT5 Pin
+24 V	Power supply feed to microphones in the field (fused @100mA)	1 (WT/OR)
0V	Supply return feed	2 (OR/WT)
PTT	Push to Talk pin, monitored line 6K8 EOL for line healthy 470R for talk. Open and Short circuit are shown as faults	3 (WT/GR)
BUSY	shorts to 0V if any zones in PTT Cause & Effects above are in use by a higher priority	4 (BL/WT)
Switch 1	User switch 1 pin, monitored line 6K8 EOL for line healthy 470R for talk. Open and Short circuit are shown as faults	5 (WT/BL)
Switch 2	User switch 2 pin, monitored line 6K8 EOL for line healthy 470R for talk. Open and Short circuit are shown as faults	6 (GR/WT)
Audio +	0dBu audio input from microphone in field (15V phantom present)	7 (BR/WT)
Audio -	negative phase of audio + (15V phantom present)	8 (WT/BR)

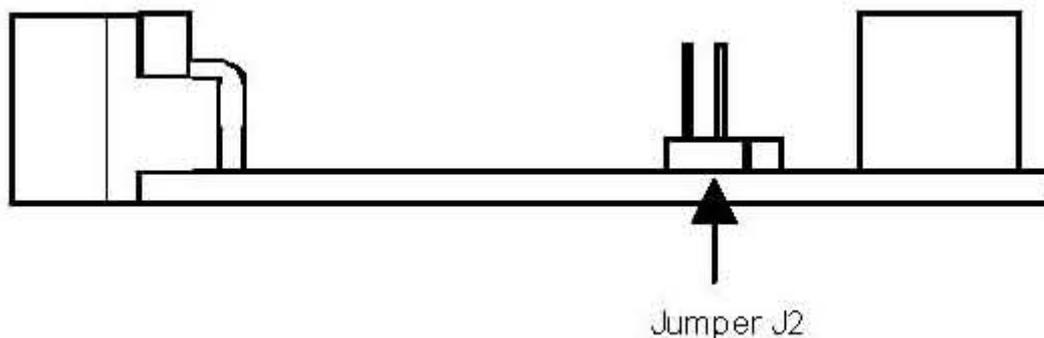
3.1.4 VB 4134 message board



25 pin SUBD socket to be connected to a PC parallel port to upload the audio messages into the VB 4134 'flash' memory (by using the dedicated software)

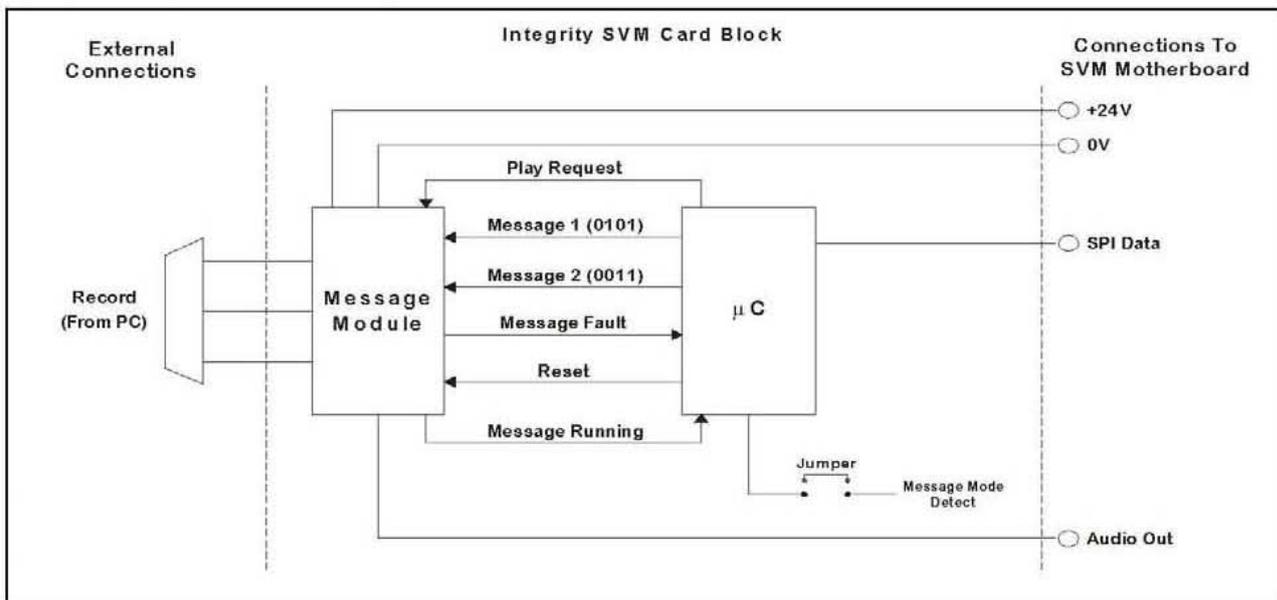
Note: the PC parallel port is to be configured as 'SPP' (Standard Parallel Port, with unidirectional data transmission from PC to the card).

NOTE: If the message module is not fixed and the J2 jumper is inserted, a message lost will not be indicated as a fault



VB 4134 specifications:
 Dimensions: 155x80x25 mm.
 Weight: 0.15 kg
 Power input: 20 ÷ 32 V dc
 Consumption (current): 16 mA

Block diagram:



16KHZ 16 BIT good audio quality

SLOT >	1	2	3	4
	Message 1, 32 s			
	Message 1, 16 s		Message 2, 16 s	
	Message 1, 8 s	Message 3, 8 s	Message 2, 8 s	Message 4, 8 s
	Message 1, 16 s		Message 2, 8 s	Message 4, 8 s
	Message 1, 8 s	Message 3, 8 s	Message 2, 16 s	
	Message 1, 24 s			Message 4, 8 s
	Message 1, 8 s	Message 3, 24 s		

11KHZ 16 BIT quite good audio quality

SLOT >	1	2	3	4
	Message 1, 44 s			
	Message 1, 22 s		Message 2, 22 s	
	Message 1, 11 s	Message 3, 11 s	Message 2, 11 s	Message 4, 11 s
	Message 1, 22 s		Message 2, 11 s	Message 4, 11 s
	Message 1, 11 s	Message 3, 11 s	Message 2, 22 s	
	Message 1, 33 s			Message 4, 11 s
	Message 1, 11 s	Message 3, 33 s		

3.1.5 IB 4121-BGM background music Input board



Audio signal inputs

(stereo to mono: the channels left (L) and right (R) are mixed together).

DIP switched to adjust the input level (1-2) and 2 enable commands (3-4).

Switch 1	Switch 2	Value
OFF	OFF	- 18 dB
ON	OFF	- 12 dB
OFF	ON	- 6 dB
ON	ON	0 dB

IB 4121 BGM specifications:

Dimensions: 155x80x25 mm.

Weight: 0.1 kg

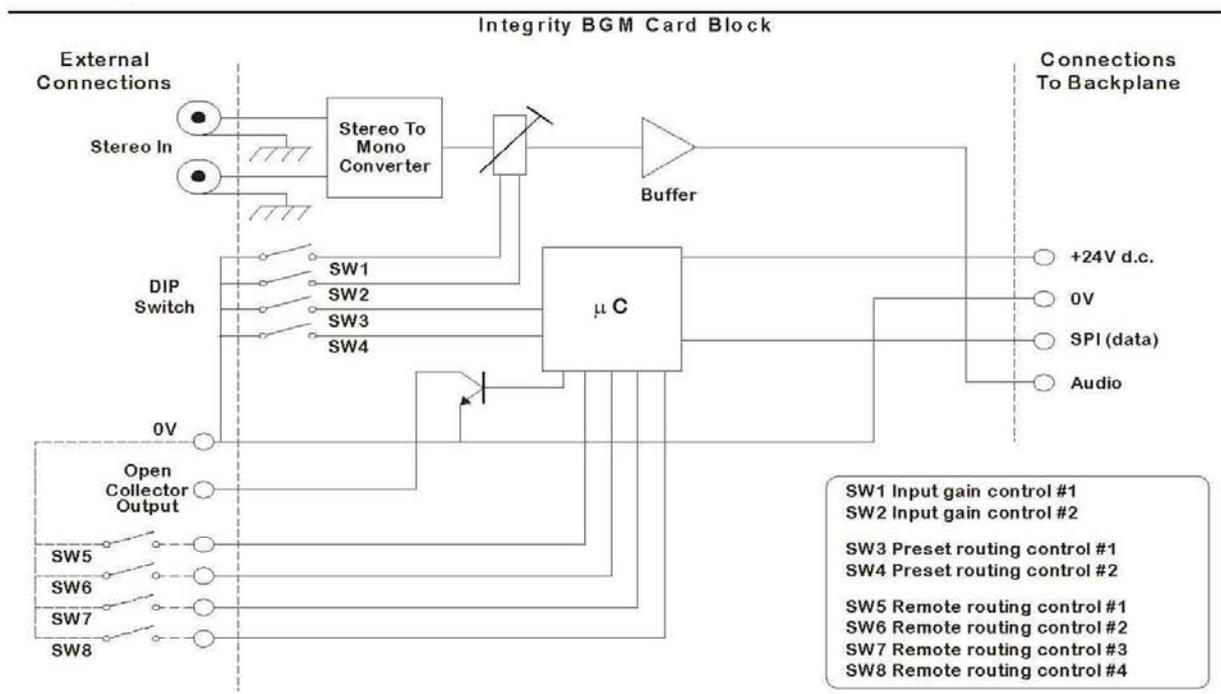
Power input: 20 ÷ 32 V dc

Consumption (current): 16 mA

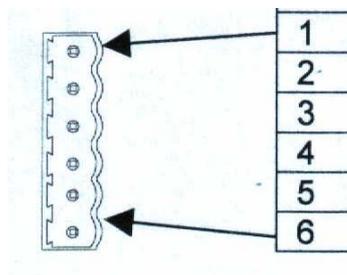
Opto-isolator max. voltage: 32 V dc

Max. current: 25 mA

Block diagram:



Logical "fault out" and inputs (triggers)



1= GND

2= fault logical output (to be set in the software menu "Cause And Effects")

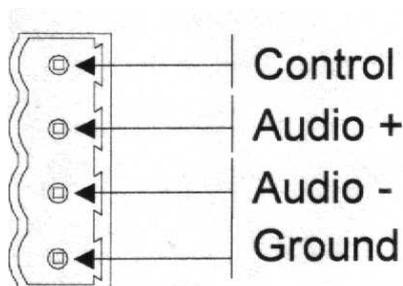
3-4-5-6= Logical input for external contacts to activate the settings of the software menu "Cause And Effects".

Pay attention: all pins refer to ground (GND).

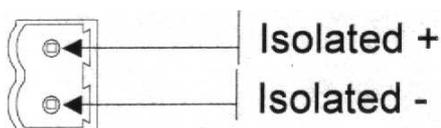
3.1.6 OB 4102 2 zone balanced output board



It is necessary to connect a 6.8 k resistor between the 'control' pin and 'ground' to avoid the CP 4100 finds a fault.



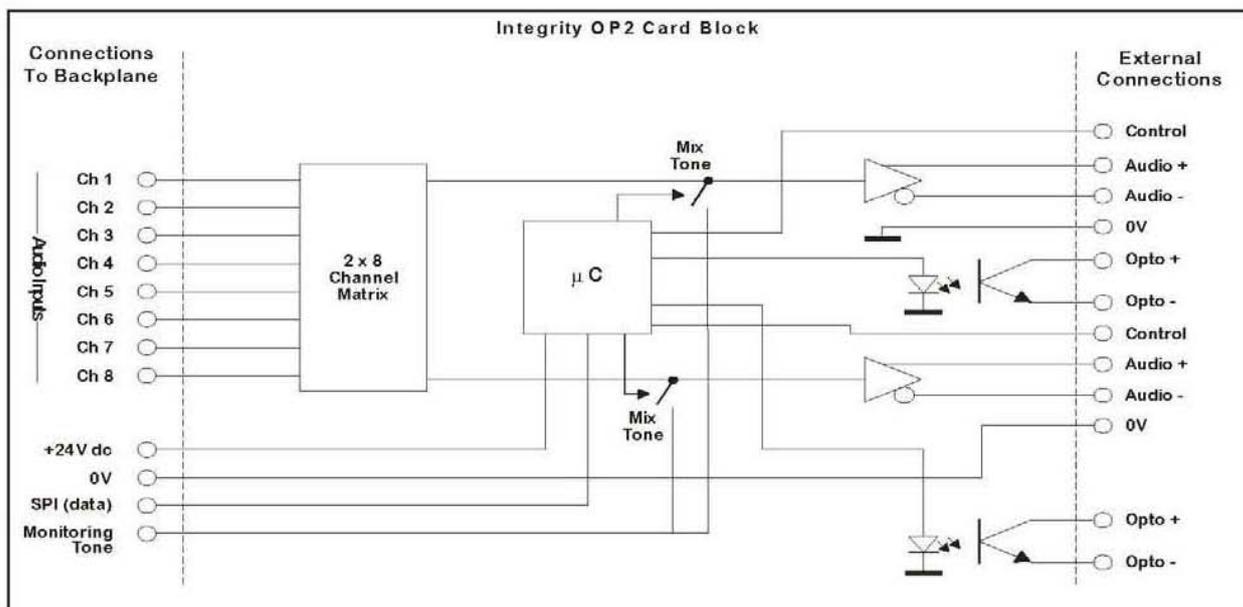
If rear-amplifier boards RB3300+SB3320 (necessary for the amplifier and loudspeaker line surveillance), it will be possible to connect the "control" and "ground" pins to the n.c. contacts of the relay AUX (terminal M14 of the card RB 3300), which gets excited when a fault occurs.



According the software settings 'cause and effects', these contacts can be used to signal an event of the relative zone.

Isolated + : opto-isolator collector; Isolated - : opto-isolator emitter.

Block diagram:



OB 4102 specifications:

Dimensions: 155x80x25 mm

Weight: 0.12 kg

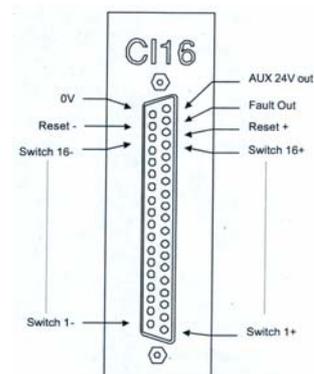
Power input: 20 ÷ 32 V dc

Consumption (current): 16 mA

Opto-isolator max. voltage: 32 V dc

Max. current: 25 mA

3.1.7 LI 4116 16 logical input board



SUBD 37 pin female connector to connect up to 16 external contacts (triggers; their functions shall be set through the software). A voltage (18÷36 V dc) is to be applied to logical inputs to turn them on. The power supply on pins 19 (+24 V dc) and 37 (ground) is available to drive the logical inputs (max 100 mA).

Contacts are protected against reverse voltage (up to 50V).

Some logical inputs can be connected together.

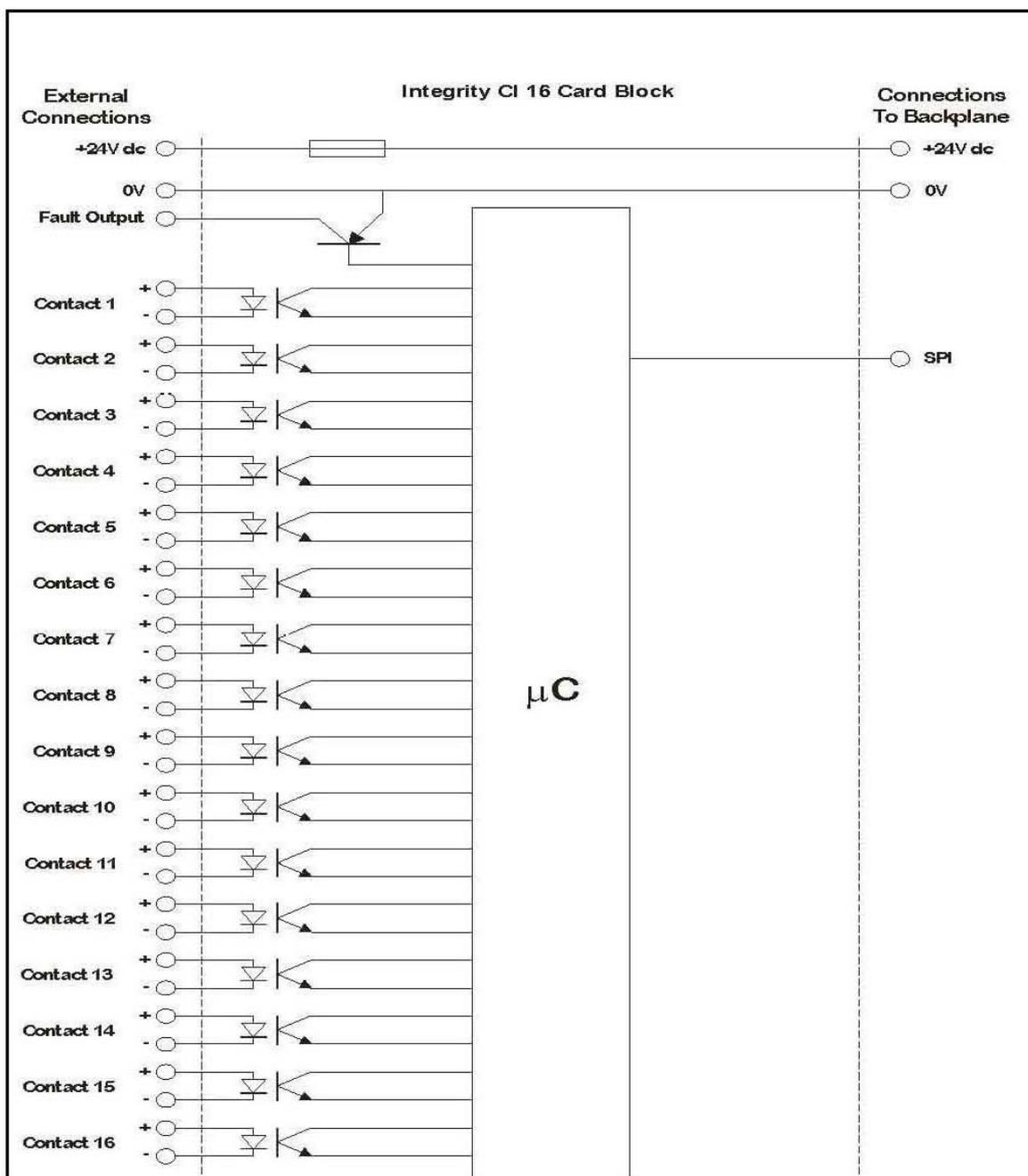
NOTE: A logical input stays on until the “reset” command activation, which is made like the other logical inputs.

Should the logical inputs be momentarily kept on (not latched), it would be necessary to connect the “reset” pins directly to the 24 V dc power supply (paying attention to the polarity).

An output command is available on pin 18 (open collector, max. current 40 mA) that can be set as either normally open or normally closed through the software.

PIN	Description	PIN	Description	PIN	Description	PIN	Description
1	Switch 1 +	10	Switch 10 +	19		27	Switch 9 -
2	Switch 2 +	11	Switch 11 +	20	Switch 1 -	28	Switch 10 -
3	Switch 3 +	12	Switch 12 +	21	Switch 2 -	29	Switch 11 -
4	Switch 4 +	13	Switch 13 +	22	Switch 3 -	30	Switch 12 -
5	Switch 5 +	14	Switch 14 +	23	Switch 4 -	31	Switch 13 -
6	Switch 6 +	15	Switch 15 +	24	Switch 5 -	32	Switch 14 -
7	Switch 7 +	16	Switch 16 +	25	Switch 6 -	33	Switch 15 -
8	Switch 8 +	17	Reset +	26	Switch 7 -	34	Switch 16 -
9	Switch 9 +	18		27	Switch 8 -	35	Reset -
						36	

Block diagram:



LI 4116 specifications:

- Dimensions: 155x80x25 mm.
- Weight: 0.12 kg
- Power input: 20 ÷ 32 V dc
- Power output : 20 ÷ 32 V dc (fuse: 500 mA)
- Consumption (current): 16 mA
- Opto-isolator max. voltage : 32 V dc
- Max. current: 25 mA

3.2 **BM 4716, BM 4732, BM 4748, BM 4764, Microphone console**

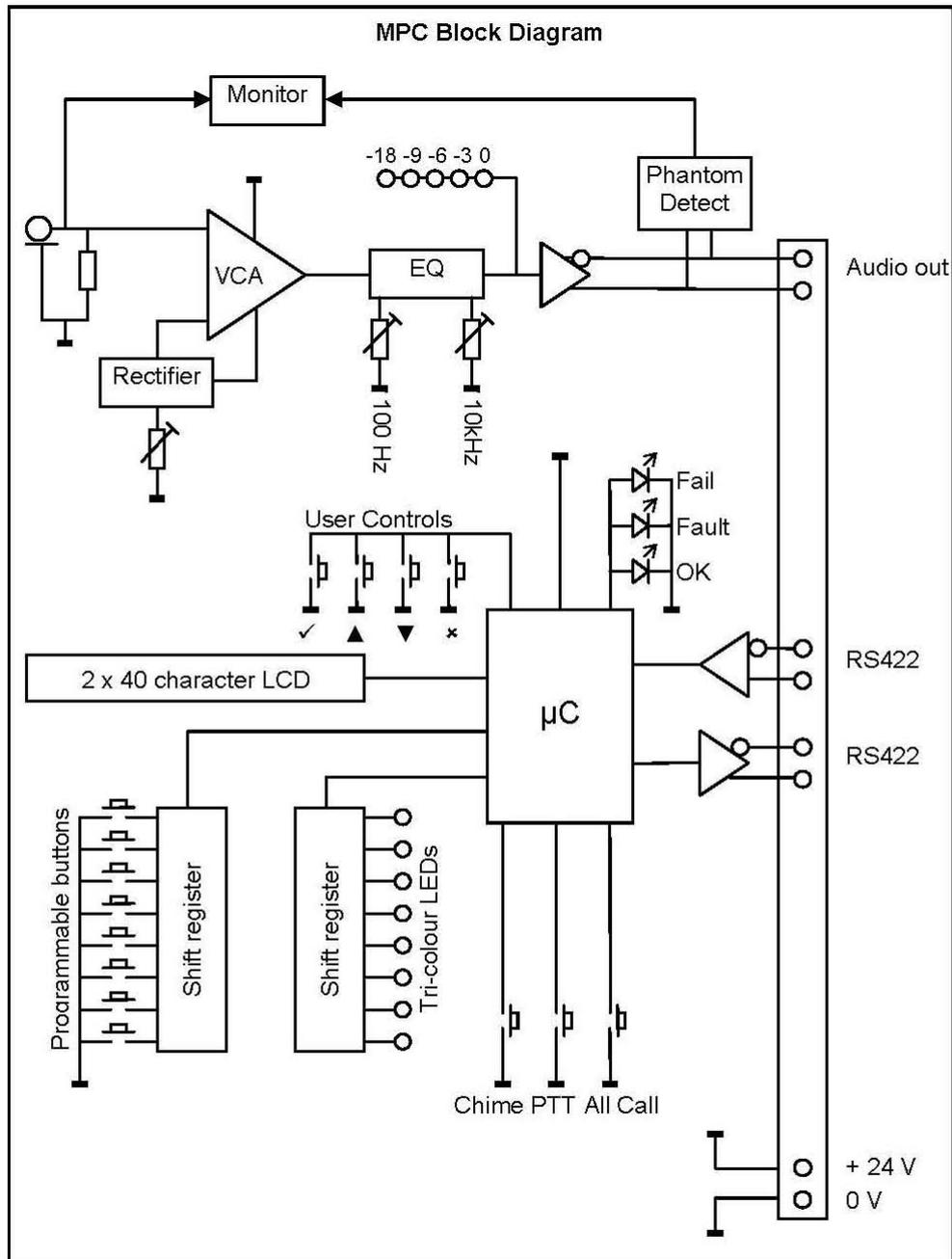
The BM 4700 series microphone consoles for announcements are part of the RX 4000 system.



Digital paging console with 16/32/48/64 assignable keys, a general call 'A' key, a key to turn the chime on/off and the key 'Speech' to talk (after the chime).

The display and the 4 function keys which allow you to control many system parameters of connected units CP 4100, check if faults are in course, modify all the paging console and user settings.

Block diagram:



3.2.1 Features Display Digital Console (vers. 1.4.6)

From each digital console, it is possible to read (on display) and edit many system functions. The access is regulated according to the user's permissions.

Unregulated: user that doesn't need any password to access a limited number of functions.

Fire Officer: (password needed) user that can access some keys to send alarm messages (to be set).

Supervisor: (password needed) user that can access all system parameters, but some technical ones (to be set).

Engineer: (password needed) user that can access all system and technical parameters (to be set).

User 1-2-3-4 (password needed) user that can access to some functions only (to be set per each user).

As default, on paging console display (after switching on) you can read:

(upper line) the system reference (i.e. **RCF REGGIO E. CE4122**)

(lower line) ^Y **For Option** .

3.2.2 Unregulated

Main Menu

Press ∇ (next to the display) to enter; you can now see:

Mute Buzzer View Fault About..... \surd to log in
--

Use the keys \blacktriangle \blacktriangledown to choose the option, then press ∇ to enter

- **Mute Buzzer**

Press ∇ on **Mute Buzzer** to mute the internal buzzer (when faults are present).

- **View Fault**

Press the **ok** button when the display shows **View Fault** to enter the connected CP 4100 list, then (per each CP 4100) the submenus (the first line refers to internal faults):

> **Panel Faults : Panel Healthy (if no fault is found)**
> **RCF REGGIO E. CE.... : System Healthy (if no fault is found on CP4100)**
> (Other CP4100 units are shown in the next lines)

Press the \blacktriangle \blacktriangledown buttons to select and **ok** to enter.

When entering the CP 4100 menù, two submenus are shown:

Current Fault

All Fault

Current Fault

Press ∇ when the display shows **Current Fault** to enter the current fault list (press \blacktriangle \blacktriangledown to scroll).

All Fault

Press ∇ when the display shows **All Fault** to enter the complete fault list stored on CP 4100 memory (press \blacktriangle \blacktriangledown to scroll); current faults (if still present) are marked as 'Current'. Other faults (first detected by the system, then removed thanks to the technical assistance, but not deleted on CP 4100) are still on CP 4100 memory and displayed as 'Removed'.

Press the X button to escape.

- **About.....**

Press **Y** on About... to get information about the console:

- Product : Programable Paging Panel
- Internal Name : iMPC
- Version : 1.4.6
- Processor MEGA128
- Processor speed 16.000000MHZ

Press X twice to return to main menu.

- **Y To log IN**

Press **Y** on **Y To log IN** to read the user list:

- Fire Officer
- Supervisor
- Engineer
- User 1
- User 2
- User 3
- User 4

Each user has its own password.

Default passwords (that can be replaced) are:

- Fire Officer= 3333
- Supervisor= 2222
- Engineer= 4444
- User 1= 0001
- User 2= 0002
- User 3= 0003
- User 4= 0004

Choose an user by using the keys **▲▼**, then press **Y** .

Next manual sections are about the available menus and the allowed functions per each user having a password.

3.2.3 Fire Officer

Press the key \vee on **Fire Officer** and insert the password 3333.

Display: Enter PIN _ _ _ _

Press the key \blacktriangle three times to change the first PIN number to 3, then press OK to move the cursor at the second position; press the key \blacktriangle three times again to change the second PIN number to 3 and press OK ...and so on until the password 3333 is inserted (in case of error, press NO to select the previous number).

Once the password is inserted properly, press \vee to enter the 4 submenus:

Mute Buzzer View Fault Edit Volume \vee to log in
--

The menus are the same available as '**Unregulated**', plus the menu 'Edit Volumes':

- **Edit Volumes**

Select **Edit Volumes** and press \vee , to enter the zone list. Choose the zone with the keys \blacktriangle \blacktriangledown and then press \vee to adjust the volumes relative to that single zone: **BGM** (background music) and **PAGING** (announcements). The **keys** \blacktriangle \blacktriangledown make it possible to set the level from "Mute" to +3 dB and the key \vee change the parameter to edit. Press **X** to return to the previous menu.

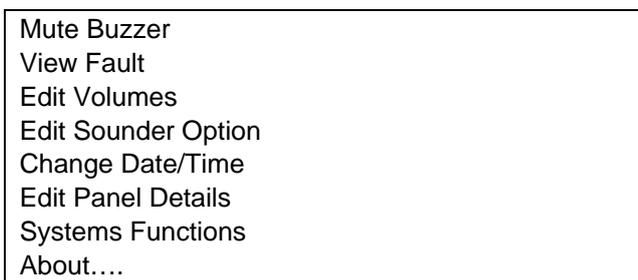
3.2.4 Supervisor

Press the key Ψ on **Supervisor** and insert the password 2222.

Display: Enter PIN _ _ _ _

Press the key \blacktriangle twice to change the first PIN number to 2, then press OK to move the cursor at the second position; press the key \blacktriangle twice again to change the second PIN number to 2 and press OK ...and so on until the password 2222 is inserted (in case of error, press NO to select the previous number).

Once the password is inserted properly, press Ψ to enter the 8 submenus:



The menus are the same available as 'Fire Officer', plus the following menus:

- **Edit Sounder Option**

Select **Edit Sounder Option** and press Ψ , to enter the buzzer tone list:

Edit Fault Tone
 Edit Evac Tone
 Edit Alert Tone

Choose the tone event to edit (with $\blacktriangle\blacktriangledown$), then you'll see the available tone types:

Continuous Siren
 Pulsed Siren
 Continuous HI-LO
 Pulsed LO-HI-LO
 OFF

Select ($\blacktriangle\blacktriangledown$) one of the 5 options to hear the tone and confirm your choice by pressing Ψ .

- **Change Date/Time**

Press Ψ on Change Date/Time to set the date and the time.

On display:

Date : 02 / 12 / 04
 Time : 18 : 53 : 52

Use $\blacktriangle\blacktriangledown$ and Ψ to change; press X to exit.

- **Edit Panel Details**

Press ∇ on **Edit Panel Details** to enter these submenus:

Edit Panel Name
 Edit Keep Selects
 Edit Panel Address
 Address Serviced

Edit Panel Name

It modifies the display text that appears when the console is not in edit mode.
 Use \blacktriangle \blacktriangledown to change characters and ∇ to confirm and move the cursor.
 Press X to exit.

Edit Keep Selects

Press ∇ on Edit Keep Selects to see the 2 options:
 Keep Selects zone keys stay on even after a microphone announcement;
 Drop Selects zone keys are released as soon as a microphone announcement ends.
 Use ∇ to change.

Edit Panel Address

Press ∇ on Edit Keep Address to edit the console digital address:

Panel Address : (5-8) \blacktriangle 5 \blacktriangledown
 ∇ to Accept x to Revert

Use \blacktriangle \blacktriangledown to change the console address among 5, 6, 7, 8 . Each console connected to the same bus / card IT 4133 must have a different address.

Note: the addresses 1-4 are reserved for the cards IT 4133.

Address Serviced

Press ∇ on Address Serviced to see the serviced address list:

Ring Address 1 Serviced
 Ring Address 2 Not Serviced
 Ring Address 3 Not Serviced
 Ring Address 4 Not Serviced
 Ring Address 5 Not Serviced
 Ring Address 6 Not Serviced
 Ring Address 7 Not Serviced
 Ring Address 8 Not Serviced

Use \blacktriangle \blacktriangledown to choose the address and commute Serviced / Not Serviced by pressing ∇ .
 This is an important setting as it allows the communication among cards IT 4133 and digital paging consoles. The addresses 1, 2, 3, 4 are reserved to cards IT4133 (note: each address refers to a bus of cards IT 4133); the addresses 5, 6, 7, 8 are reserved to the 4 paging consoles that can be connected to a single bus of cards IT 4133.

Up to 4 cards IT 4133 can be installed into each mainframe CP4100 to get 4 buses.

To make sure of a proper working of all paging consoles, it is necessary to set a different address on each paging console (per every IT 4133 bus) and set to "Serviced" the following addresses:

The IT 4133 bus address, which the paging consoles are connected to.

The paging console address (selected in the menu Edit Panel Address).

All addresses of other paging consoles console connected to the same IT 4133 bus.

- **Systems Functions**

Press \vee on **System Functions** to enter.

Reset Panel
Shut Down
System Reset

Press \vee to reboot the paging console.

Reset Panel

If necessary, press \vee on 'Reset Panel' to reset the paging console.

Shut Down

If necessary, press \vee on 'Shut Down' to shut the system down, then the following text is displayed: 'It is now safe to disconnect panel'

System Reset

If necessary, press \vee on 'System reset' to reboot the entire system.

3.2.5 Engineer

Press the key ∇ on Engineer and insert the password 4444.

Display: Enter PIN _ _ _ _

Press the key \blacktriangle four times to change the first PIN number to 4, then press OK to move the cursor at the second position; press the key \blacktriangle four times again to change the second PIN number to 4 and press OK ...and so on until the password 4444 is inserted (in case of error, press NO to select the previous number).

Once the password is inserted properly, press ∇ to enter the 12 submenus:

- | |
|--------------------------|
| Mute Buzzer |
| View Fault |
| Edit Button |
| Edit Radio Button Groups |
| Edit User |
| Edit Volumes |
| Edit Sounder Option |
| Change Date/Time |
| Edit Panel Details |
| Systems Functions |
| Engineering Functions |
| About... |

The menus are the same available as **Supervisor**, plus the following menus:

- **Edit Button**

Press the key ∇ on **Edit Button** : all zone keys start flashing.

Press a key (this is now lit; the other keys stop flashing); on display there are 2 possible options:

Edit Who Can Use Button

View Button Config

Edit Who Can Use Button

Press the key ∇ on **Edit Who Can Use Button** to enter the user list:

- | | |
|--------------|----------|
| Unregulated | ∇ |
| Fire Officer | ∇ |
| Supervisor | ∇ |
| Engineer | ∇ |
| User 1 | ∇ |
| User 2 | ∇ |
| User 3 | ∇ |
| User 4 | ∇ |

The keys \blacktriangle \blacktriangledown are used to choose the user; press ∇ to enable / disable the zone key for the selected user.

Press **X** to exit.

View Button Config

It shows the zone key settings..

- **Edit Radio Button Groups**

Press ∇ on 'Edit Radio Button Groups' to enter the submenu:

Radio Button Groups : (1-16) \blacktriangle 1 \blacktriangledown (choose the button number)

For instance, press ∇ on the number 1 to enter:

Select Button In Radio Group 1

Press ∇ to exit

- **Edit User**

Press ∇ on 'Edit User' to enter the user list, of which the 'Engineer' can change properties:

Unregulated
Fire Officer
Supervisor
Engineer
User 1
User 2
User 3
User 4

Choose the user with the \blacktriangle \blacktriangledown buttons and press ∇ to enter the submenu list:

Change User Name
Set Paging Chime Values
Change Logout Period
Change user Pin
User Option

Change User Name

Press ∇ on 'Change User Name', to change the user name (example: 'Unregulated' replaced by 'John Hughes'). Use both the \blacktriangle \blacktriangledown buttons to scroll letters / symbols and ∇ to confirm and edit the next character.

Press X to exit.

Set Paging Chime Values

Press ∇ on 'Set Paging Chime Values' to edit the chime parameters.

The options are:

No Chime
Single Chime
Double Chime
Triple Chime

Select with the \blacktriangle \blacktriangledown buttons and press ∇ to confirm
(a ∇ symbol appears on the display next to the selected chosen option).

After pressing ∇ , the next parameter ('Chime Duration') will be displayed:

Chime Duration (0.0-8.0) \blacktriangle 0.0 \blacktriangledown sec.
X To Revert ∇ To accept

Change Logout Period

Press \vee on 'Change Logout Period' to edit the time (0 ÷ 60 seconds) between the last button pressure (by the user) and the automatic escape to the initial default display.

The following text is displayed:

Log Out Period (0-60)

Use \blacktriangle \blacktriangledown to change the time.

Change user Pin

Press \vee on 'Change user Pin' to change the user pin (password).

User Option

Press \vee on 'User Option' to enter a menu where it is possible to enable / disable functions according to the user.

Use the \blacktriangle \blacktriangledown to scroll and \vee to switch.

The functions are:

- View Fault
- Accept Fault
- Mute Buzzer
- See Fault Leds
- Mode Fault Leds
- View Fault Leds
- View Fault Count
- View Panel Status
- View Paging Volume
- Change Paging Volume

- **Engineering Functions**

Press the key **Y** on **Engineering Functions** to enter and see the available functions:

View Panel Status
 Test Mode
 Address Detected
 View EEPROM
 View I2c EEPROM
 View Fault Counts
 Monitor Rcv Rec Types

View Panel Status

Press **Y** on 'View Panel Status' to check the console operating state and get a first diagnosis on possible console internal faults.

The following text is displayed:

Ph+ **Y**, B/G **Y**, Clock **Y**
 Ph- **Y**, Mic **Y**, I2Cv **Y**, Data **Y**,

The symbol **Y** (next to a parameter) indicates the proper operating.

Test Mode

Press the key **Y** on **Test Mode** to test all keys and the display.
 Press **X** to exit.

Address Detected

Press the key **Y** on **Address Detected** to check the data transmission among control units CP 4100 and digital paging console.
 The key **Y** commutes between the pages **Snd** (send, output data) and **Rcv** (receive, input data).
 Press **X** to exit.

View EEPROM

Press the key **Y** on **View EEPROM** to view the internal EEPROM blocks.
 Press **X** to exit..

View I2c EEPROM

Press the key **Y** on **View I2c EEPROM** to view the internal EEPROM records.
 Press **X** to exit.

View Fault Counts

Press the key **Y** on **View Fault Counts** to start the fault count on every slot.
 Press **X** to exit

Monitor Rcv Rec Types

Press the key **Y** on **Monitor Rcv Rec Types** to view the received data.
 Press **X** to exit.

3.2.6 User

Press the key \vee on User 1 and insert the password 0001.

Enter PIN _ _ _ _

The user 1 is usually not allowed to edit the system configurations; this user can use the enabled functions only.

Press \blacktriangle twice to get '0' as PIN first digit, then press \vee to choose the second digit. Repeat twice and select '1' as fourth digit in order to get '0001' as PIN (in case of mistake, press X to edit the previous digit).

The USER 1 is usually not allowed to configure the system, but it can access the enabled functions.

Press \vee again to enter the submenus:

Edit Volumes

About....

3.3 BM 4601 - Microphone console



BM 4601 specifications

Output level: 750 mV

Filters : 100 Hz ± 12 dB, 1 kHz ± 12 dB, 10 kHz ± 12 dB

Consumption (current): < 100 mA

Compression ratio: 3:1

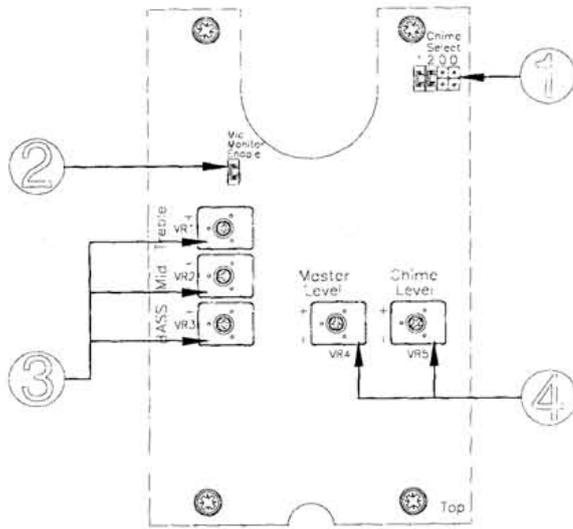
Noise gate threshold: - 30 dB

Master and Chime level: - ∞ ÷ + 4 dB

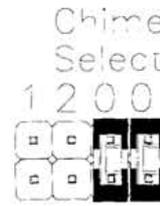
RJ 45 pins:

PIN	Description	PIN	Description
A	+ 24 V	E	
B	GND	F	
C	PTT	G	AUDIO +
D	BUSY	H	AUDIO -

Electrical Schematics:



**No chime
(default)**



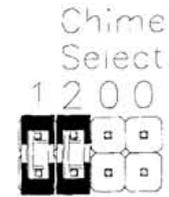
1 note chime



2 note chime



3 note chime



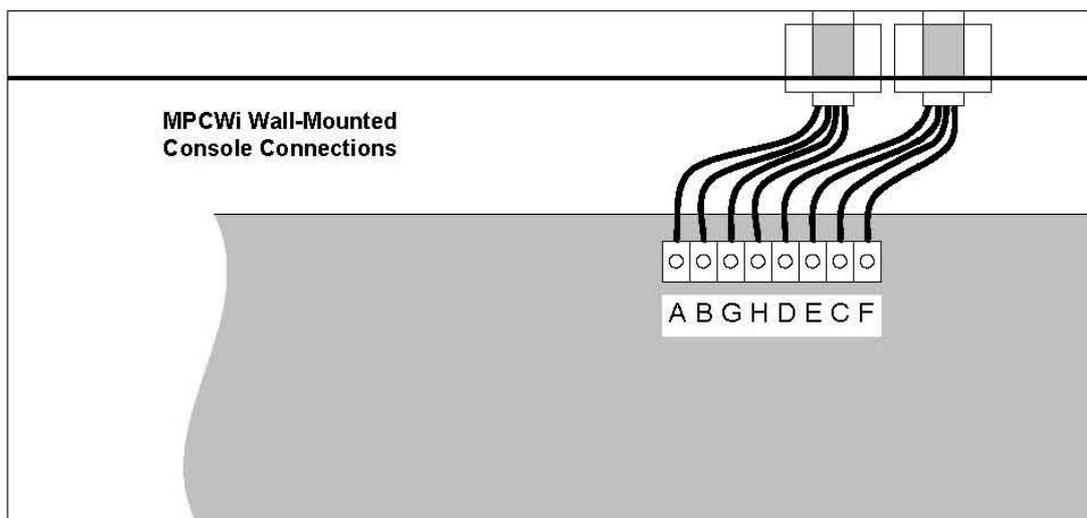
3.4 BM 4631WM - Microphone console



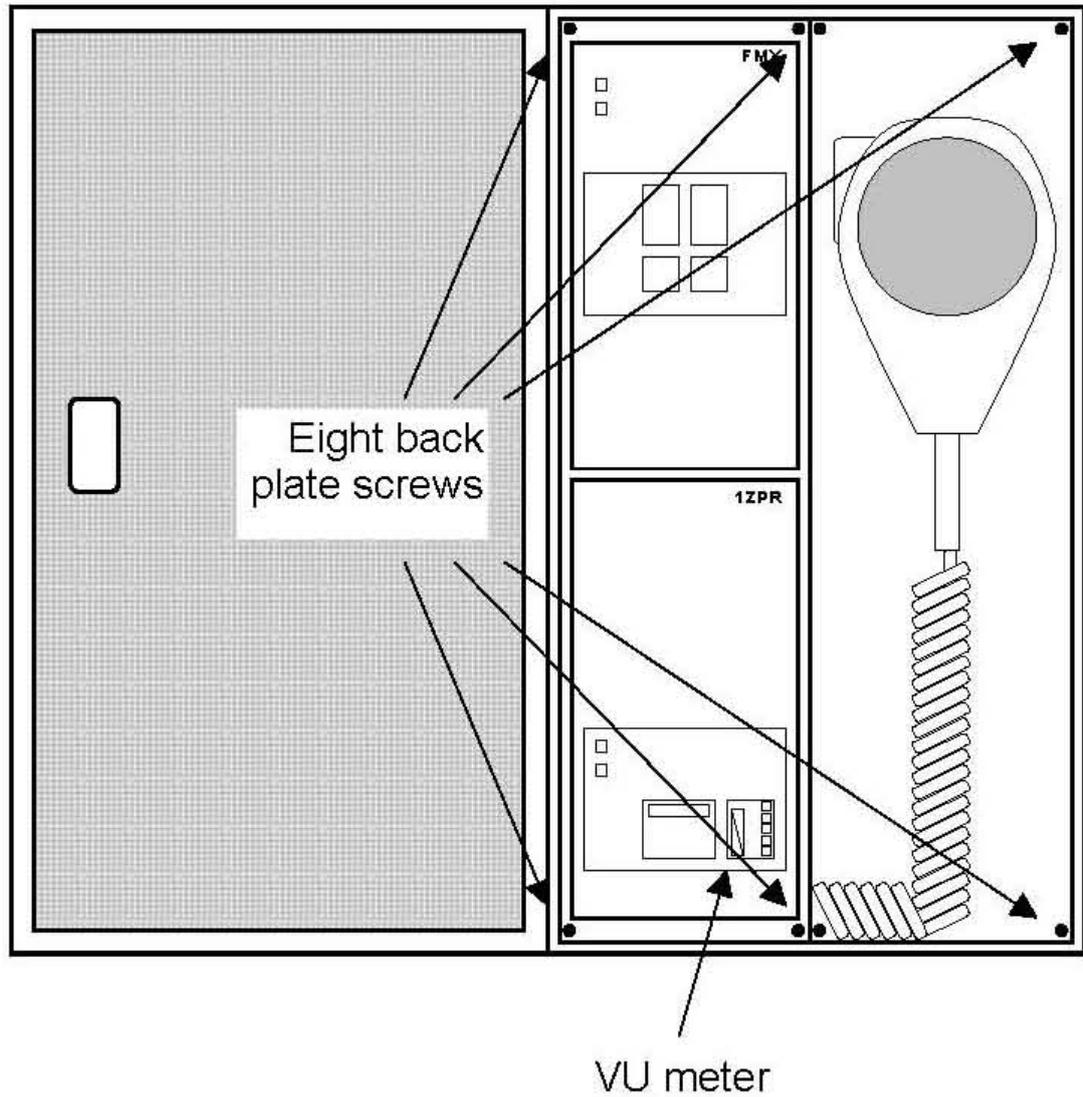
BM 4631WM specifications:

Dimensions: 350 mm (h) x 200 mm (w) x 100 mm (d)
 Weight: 3.5 kg
 Power input : 20 ÷ 32 V dc (from 1LS board)
 Consumption (current): < 50 mA
 Colour: red (RAL 3000)

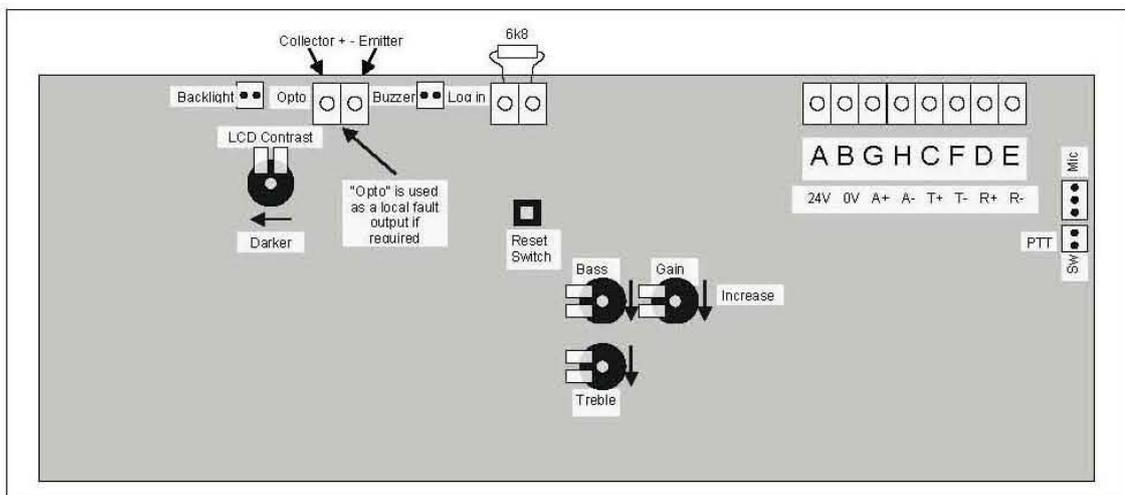
Connection



Wall mounting



PCB layout



3.5 HB 4103/16 Hub for BM 4700 series paging console



Expander board for 3 digital paging consoles (BM 4716, BM 4732, BM 4748, BM 4764).
 This board needs to be powered (24 V dc).
 The connection to both the IT 4133 board and the 3 paging consoles is through RJ45 ports.
 If the paging consoles are far (the total distance is more than 80 m), it is advisable to use screw terminals linked to the RJ 45 ports, cut orange-white wires and ensure consoles be powered directly by 24 V dc from PS3400 (or another equivalent power supply unit).

3.6 End of line Module



'END OF LINE' modules are always to be inserted when there are audio signal links from CP4100 to external devices (i.e. amplifiers).

The RX4000 system sends on its outputs (where EOL modules are present) a 22 kHz control tone that the SLIM board can detect, while the SPE057 circuit removes the control tone in order to avoid any interference with RCF RB 3300 + SB 3320 diagnosis boards.

Cable between the CP 4100 control unit and every EOL module:

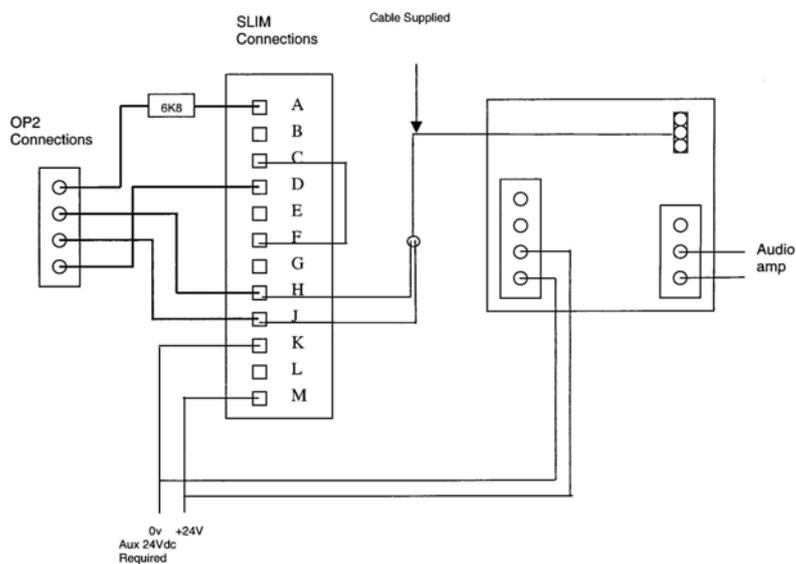
- A twisted and screened pair for the audio signal
- A pair for diagnosis and fault detection
- A pair for 24 V dc power supply.

The connection can be made through CAT5 cable.

When it is possible to power a EOL module locally, a standard cable (that complies safety standards) having a screened pair and an unscreened pair can be used.



Connection Diagram



- SLIM Connections
- A = Ok +
 - B = Fault + (not used)
 - C = Enable + (linked to F)
 - D = Ok -
 - E = Fault - (not used)
 - F = Enable - (linked to C)
 - G = Not used
 - H = Audio +
 - J = Audio -
 - K = Ground
 - L = Not used
 - M = +24V dc

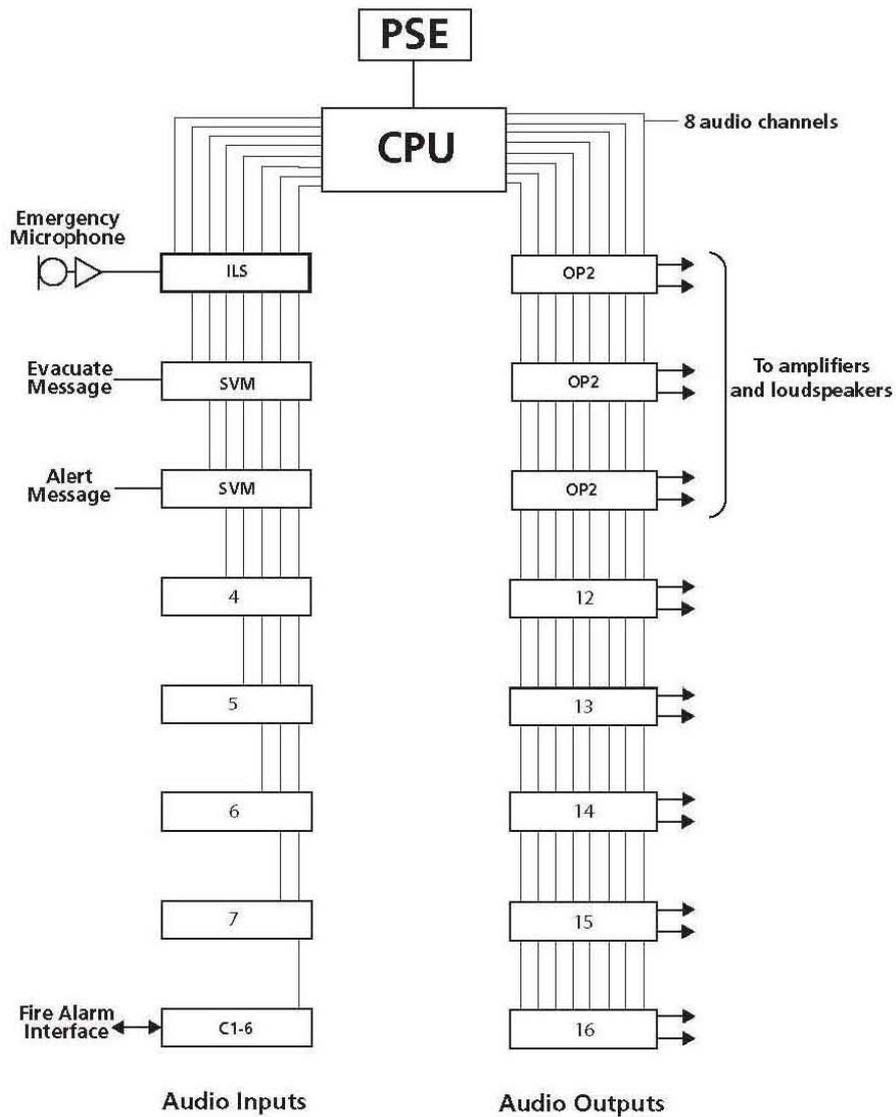


3.7 RX 4000 Application

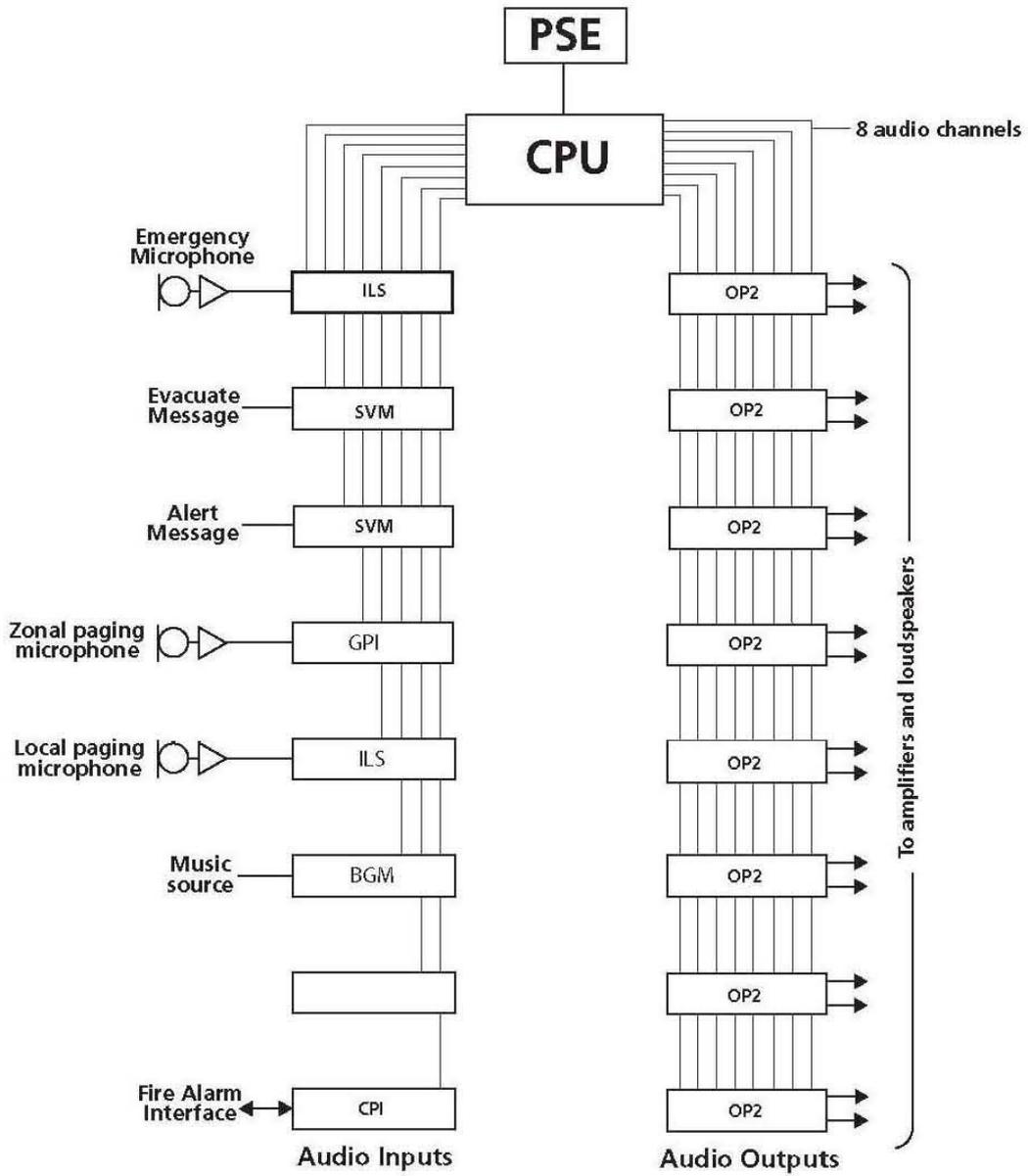
Here are a few examples in order to simplify the system comprehension.

All boards (in both the software and the block diagrams) have abbreviated names.

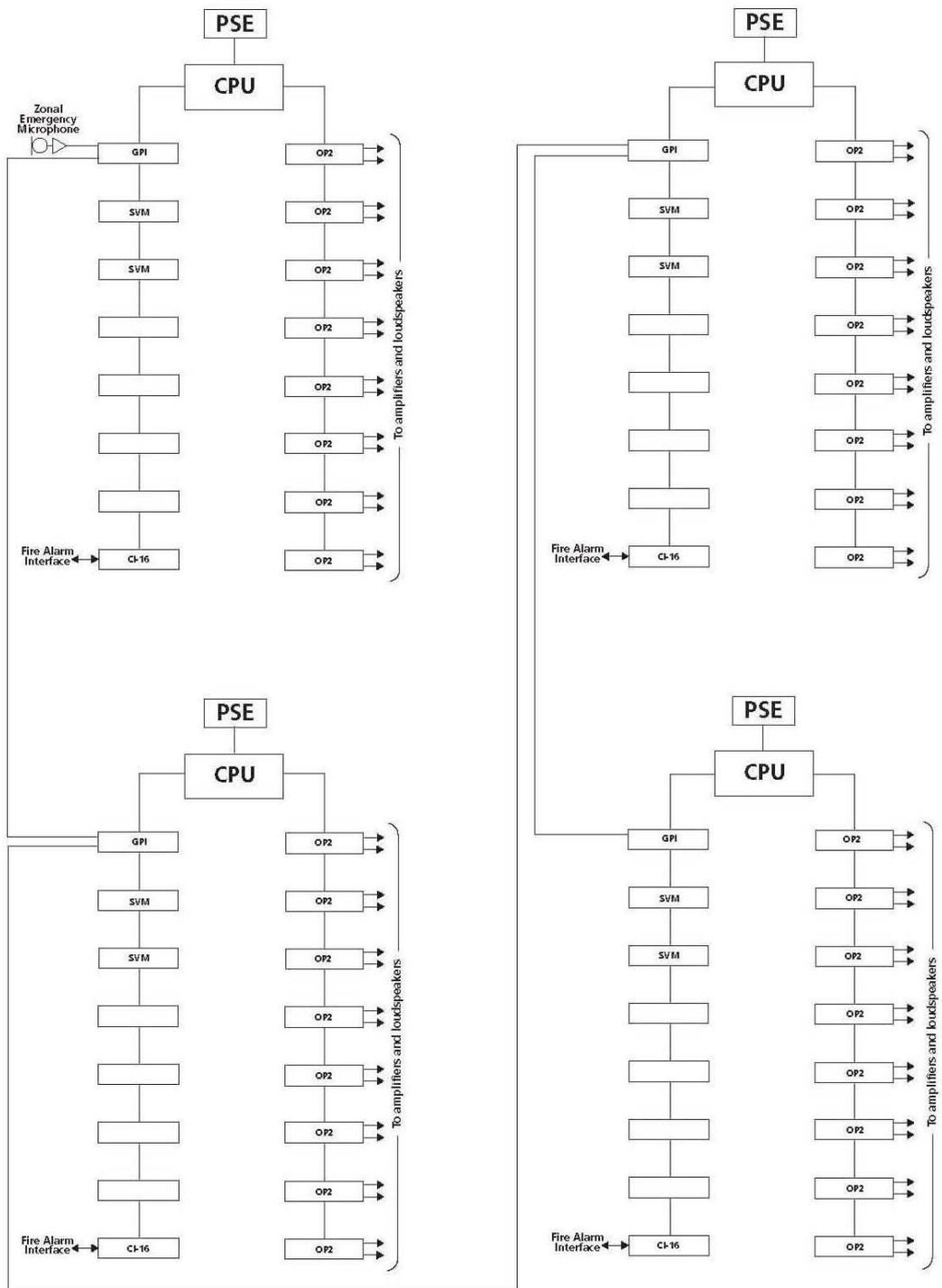
3.7.1 Block Diagram Configuration 1



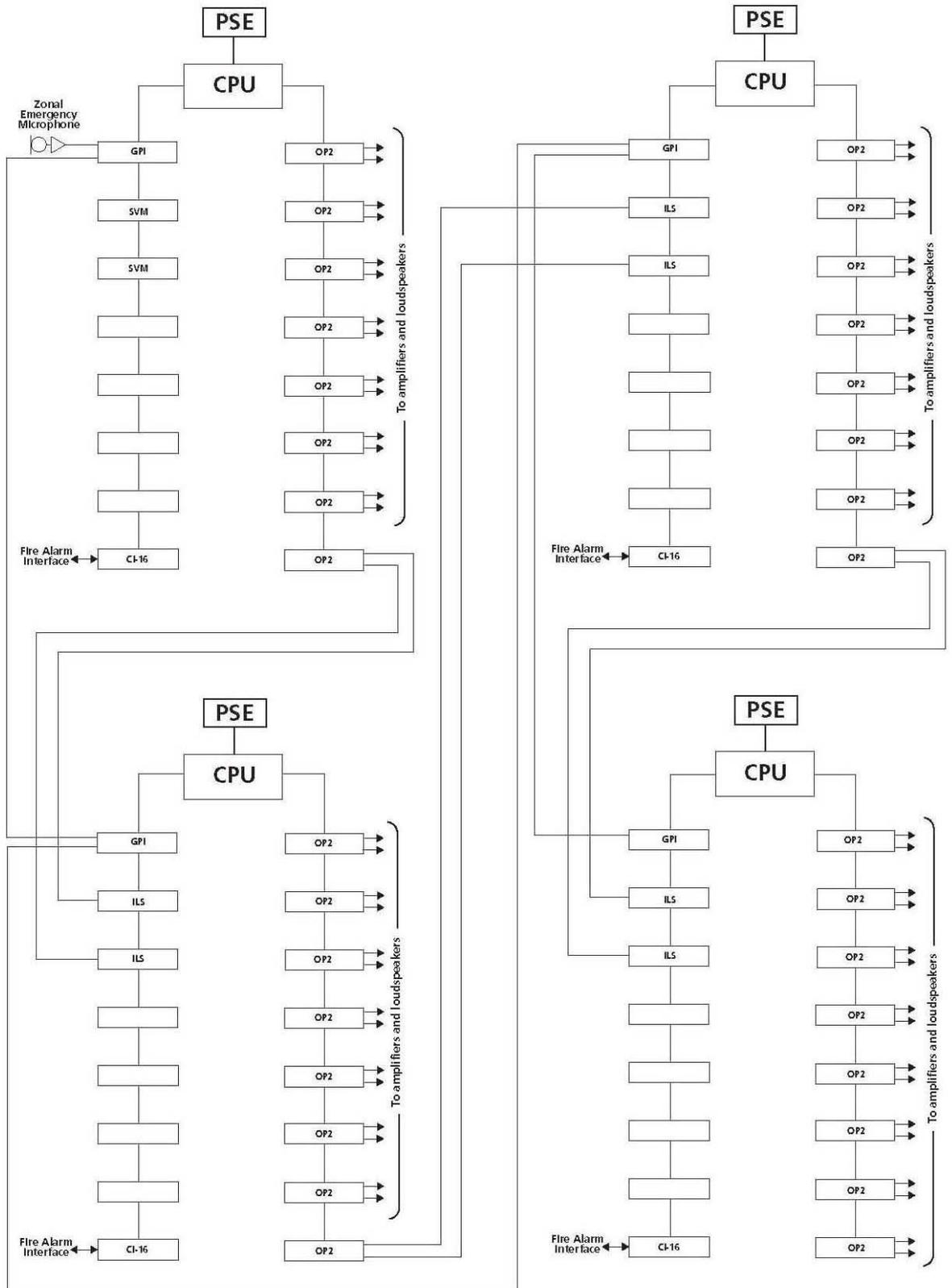
3.7.2 Block Diagram Configuration 2



3.7.3 Block Diagram Configuration 3

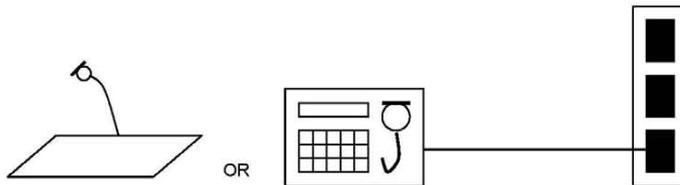


3.7.4 Block Diagram Configuration 4

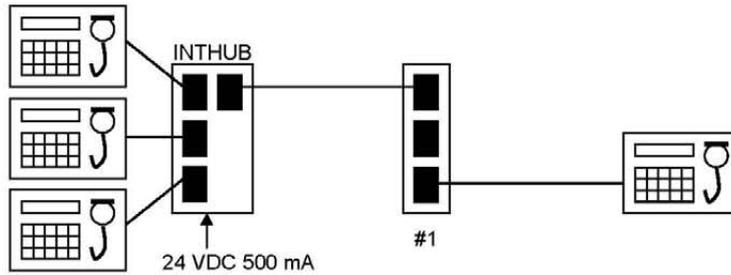


3.7.5 Microphone console connection

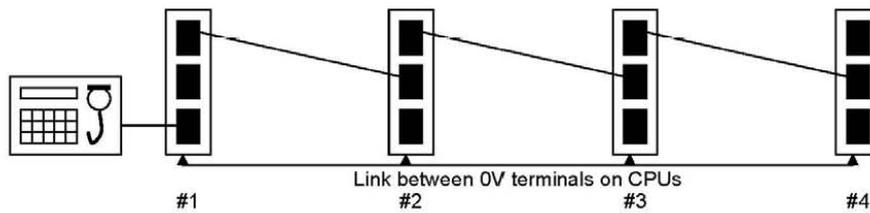
Example A



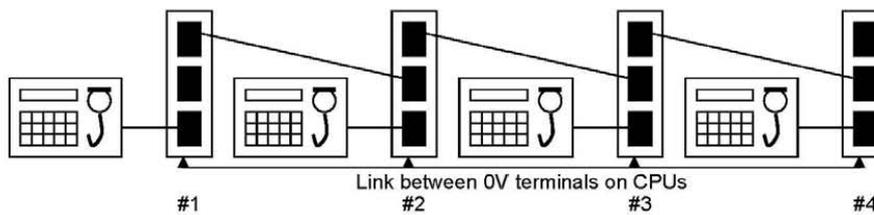
Example B



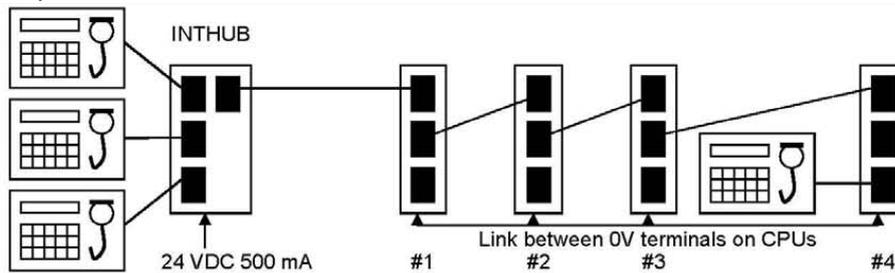
Example C



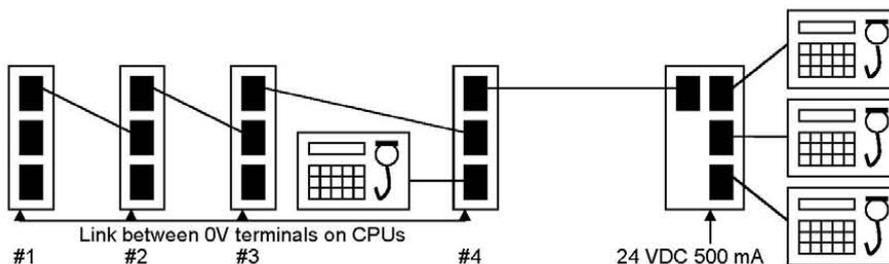
Example D



Example E



Example F



4 Features Display CP4100 (vers.5.0.4)

The CP 3100 front panel with LCD display allows you to configure many system parameters.

The "Fault" LED and the internal buzzer are on as soon as a system fault / alarm occurs

Note: a forced reboot of CP 41000 (for instance by turning off / on the power supply unit) causes an alarm that is indicated as:

! CPU EEPROM Checksum Failed (*1)

! Watchdog Reset (*1)

(all alarms are kept in memory, shown in the LCD display and can be removed).

Paging and BGM audio levels can be adjusted.

The CP 4100 internal alarm tone can be modified.

It is possible to set the time shown on the display.

The system can be rebooted.

4.1 Main Menu

Press the key **OK** to enter the main menu, the password is required:

Enter PIN _ _ _ _

Press the key **▲** twice ("2" appears as first PIN number), then press OK to shift the cursor on the second value. Press the key **▲** twice again to choose the number 2.

Do it twice more to get the password 2222 (in case of mistake, press NO to come back and change numbers).

Once the password has been correctly inserted, press OK to enter the main menu, which is made of 8 submenus

View/Accept Fault
Change Volumes:
Change Login
Change Alarm Option
Eject Fault Report Page
Change Clock
Reboot
Shut Down
Show Information

4.1.1 Icon display

Icon	Message	Description
	Quit / Confirm	This symbol is appearing, either as a function to acknowledge a message or in combination with other symbols to indicate that a message has been already confirmed.

4.1.2 Mute Buzzer

Press \vee on 'Mute Buzzer' to stop the alarm buzzer. Note: the fault / alarm is not removed and the CP 4100 yellow LED is still lit.

4.1.3 View Fault

Select View/Accept Fault and press OK.

If no fault / alarm is present, the display will show **No Fault to display Press X to Exit.**

Should faults / alarms be present, It would be possible to read the fault list on the display by pressing the key **OK** (use the keys \blacktriangle \blacktriangledown to move up/down the list); for instance, a single fault is indicated **1 Fault Logged 1 Current** .

Press **NO** to quit the fault list and come back to the submenus; the buzzer (if activated) gets muted, but faults (if not removed) remain in the list.

To delete faults from the list, it is first necessary to select the last one (use the key \blacktriangledown , then OK). Do the same on all faults (starting always from the last one) until the writing "**No Fault To Display Press X to exit**" appears; then press the key **NO** to quit and read "**System Healthy**" on the display.

Note: a forced system reboot normally returns these 2 faults:

! CPU EEPROM Checksum Failed (*1)

! Watchdog Reset (*1)

4.1.4 Eject Fault Report Page

Press \vee on 'Eject fault Report Page' :

\vee to eject page

The system prints the fault list.

4.1.5 About.....

Press \vee on 'About' to display the following data:

- Version 5.0.4
- Processor MEGA128
- Processor speed 4608MHZ

4.1.6 √ to log in

Press √ on '√ to log in' to enter the following list:

- Site User
- Supervisor
- Engineer

These are the three kinds of user allowed to enter the configuration menus (after inserting the relevant PIN number).

Use the ▼ to select and √ to confirm.

Insert the Pin number:

'Site User' PIN is 3333, 'Supervisor' PIN is 2222, 'Engineer' PIN is 4444.

Example: to enter the configuration menus as 'Engineer', press ▲ four times (to display '4' as PIN first digit), then press √ to insert the second digit, so again a third and a fourth time to have a 4444 as PIN number (in case of mistake, press X to edit the previous digit).

After the last √ button pressure, the 'Engineer' main menu is displayed:

Mute buzzer
View Fault
Edit user
Edit Volumes
Change Alarm Option
Change date/time
Eject Fault Report Page
Engineering Function
About.....

As 'Site User', the submenus are:

Mute buzzer
View Fault
Edit Volumes
Eject Fault Report Page
About.....

As 'Supervisor', the submenus are:

Mute buzzer
View Fault
Edit user
Edit Volumes
Change Alarm Option
Change date/time
Eject Fault Report Page
About.....

Next paragraphs explain all submenus ('Mute Buzzer' and 'View fault' have already been described previously).

4.1.7 Edit User

This submenu allows to edit the menu access from users.

Press ∇ on 'Edit User' to enter::

- Unregulated (no PIN required)
- Site User
- Supervisor
- Engineer

Select the user and press ∇ to enter the submenus:

- **Change User Pin** (non accessible for 'Unregulated')
- **Change Logout Period** (non accessible for 'Unregulated')
- **User Option**

a) Change User Pin

Press ∇ on 'Change User Pin' to change the user PIN.

On the display: **Enter New PIN 0000 ▲ or ▼ to change Digit**

b) Change Logout Period

Press ∇ on 'Change Logout Period' to modify the time (0 ÷ 60 s) from the last button pressure by the user to the automatic escape to the default initial display.

The displays indicates:

Log Out Period (0-60)

Use ▲ ▼ to change the value.

c) User Option

Press ∇ on 'User Option' to verify and set which functions the user is allowed to access.

Use ▲ ▼ to scroll the list and ∇ to switch.

'Unregulated' default:

View Fault	∇
Accept Fault	
Mute Buzzer	∇
Change Clock	
Change Volumes	
Change Alarm Option	
Edit User	
Access Engineering	

'Site User' default:

View Fault	Y
Accept Fault	
Mute Buzzer	Y
Change Clock	
Change Volumes	
Change Alarm Option	
Edit User	
Access Engineering	

'Supervisor' default:

View Fault	Y
Accept Fault	Y
Mute Buzzer	Y
Change Clock	Y
Change Volumes	Y
Change Alarm Option	Y
Edit User	Y
Access Engineering	

'Engineer' default:

View Fault	Y
Accept Fault	Y
Mute Buzzer	Y
Change Clock	Y
Change Volumes	Y
Change Alarm Option	Y
Edit User	Y
Access Engineering	Y

4.1.8 Change Volumes

Press OK on the option Change Volumes to enter the submenu of the output zone list. Use the keys ▲ ▼ to see the entire zone list and press the key OK to edit the select zone: you can adjust the page and the background music (BGM) volume levels. Each audio input is assigned as either ALARM or PAGE or BGM by using the CP 4100 software editor (for PC).
 Note: the ALARM volume can be set by means of the software editor; the PAGE and BGM volumes can also be directly set on CP 4100 front panel.

4.1.9 Change Alarm Option

Change Alarm Option
Submenu with 3 options:

a) Notification Tones

Set the alarm tone generated by CP 4100 every time an alarm occurs:

Options are (use the keys ▲ ▼ and OK to select):

- Continuous Whoop
- Intermittent Whoop
- Continuous tri-tone
- Intermittent tri-tone
- Mute

b) Reminder Tones

Set the reminder tone among:

- Whoop
- Low Tone
- High Tone
- Mute

c) Display Option

Display setting in case of alarm.

Choose between Show Healthy if no active Faults = ON or OFF by pressing the key OK.

When an alarm is present, the CP 4100 yellow FAULT LED is lit, you hear the alarm tone and on display it appears the writing 1 Fault Logged 1 Current (the found alarm number can be higher).

If Show Healthy if no active Faults is set to ON, as soon as found alarms are not present any more (Zero Current), the alarm status will stop (the yellow FAULT LED is off, no alarm tone and on display it appears the writing "System Healthy"; note: all found alarms keep being present in the internal memory).

If Show Healthy if no active Faults is set to OFF, as soon as found alarms are not present any more (Zero Current), the alarm status keeps being present until you select View/Accept Fault.

4.1.10 Change Date/Time

Set the time by using the keys ▲ ▼ and OK :

Current Time = 10:05:20

New Time = 10:05:20

When done, press OK again to save the new setting.

4.1.11 Eject Fault Report Page

It is possible to print the alarm log; on display:

Page Feed Instruction sent to printer

Current Report Page Should eject now

(use a serial printer or "Hyperterminal"; baud rate: 19'200, 8 bit, NO parity, 1 STOP bit)

4.1.12 Engineering Function

Press \vee on 'Engineering Function' to access this list:

Shut Down

Reboot

Show Card Info

a) Shut Down

Press \vee on 'Shut Down' to shut the system down.

b) Reboot

Press \vee on 'Reboot' to reboot the CP 4100 control unit. Its display turns off and after a few seconds the system restarts operating.

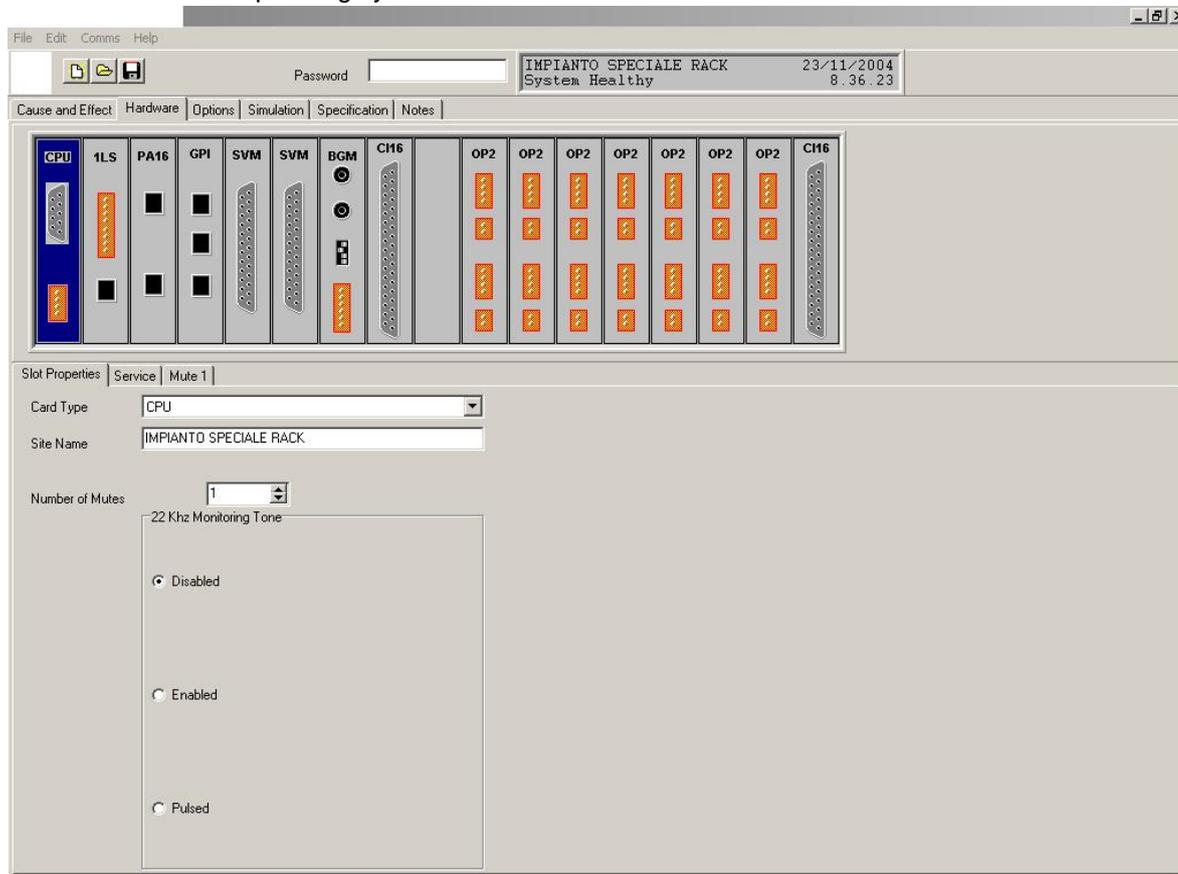
c) Show Card Info

Press \vee on 'Show Card Info' to visualise technical information.

5 Graphic User Interface GUI

5.1 General

The enclosed CD includes a configuration GUI which is intended to be installed on a PC with Microsoft Windows operating system.



Example of the Hardware set-up (CP 4100 card insertion).

CPU- fixed CP4100 card for the power supply (24V dc) and the connection to a PC serial port (COM) to edit the system configuration (through the dedicated software).

The available cards are:

TO BE INSERTED INTO "INPUT SLOTS" (1 ÷ 8)

- GPI= IT4133 Input card for digital paging consoles BM 4732 e BM 4716 and to link up to 4 units CP 4100
- 1LS= IB4001/FM Input card for fireman's paging consoles BM 4631WMM and BM4601
- SVM= VB4134 Message card (on "flash" memory) for up to 4 messages, max. total time: 30 s (sampling frequency: 16 kHz; 16 bit resolution)
- BGM= IB4121BGM Music input card (for 1 source only). It supplies a terminal with 4 external contact inputs.
- PA16= IB4131/16 input card for paging consoles BM4616 (discontinued)

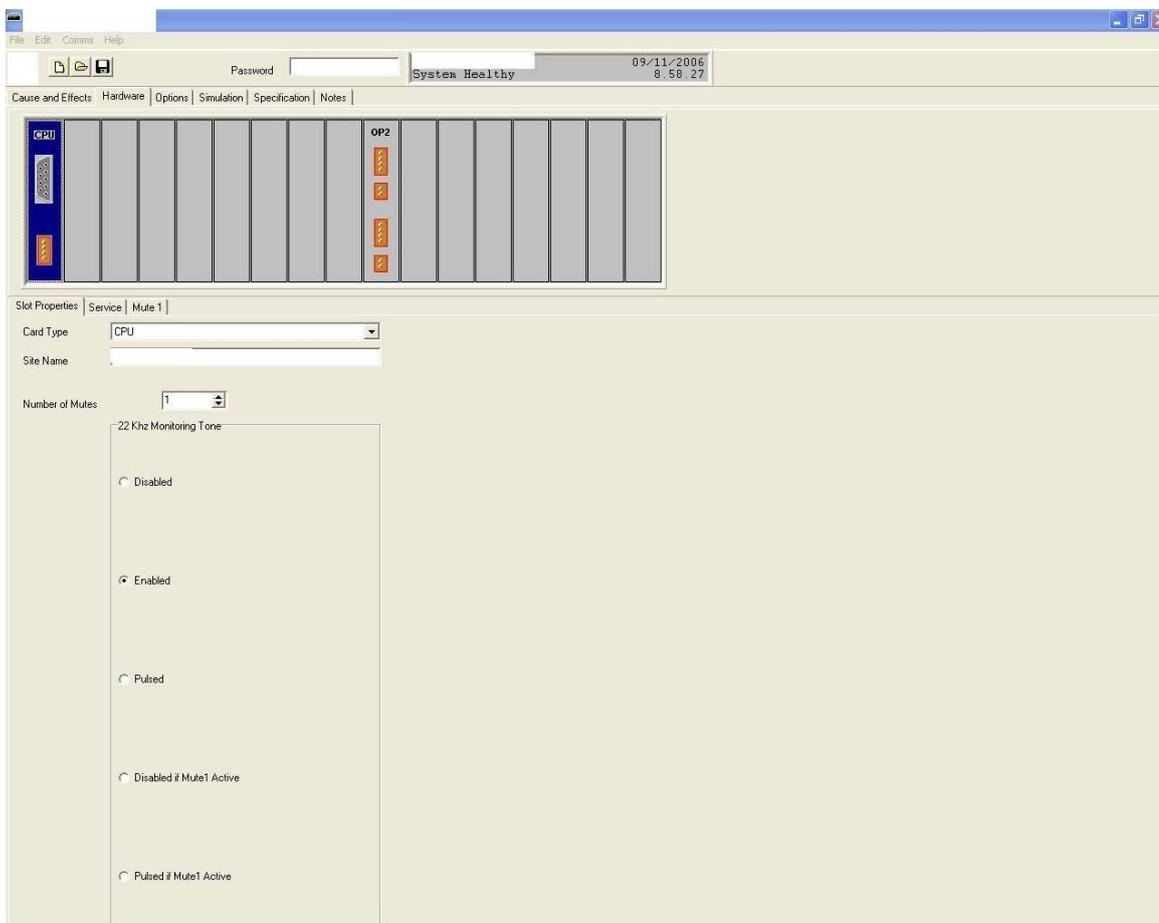
TO BE INSERTED INTO "OUTPUT SLOTS" (9 ÷ 16)

- OP2= OB4102 2 zone output card.

UNIVERSAL (IT CAN BE INSERTED INTO WHICHEVER SLOT)

- CI16= LI4116 Logical input cards with 16 inputs for external contacts (triggers).

5.2 Configuration board CPU



Site Name : the system name that will be shown on CP 4100 and paging console displays.

Number of Mute : up to 4 commands (keys, logical inputs) to mute some input sources in 1 or more zones according to the priority levels.

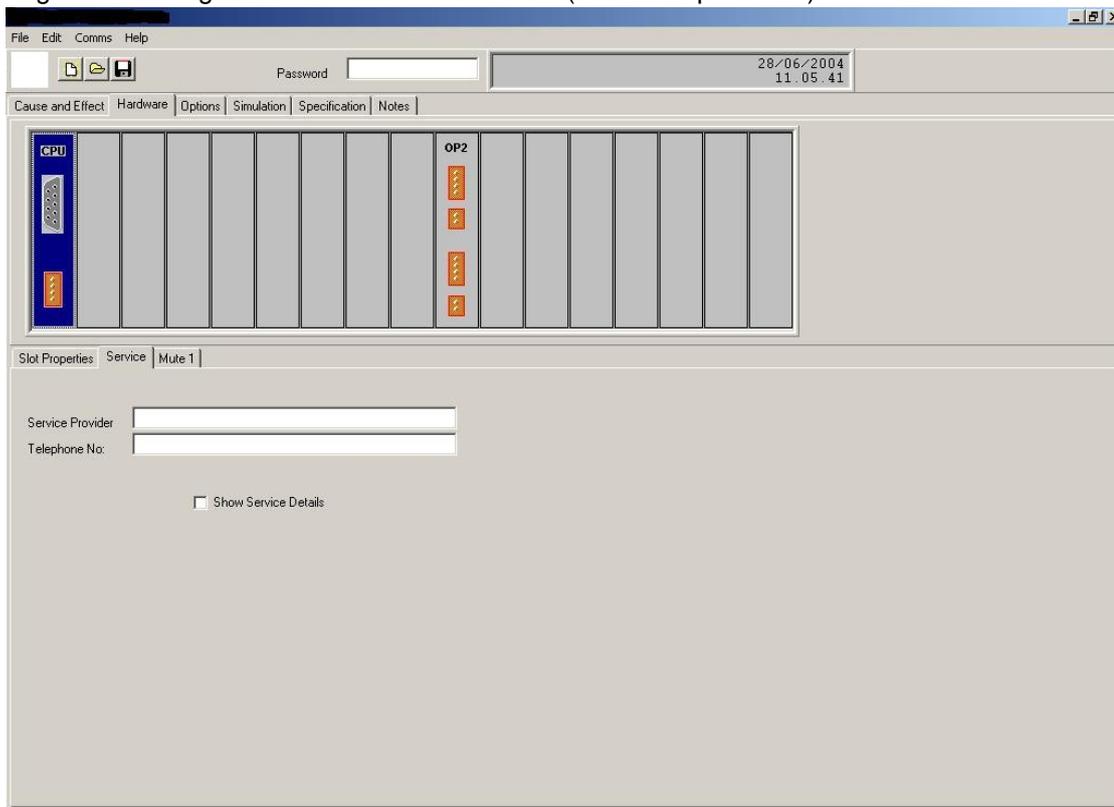
The 22 kHz monitoring tone can be set to:

Disabled (no modules EOL)

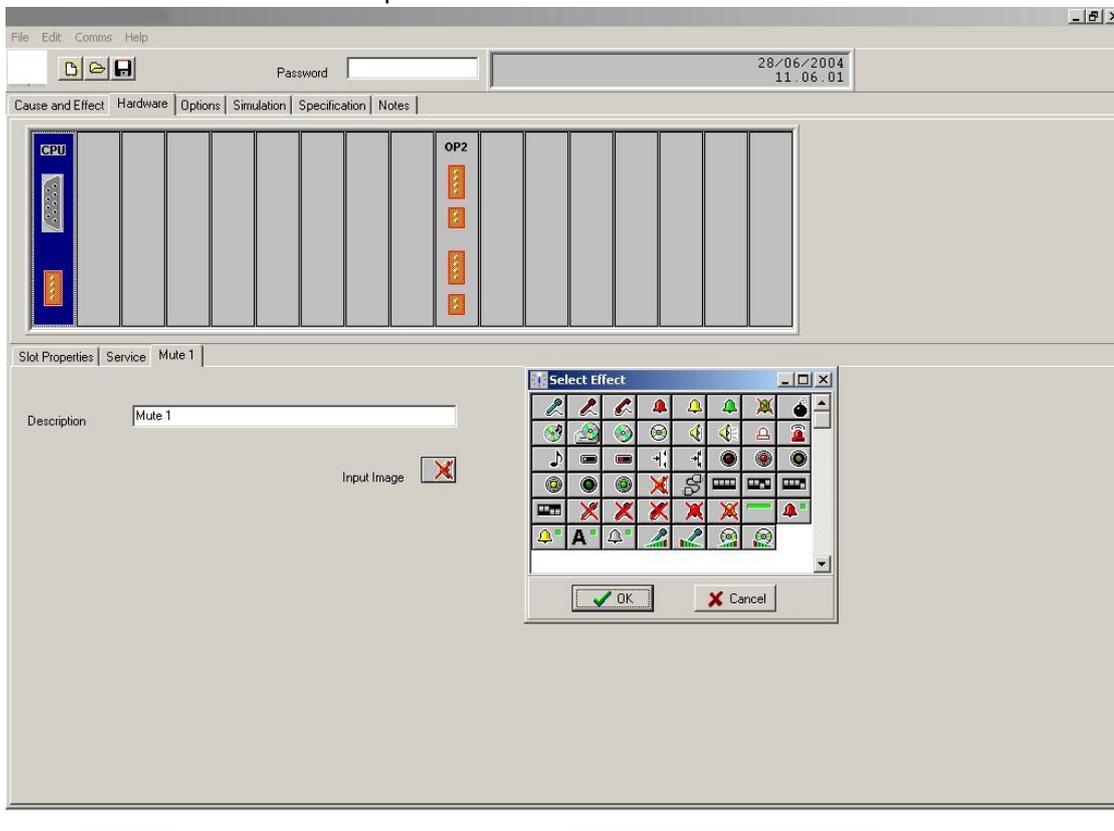
Enabled = (modules EOL are present)

Pulsed

Service Provider e Telephone No: insert the address and the phone number of the company / engineer in charge for the technical assistance (in case of problems).



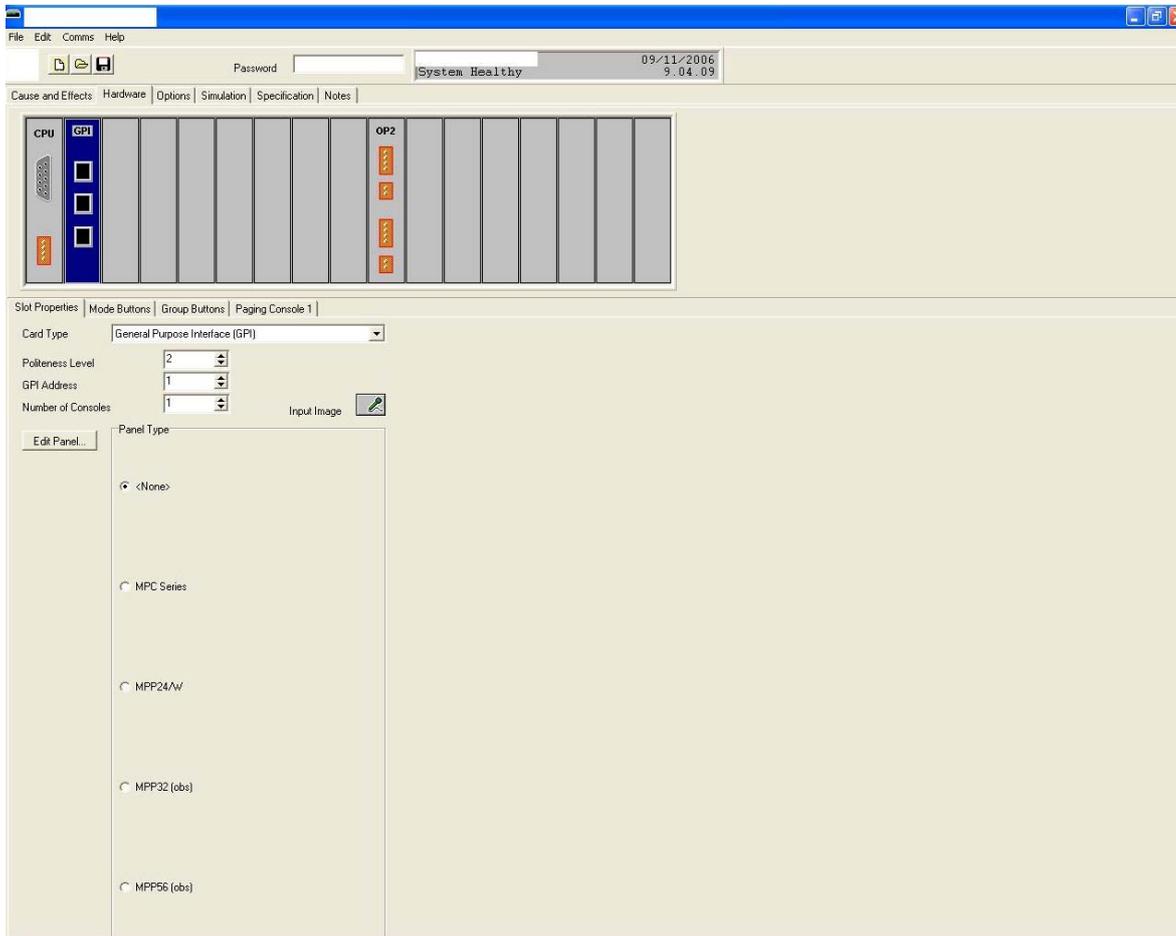
Each **“Mute”** has its own description and icon.



5.3 Configuration extra module

5.3.1 Board IT 4133

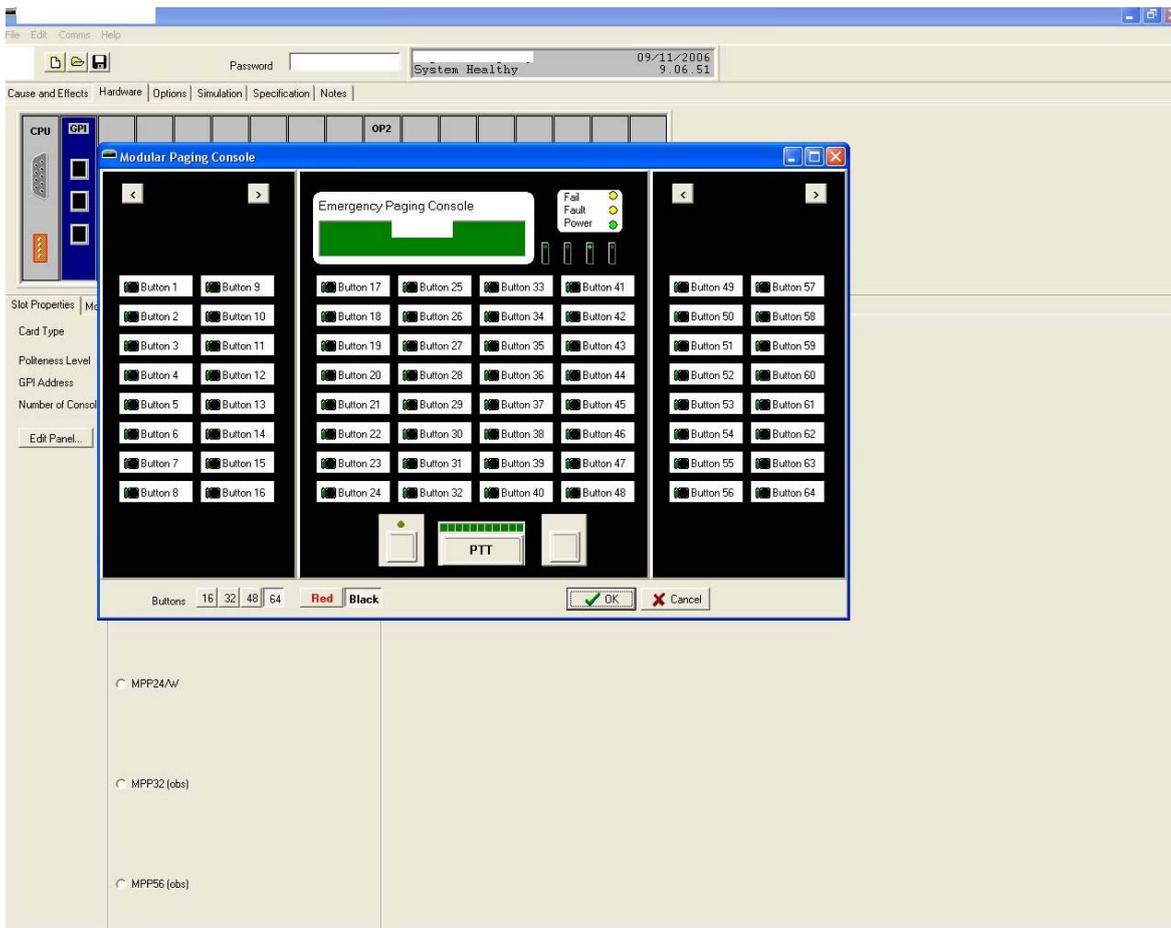
Slot Properties windows:



- **Input Image** : it allows to change the relative icon used in the menu “Cause and effect”.
- **Politeness Level**: initial priority level (automatically set).
- **GPI Address** : digital address of the card IT 4133. Note: it is possible to install up to 4 cards IT4133 (each with a different address) to have max. 16 digital paging consoles (by using an extension card / hub HB 4103/16 per each IT 4133)
- **Number of Panels** : digital paging console number setting (max. 4)

Note: the first paging console BM 4716 / BM 4732 shall be connected to the lower RJ45 socket of the card IT 4133; the upper RJ45 is an output to either the next CP 4100 or the hub HB 4103/16; the central RJ 45 is the input from the previous CP 4100.

Paging Level : volume level selection among Emergency, Normal, BGM.

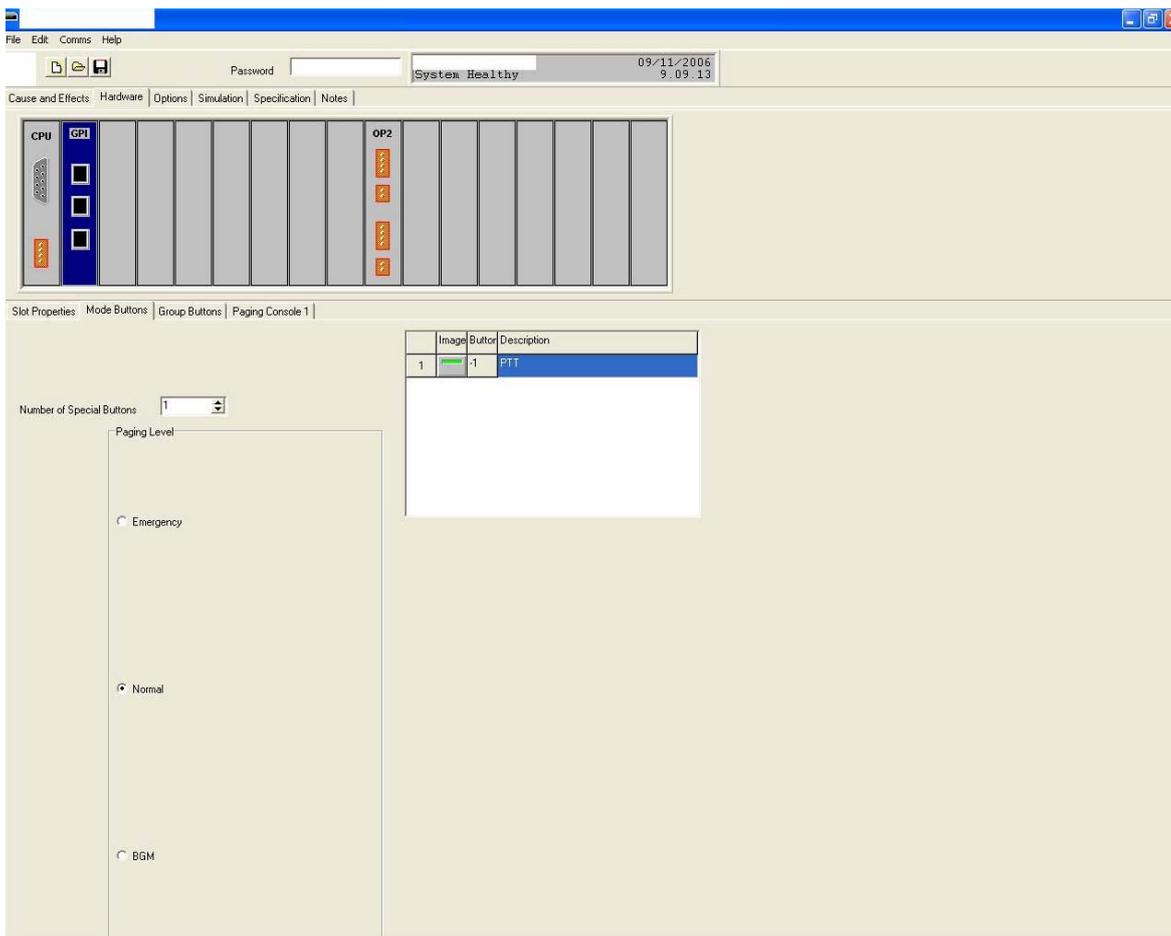


Mode Buttons

You can:

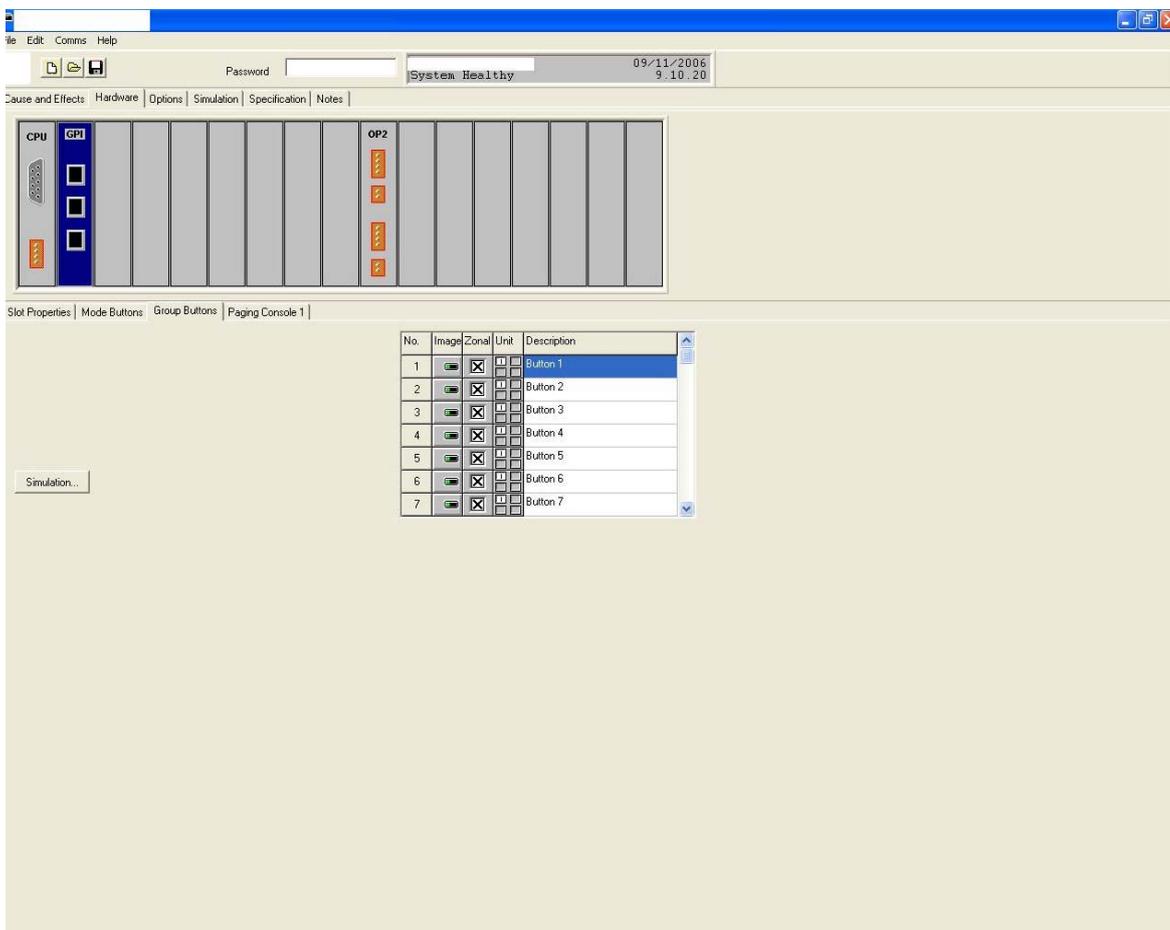
- Choose the PTT key icon.
- Select the paging console model.
- Assign some special keys (Number of Special Buttons).

When double-clicking the special button icon (that appears in the list under the PTT button), the window about the console buttons will appear, on which it will be possible to select which key the special button is assigned to.



Group Buttons

It is possible to set the number of enables keys and their icons used in the window **Cause and effect**.

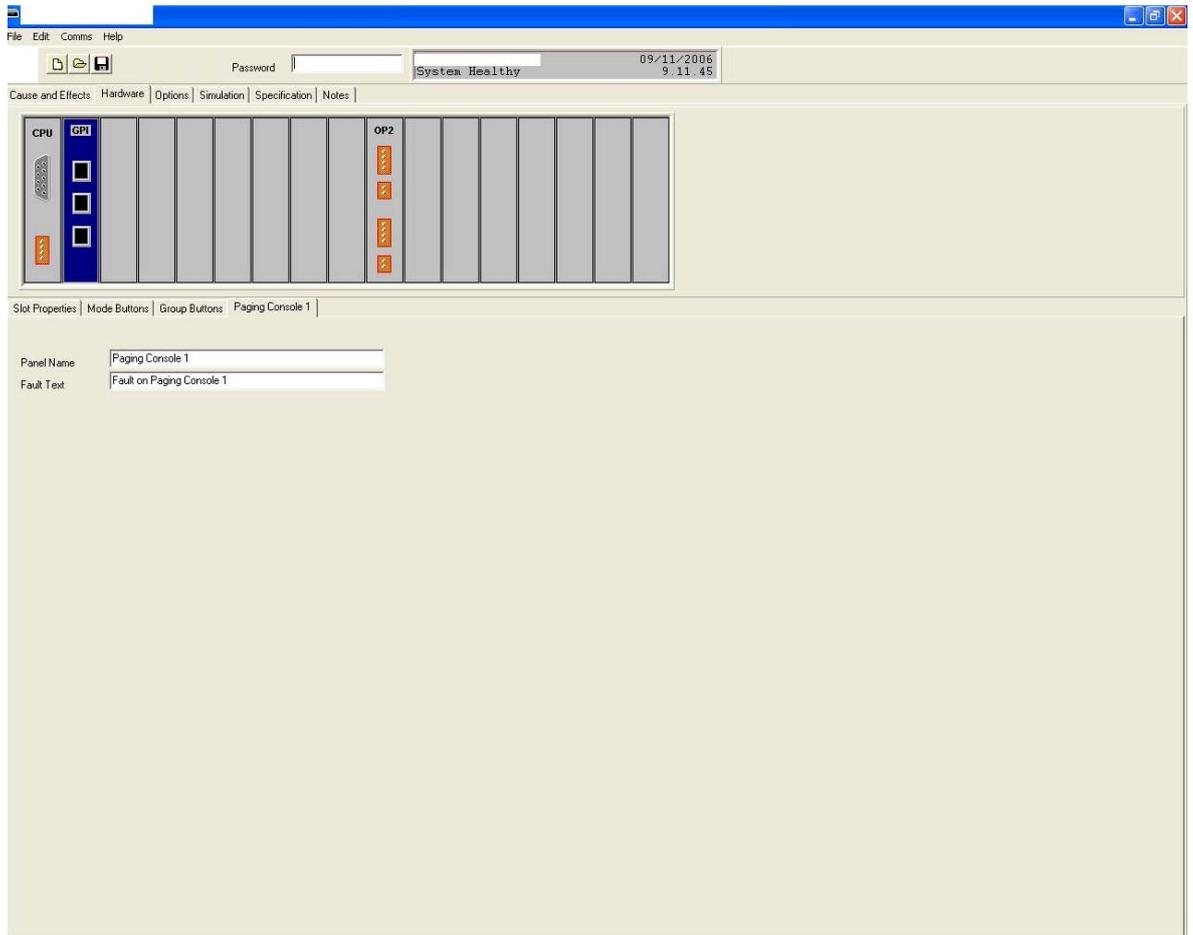


Keys for the zone selection (enabled when the key **PTT** is on) have the check **X** in the column **Zonal** (next to the icon **Image**).

If you remove the check **X** (by clicking on it), that key can be assigned to other functions that don't depend on the PTT button (for instance, to turn music on / off in a zone, to send messages, etc...).

The check **Y** on **Non-Life Safety (not monitored)** turn the paging console monitor off (no found fault in cases of malfunction).

In the Paging Unit 1(2-3-4) menu:

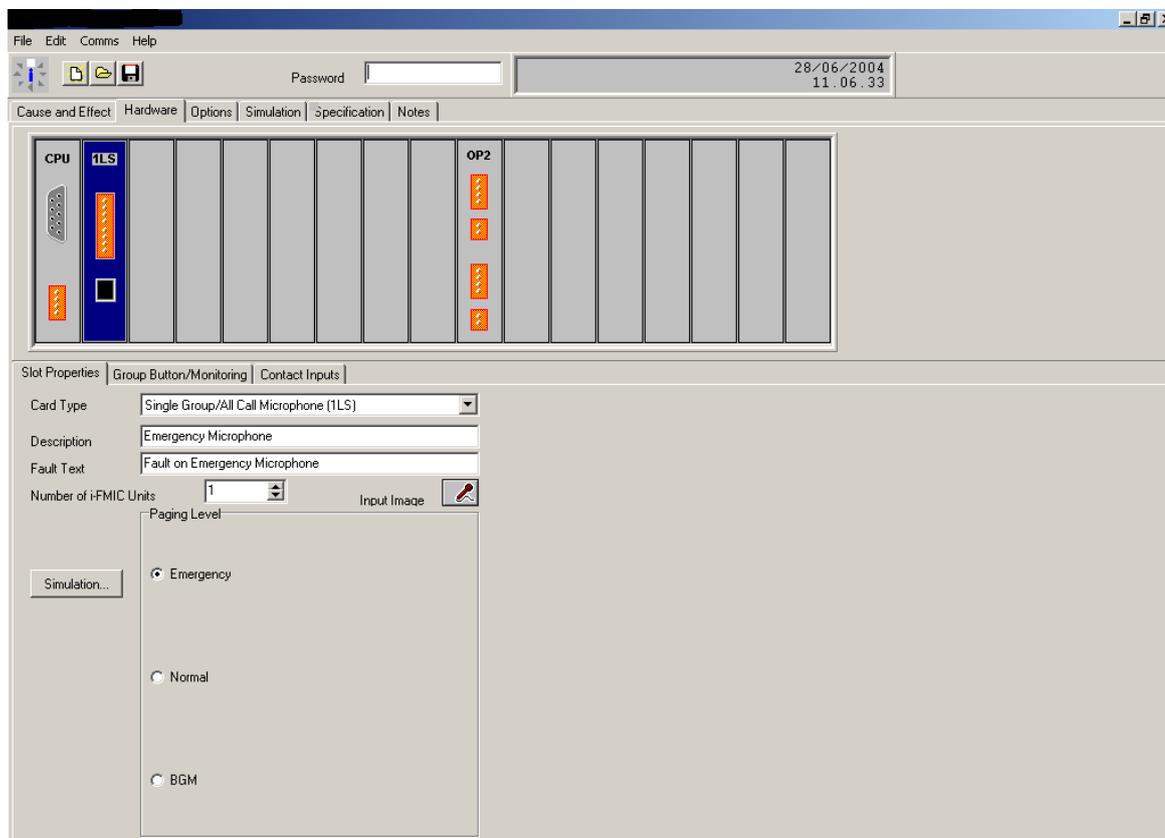


Panel Name : paging console name.

Fault Text : text shown during the paging console fault

5.3.2 IB 4001FM board

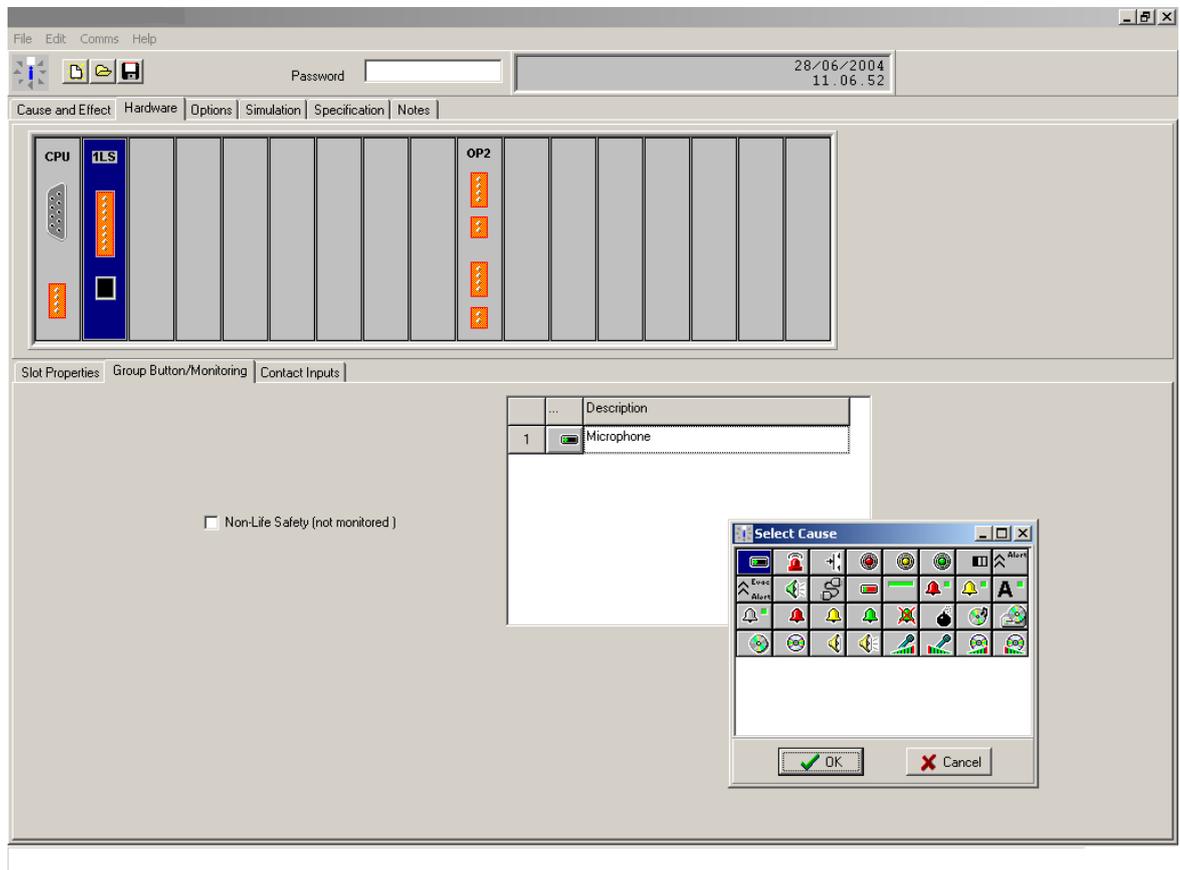
Slot Properties windows :



- **Input Image** : it allows to change the relative icon used in the menu “Cause and effect”.
- **Description** : input label.
- **Fault Text** : text shown during a fault.
- **Paging Level** : volume level selection among Emergency, Normal, BGM.
- **Number of i-FMIC Units** : number of connected paging consoles (BM 4601 / BM 4631WM).

Group Button Monitoring

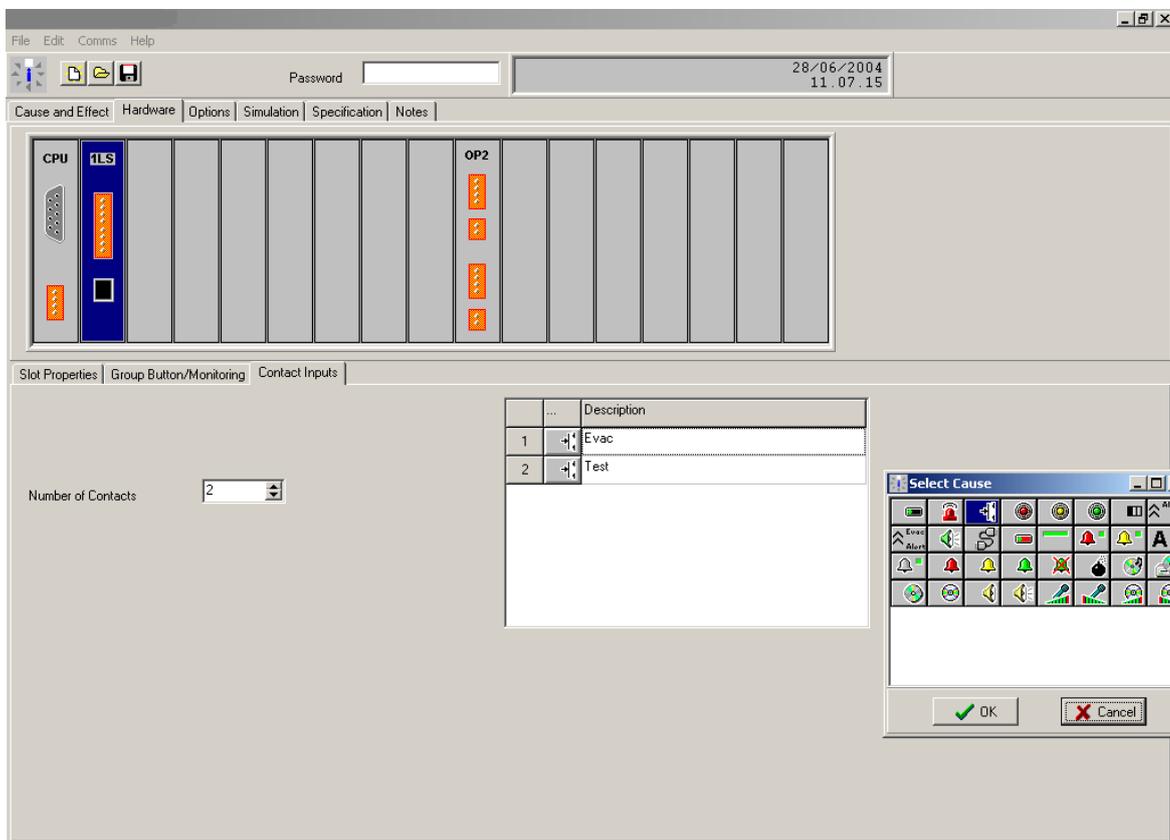
It is possible to choose the icon (of the relative input) used in the menu **Cause and effect** .



The check on **Non-Life Safety (not monitored)** turn the input monitor off (no found fault in cases of malfunction).

Group Contact Input

This menu makes it possible to set the number of function keys (0 ÷ 2) that are assigned to events as set in the menu **Cause and effect**

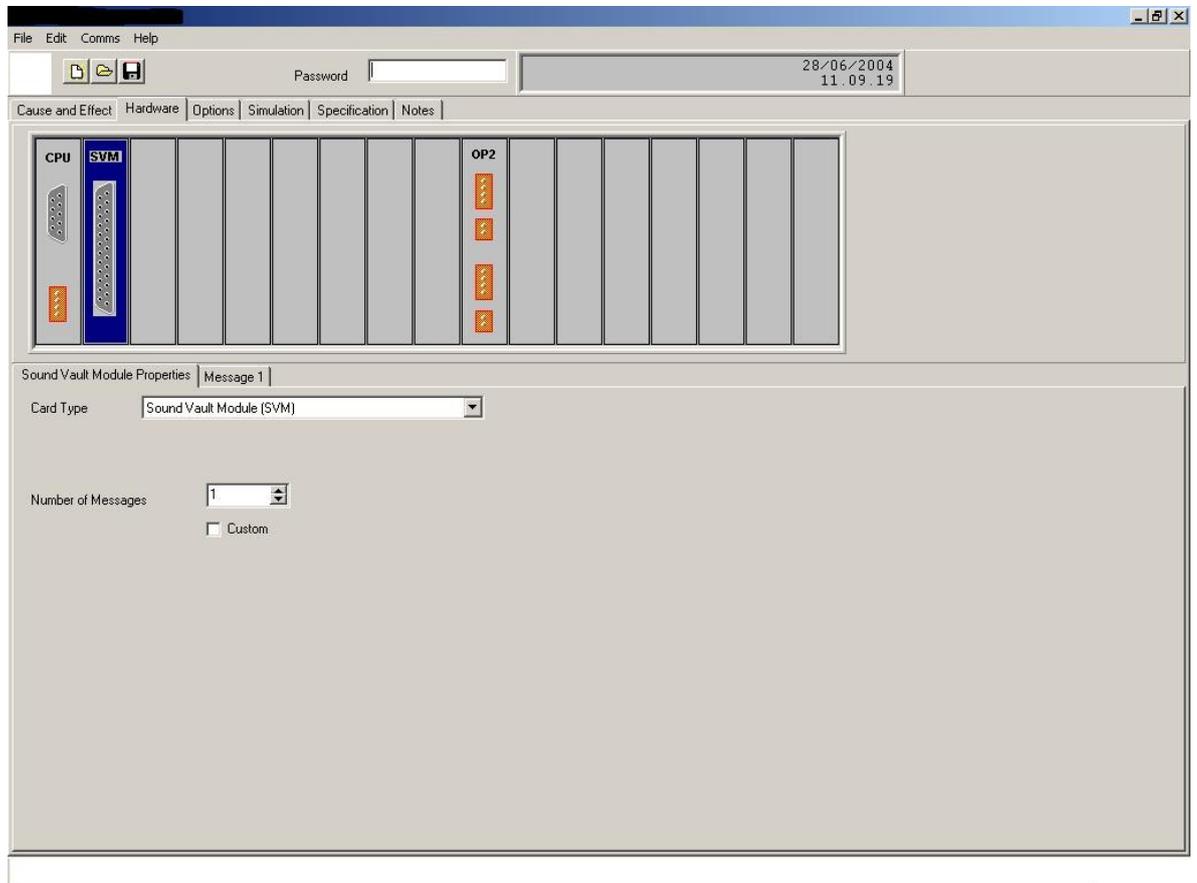


Notes:

Paging consoles BM 4601 has the PTT key only (there are no available function keys).
 Fireman's wall-mounted paging consoles BM 4631WM have 2 function keys.

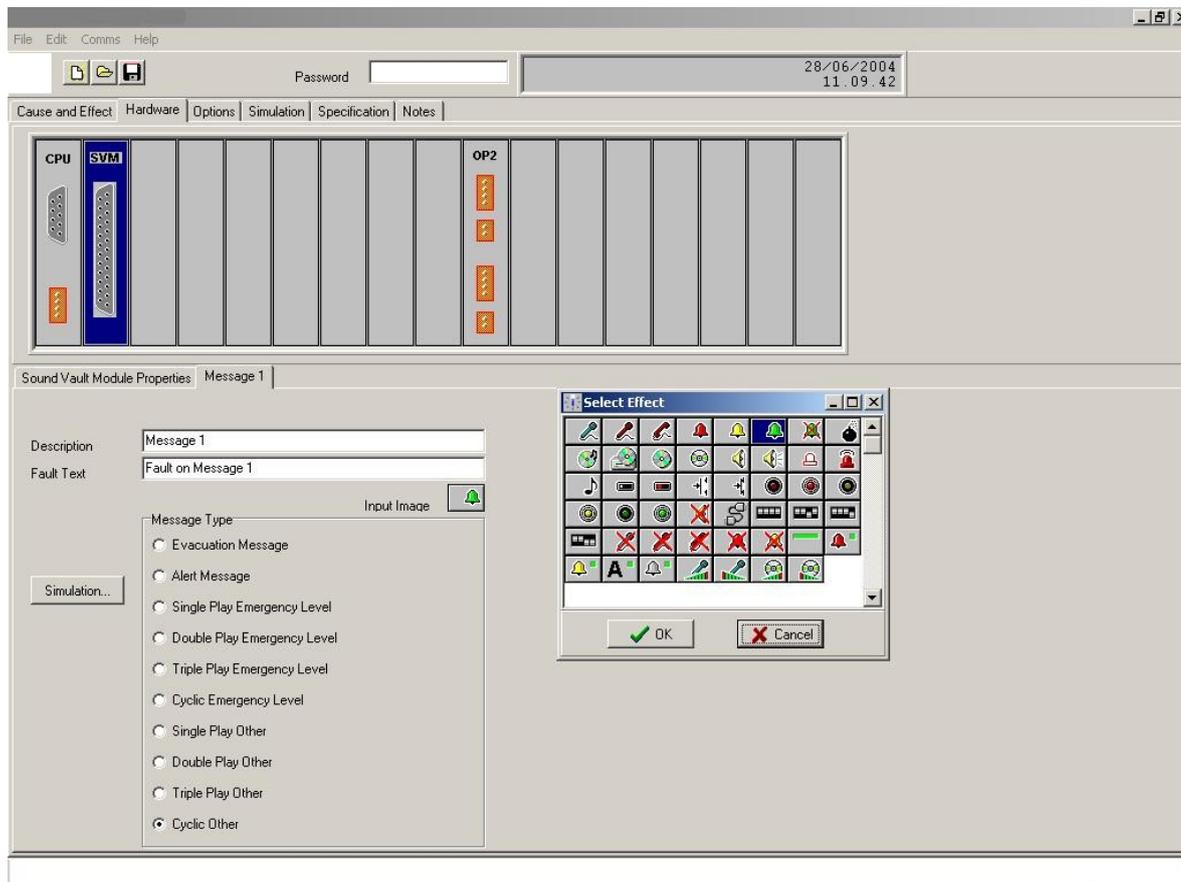
5.3.3 VB 4134 board

Message player card on which up to 4 messages (files .wav; the sum of all messages cannot exceed 30 seconds) are stored into a “flash” memory.



Sound Vault Module Properties : message number setting (max. 4, each 7.5 s long).).

In the single message menu table, it is possible to select (from the 'Messages Type' list) which kind of message is to be used for the PC simulation.



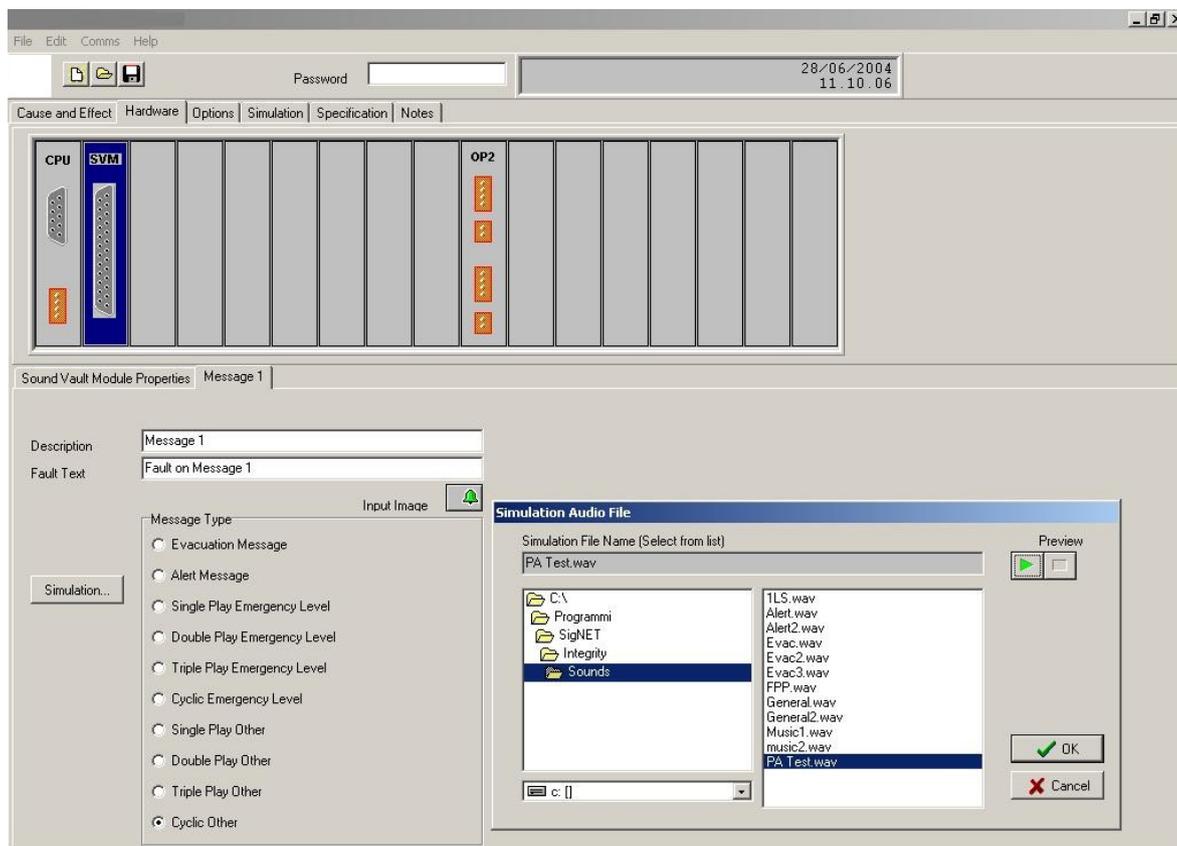
Messages Type : choice of the message used in the software simulation.

Description : message label.

Fault Text : text shown in case of message fault.

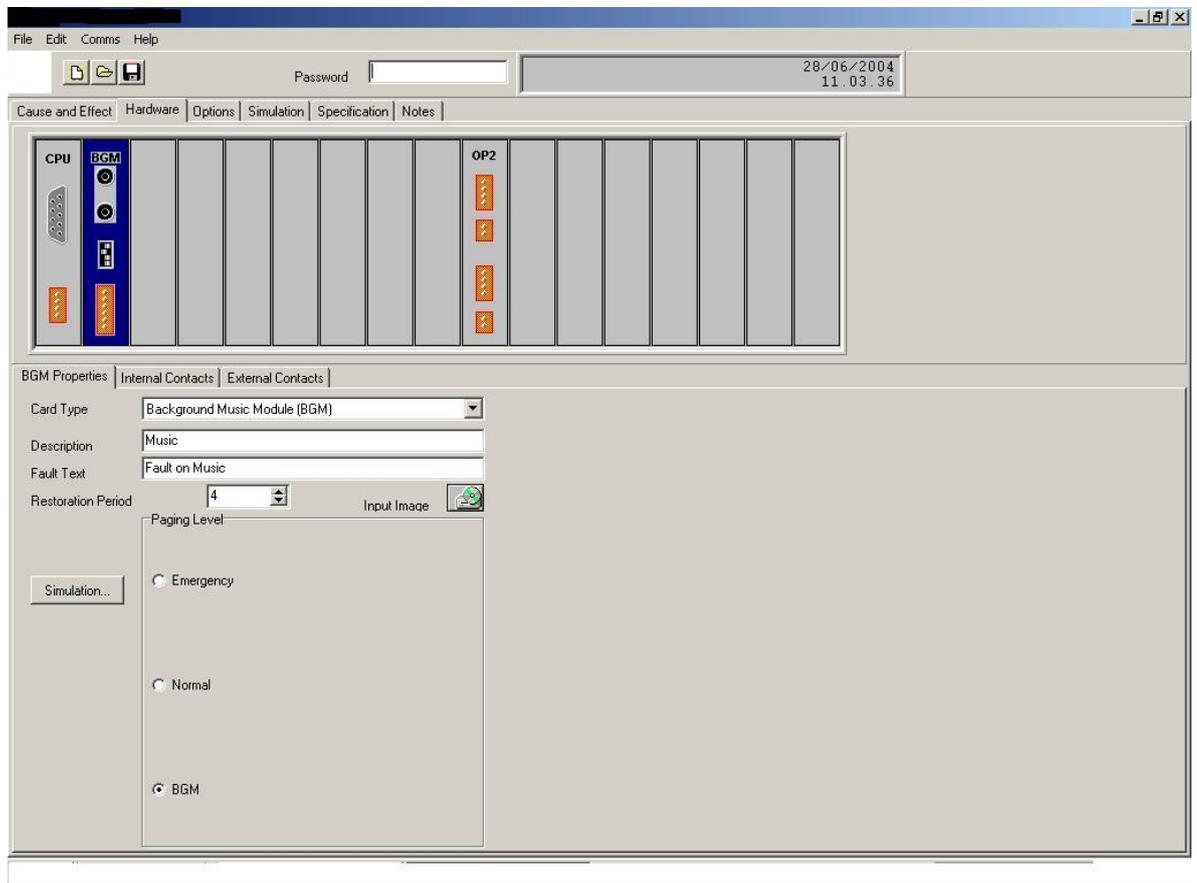
Input Image : it allows to change the relative icon used in the menu "**Cause and effect**".

Click on **Simulation** to open a wave .wav file (that will be assigned to the selected message) used for the software simulation.



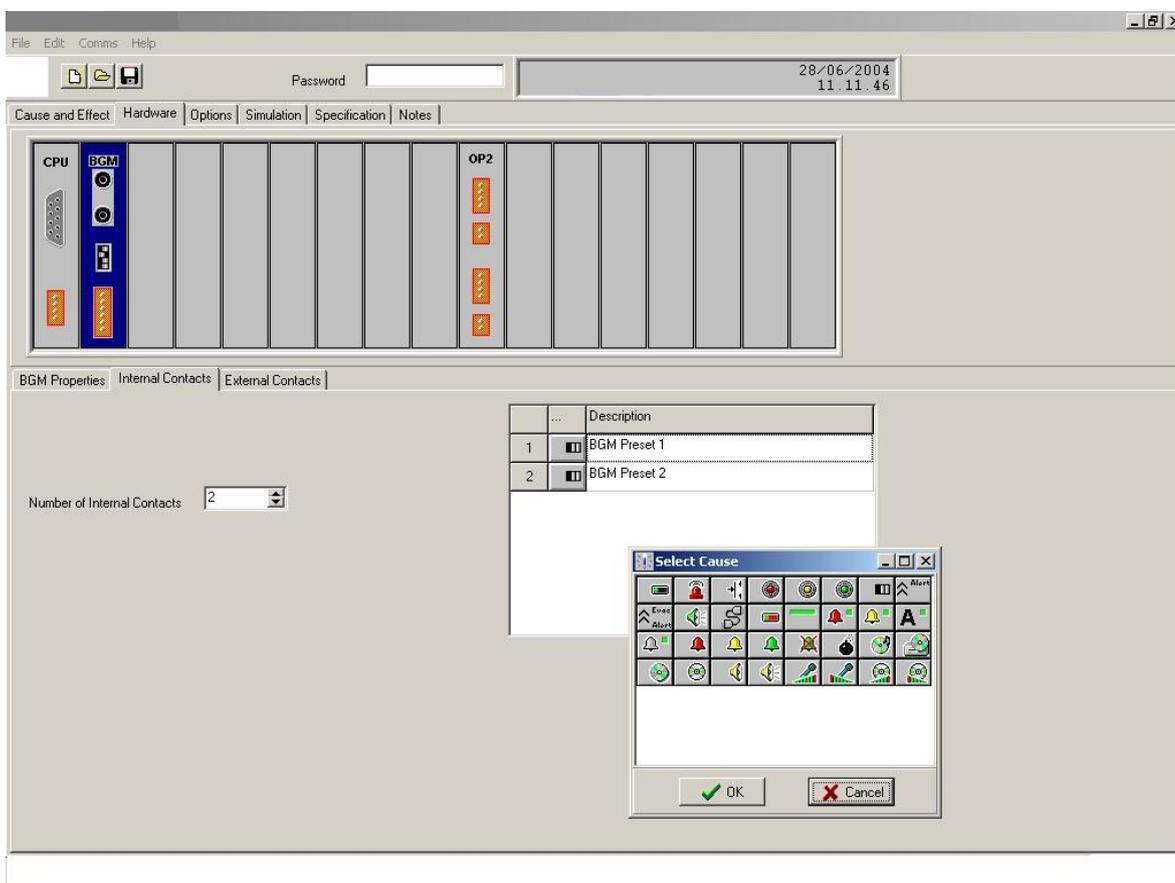
5.3.4 IB 4121BGM board

BGM Properties windows:

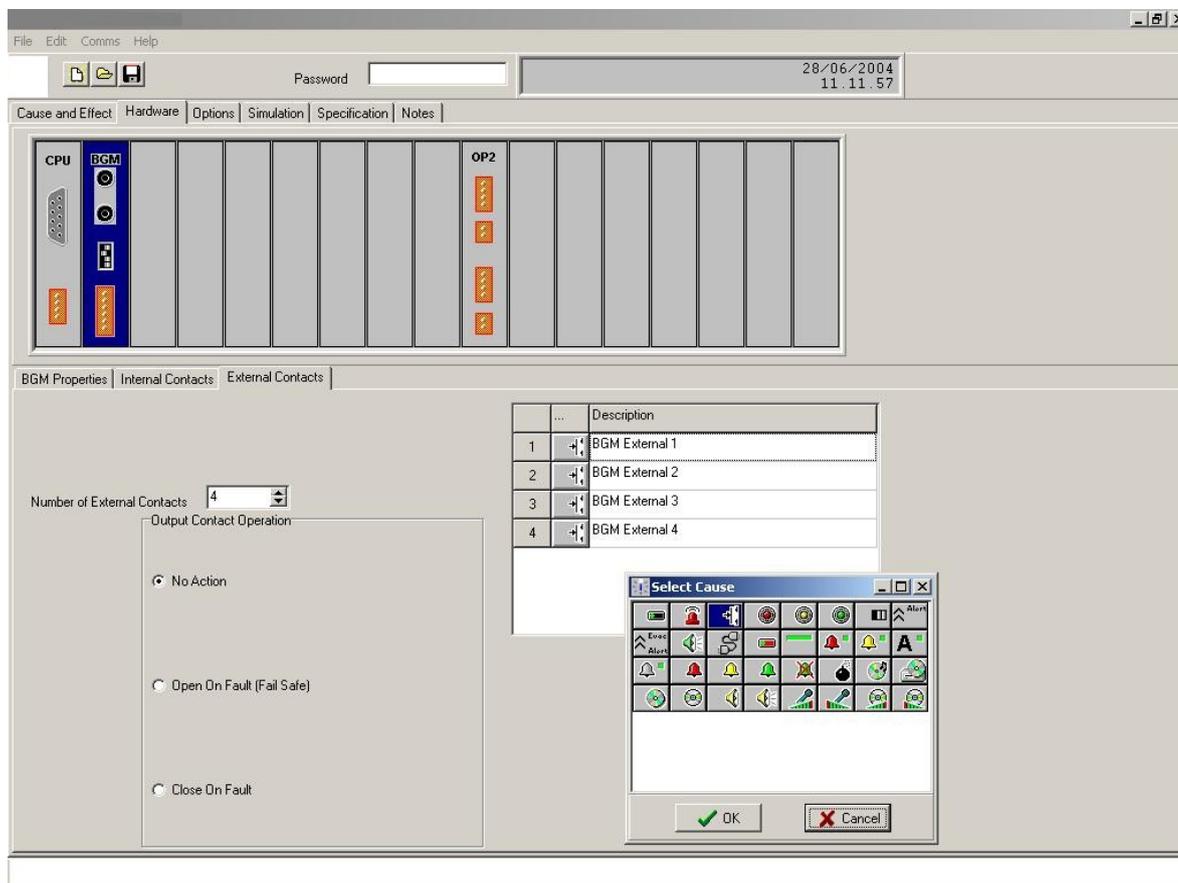


- Input Image : it allows to change the relative icon used in the menu “Cause and effect”.
- Description : audio input description (shown on CP 4100 display).
- Fault Text : text shown in case of fault.
- Paging Level : volume level selection among Emergency, Normal, BGM.

Number of internal contacts : number of used microswitches (available on the rear panel) that will be shown in the **Cause and Effect** menu.



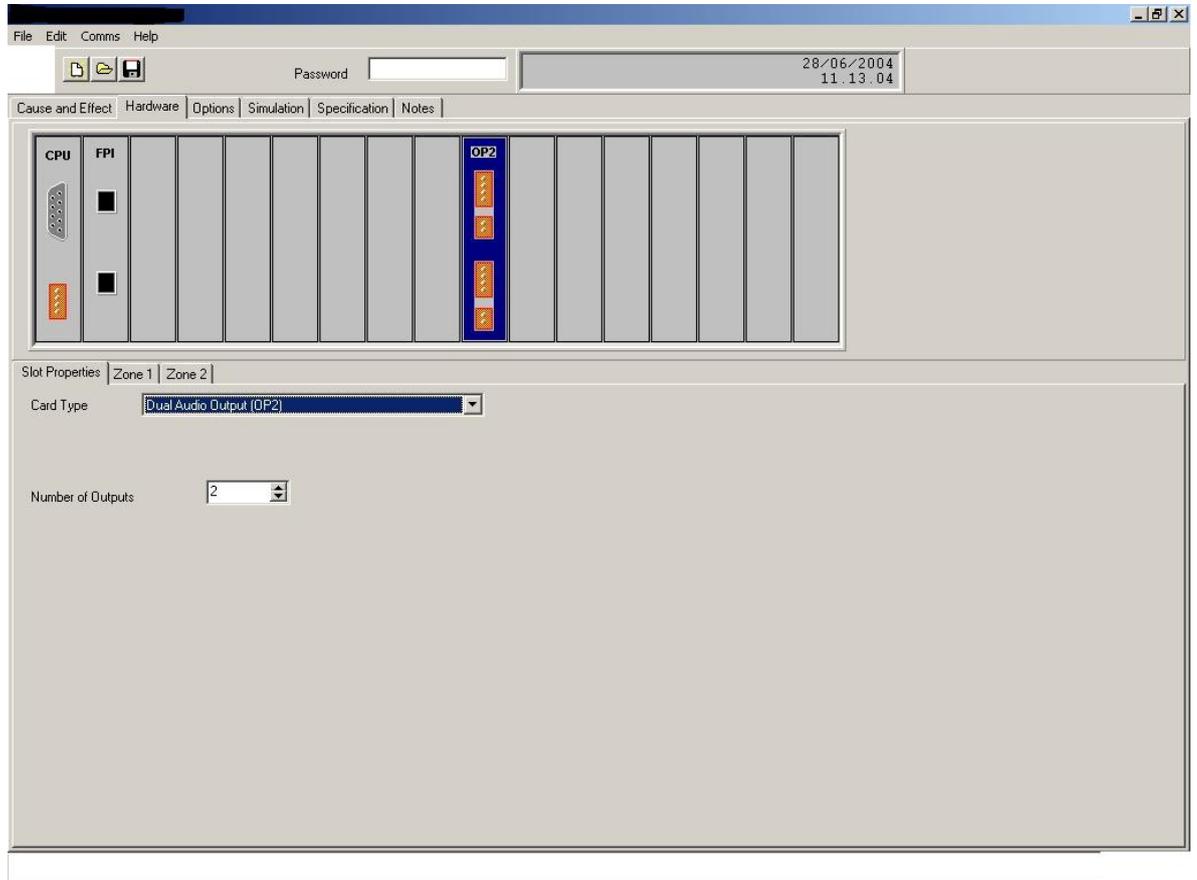
External contacts : number of enabled logical input (max. 4) for external contacts (also shown in the **cause and effect** menu).



Output Contact Operation : it sets the card open collector contact as **Open On fault** or **Close On fault** (or **No Action**).

5.3.5 OB 4102 board

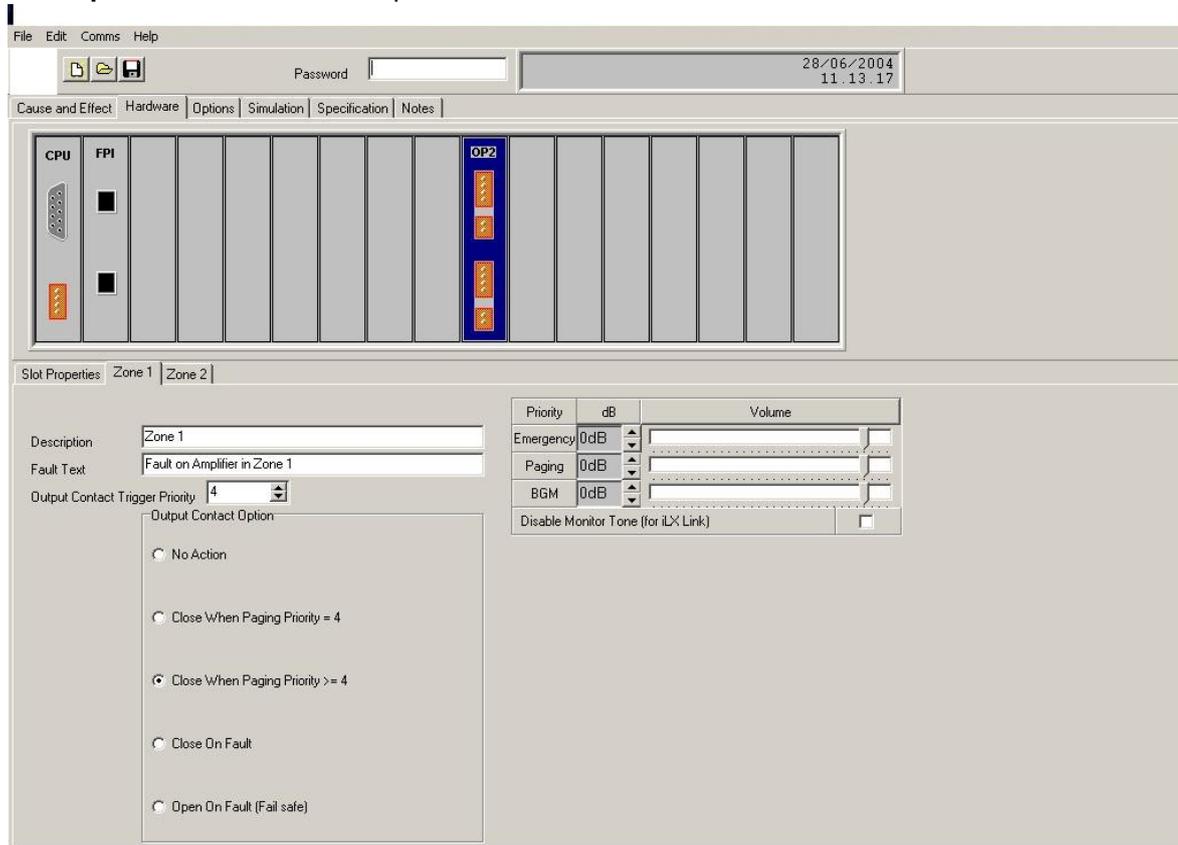
Slot Properties windows :



Number of Outputs : number of used outputs (1 or 2).

Zone 1 (/ 2)

Description : zone label / description..



Fault Text : text shown in case of fault.

Output Contact Option

It sets the open collector contact as (1 choice):

Open On fault

Close On fault

Close When Paging Priority \geq n (higher or equal to the number set in Output Contact Trigger Priority).

Close When Paging Priority = n (equal to the number set in Output Contact Trigger Priority).

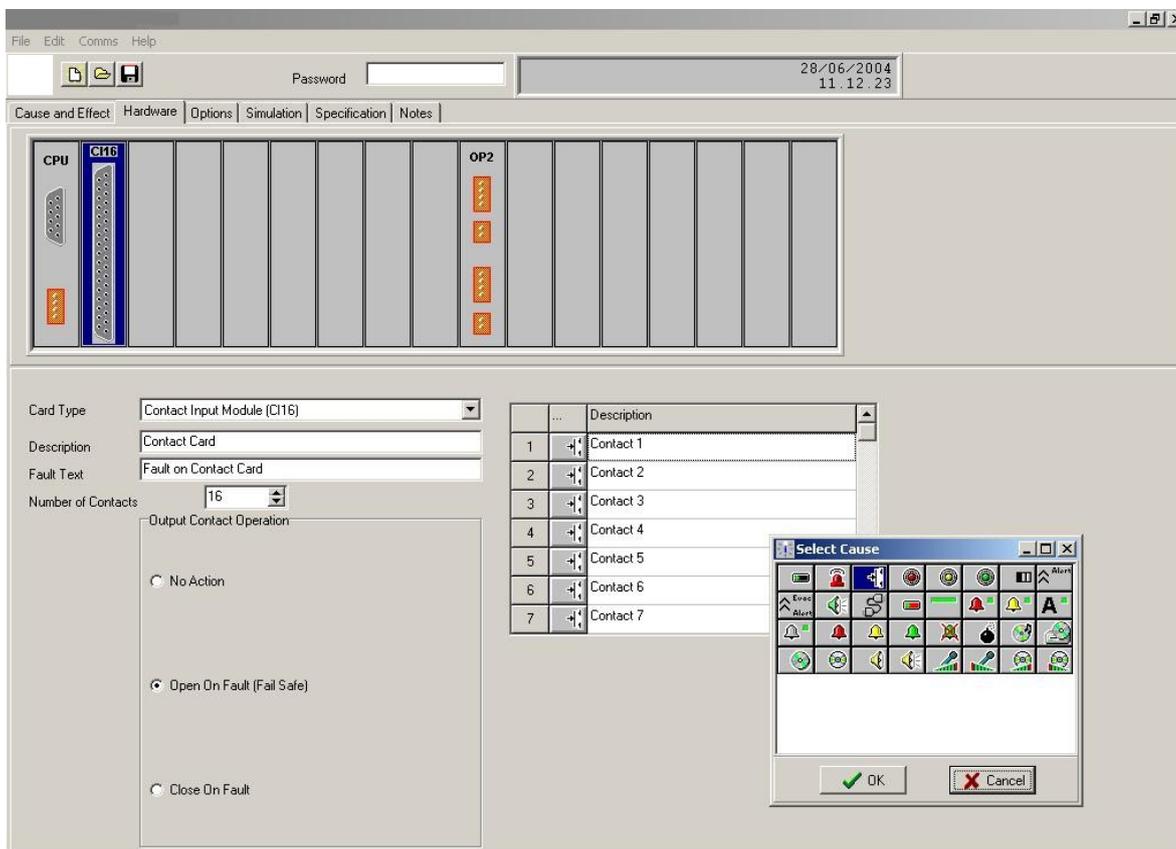
No Action

On the right, you can adjust 3 volume levels Emergency, Paging, BGM in every zone.

The check at **Disable Monitor Tone (For iLX link)** removes the 22 kHz monitor tone from the audio output (if the module EOL is not used for that zone).

5.3.6 LI 4116 board

Description : generic description of the contact group.



Fault Text : text shown in case of fault.

Number of Contacts : number of enabled logical input (max. 16) that are shown in the **Cause and effect** menu (each contact has its icon).

Output Contact Operation : it sets the card open collector contact as **Open On fault** or **Close On fault** (or **No Action**).

5.4 Software menu Configuration

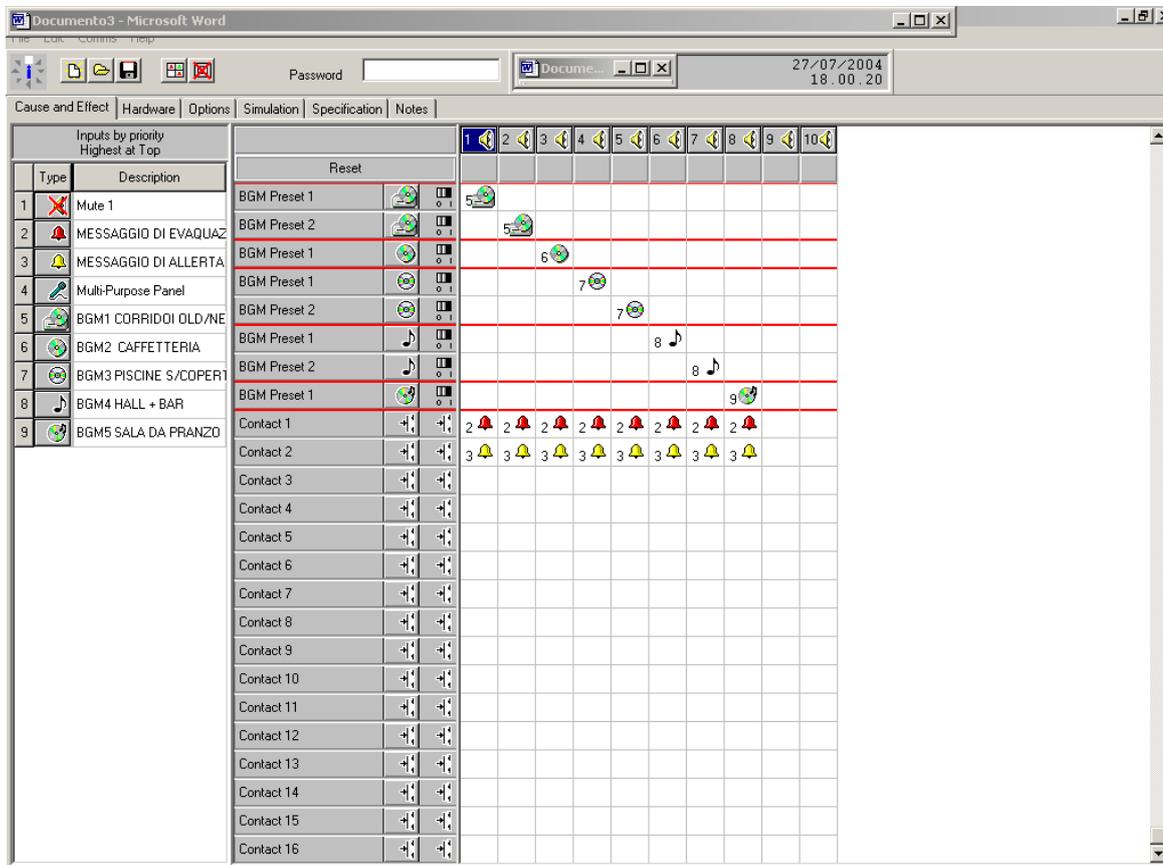
Example of 'Cause and Effect' indication:

The screenshot shows a Microsoft Word document titled 'Documento3 - Microsoft Word' with a 'Cause and Effect' configuration table. The table is organized into columns for inputs (1-10) and rows for various system components. The 'Cause and Effect' tab is active, showing a grid of checkboxes and icons indicating the relationship between inputs and outputs.

Inputs by priority Highest at Top		Cause and Effect									
Type	Description	1	2	3	4	5	6	7	8	9	10
1	Mute 1	☒									
2	MESSAGGIO DI EVAQUAZ		☒								
3	MESSAGGIO DI ALLERTA			☒							
4	Multi-Purpose Panel				☒						
5	BGM1 CORRIDOI OLD/NE					☒					
6	BGM2 CAFFETTERIA						☒				
7	BGM3 PISCINE S/COPER							☒			
8	BGM4 HALL + BAR								☒		
9	BGM5 SALA DA PRANZO									☒	
Reset											
	Button 1	☒									
	Button 2		☒								
	Button 3			☒							
	Button 4				☒						
	Button 5					☒					
	Button 6						☒				
	Button 7							☒			
	Button 8								☒		
	Button 9									☒	
	Button 10										☒
	Button 11										
	Button 12										
	Button 13										
	Button 14										
	Button 15										
	PTT	4	4	4	4	4	4	4	4	4	4
	BGM Preset 1		5								
	BGM Preset 2			6							
	BGM Preset 1				7						
	BGM Preset 2					7					
	BGM Preset 1						8				
	BGM Preset 2							8			
	BGM Preset 1								9		

5.4.1 Cause and Effect Menu

In the Cause and Effect menu is possible:



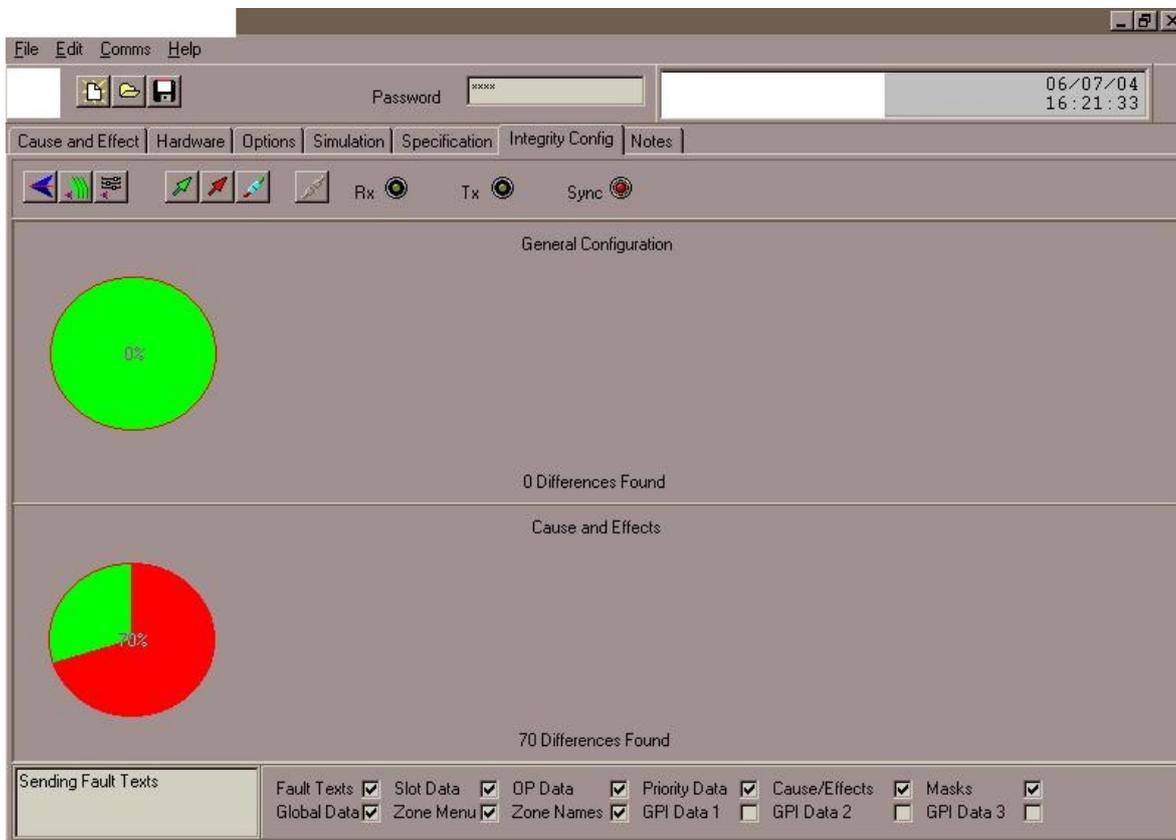
You can change the priority level list by dragging icons to the right position (in the column **Inputs by priority Highest at top** ; lowest is the number, highest is the priority).

The central column (under the label **Reset**) is the Y-axis of a matrix where you can see all the possible events (names, icons, command symbols). The X-axis is the list of available outputs / zones (max. 16). It is possible to assign each event to 1 or more outputs by selecting the source first (clicking on the relevant icon of the column Type), then by clicking on the intersection of the event column (Y axis) and the output (X axis).

This menu permits a visual and audible (if loudspeakers are connected to the PC) simulation of the system settings. Clicking on whichever event, you'll see the relevant source assigned to the selected output(s).

5.4.2 Upload Cause and Effect configuration to CP4100

Insert the password **2222** (this shows a hidden menu **Integrity Config**) and make sure the PC COM port is connected to CP 4100 properly.



Integrity Config menu:

Click on the button  to start the data communication between the PC and the control unit CP 4100 (Sync LED is green; TX and RX LEDs are yellow).

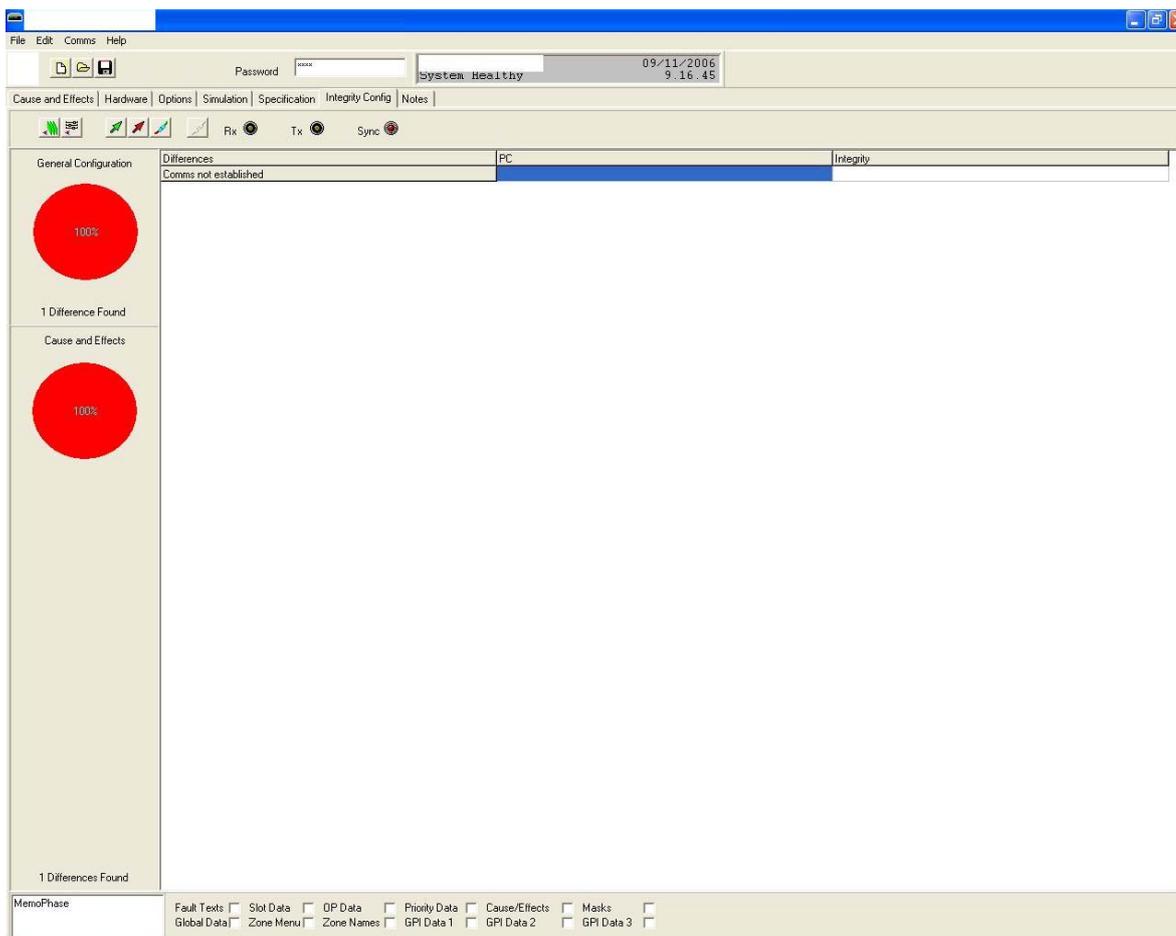


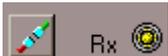
You can now see the (found) differences between the CP 4100 present configuration and the one loaded / set by in the using the software.

Click on the button  to upload send the software configuration (to CP 4100).

Note: during the upload is in progress, CP 4100 audio outputs are momentary muted.

When no differences are found (see above),



all data have been properly transferred (no errors) and it is now possible to turn the communication between PC and CP 4100 off (by clicking first on the button  (to stop the upload), then on  .

5.5 Record message by software

The software Sound Vault permits to upload / download messages from / to the card VB 4134.

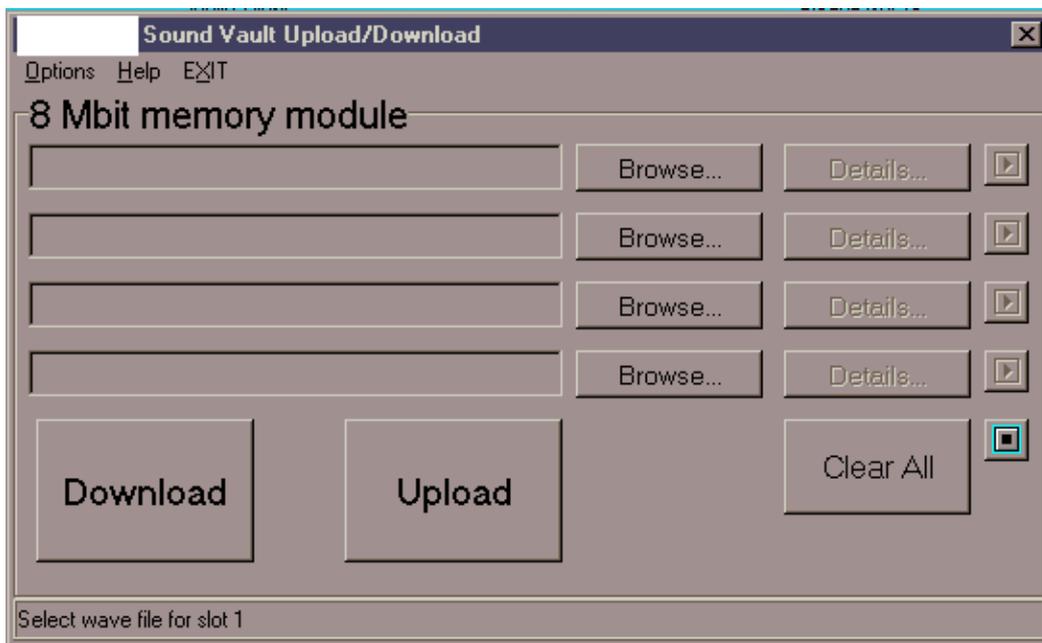
Notes:

The card VB 4134 is to be connected to the PC parallel port.

PC operating system: MS Windows 95 / 98.

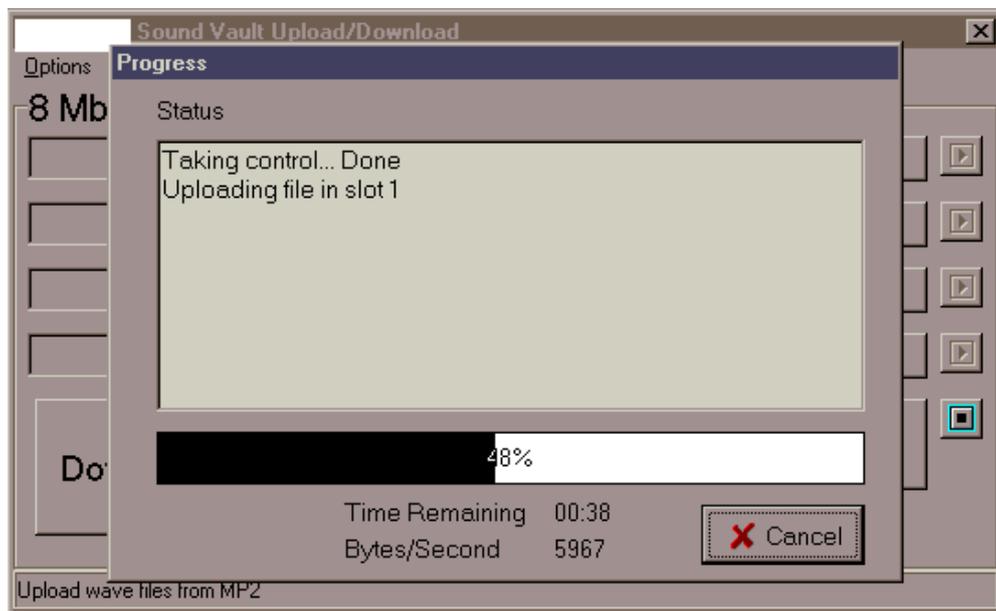
PC parallel port must be set to SPP (**Standard Parallel Port**)

All files .wav (waves) shall be recorded with (or converted to) a sampling frequency 16 kHz (16 bit resolution); each message can last max. 30 s (1 message only) or 15 s (2 messages) or 7.5 s (4 messages).



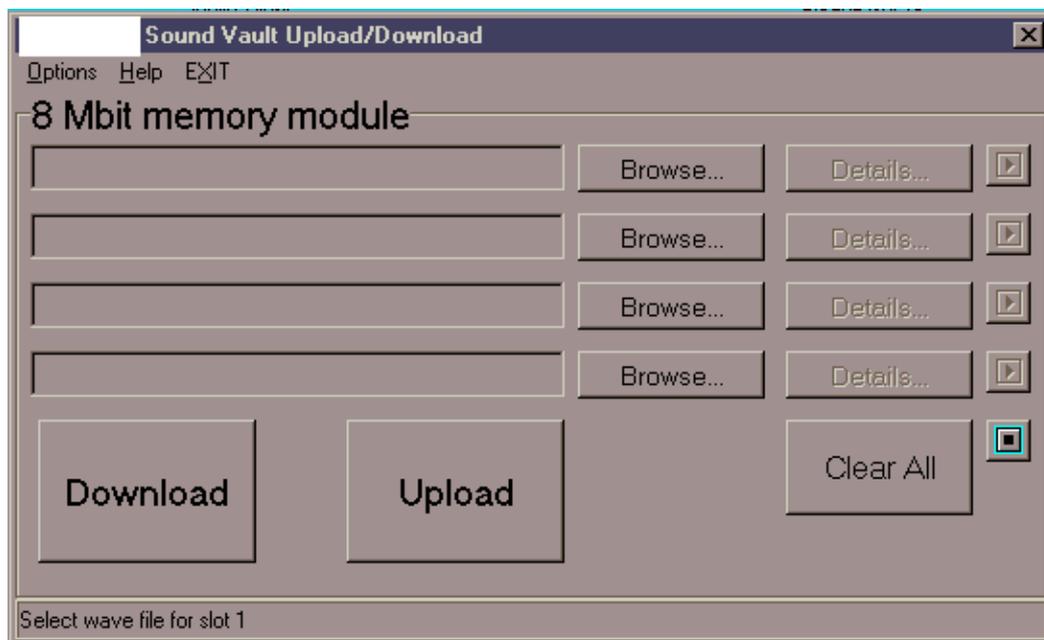
Click on **Upload** to upload the present VB 4134 messages.

If the data transfer between the computer and the card VB 4134 is correct, you can see the following window:



Download messages

First select the audio (wave) file(s) to be sent to the card VB 4134: each of the 4 lines is a memory slot on which you can insert a message by clicking on **Browse** (to browse and select the wave file).



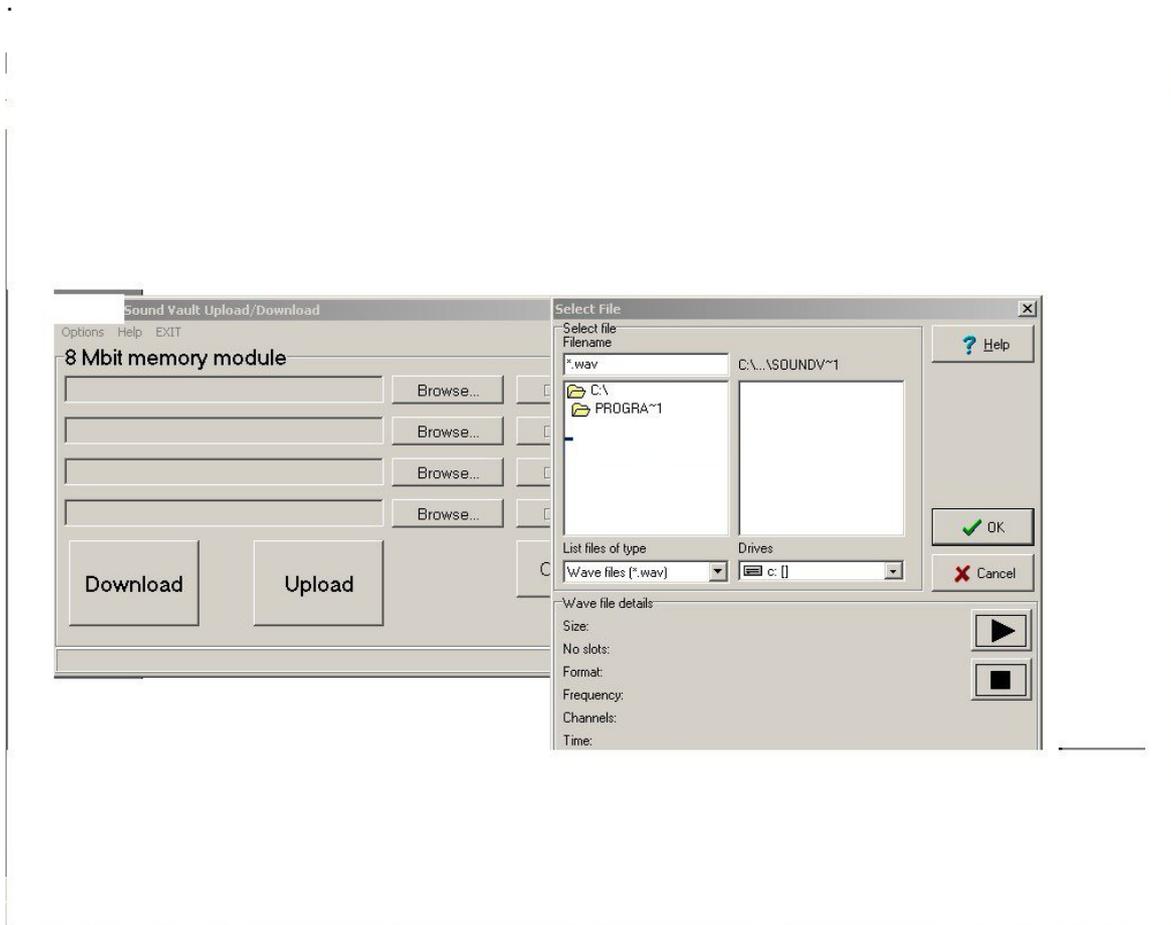
The “Select File” window shows all wave file data to verify if the chosen file is suitable (with proper dimension and a supported sampling frequency).

Start the message insertion from the first memory slot:

If the message lasts more than 7.5 seconds (but less than 15 s), the memory slot 2 will be disabled (as this memory is already used by the first message).

If the message lasts more than 15 seconds (but less than 22.5 s), the memory slots 2 and 3 will be disabled.

If the message lasts more than 22.5, all the other slots will be disabled (so it will be possible to store 1 message only).



Click on Download to download the message(s) to the card VB 4134

6 Technical Specification

Operating voltage	100 VAC min., 240 VAC max. @ 47 - 63 Hz
Power (consumption)	25÷500 W
Fuse	240 V 1 A HRC ceramic 20 mm
Inrush current	circa 7 A (230 V)
Dimension (w, h, d)	483 mm, 88 mm, 270 mm
Net weight	5 Kg
Operation temperature	0° - 50° C
Operation humidity	20 ÷ 90% RH on-cond.
Max humidity	85 % without condensation
Audio Number of audio channels	8 per output
Audio Resolution	16 bit

External DC power source

Input voltage	24 V
Battery fuse	5 A F 20 mm

Digital voice memory

Data format	WAV, mono
Sampling frequency	16 kHz
Resolution	16 bit
Maximum possible number of storable messages	..
Time limit for all stored messages	..
Simultaneously TX messages from memory	..

Line inputs

Maximum input level	-8.2 ÷ +8.2 dBu
Input impedance	20 k Ω
Frequency response (Ref 1 kHz)	20 Hz - 20 kHz
Distortion (THD+N @1W/1 kHz)	< 1%
Signal / noise ratio	> 90 dBA (typical 96 dBA)

RS 232 interface

Baudrate	19.200 kbit/s (8 Bit, 1 stop, No parity)
----------	--

7 INDEX

A		L	
Alarm.....	2-7; 4-51; 4-53; 4-54; 4-55; 4-56	LED.....	3-19; 3-23; 3-39; 4-51; 4-56; 5-80
F		R	
Frequency	6-86	Rack	2-8
J		S	
Jumper	3-17	Select.....	3-30; 3-31; 3-35; 4-52; 5-62; 5-83
		Switch	3-15; 3-19; 3-23
		Sync	5-80

Please contact RCF Technical department for any comments or technical questions.