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ELECTRONICS

CE

SmartLine

Conventional Fire Detection Control Panel

Extinguishant system Control Panel

Installation and Programming Manual

GameOver

Copyright

This Control panel has been designed and developed to the highest standards of quality and performance implemented by Inim Electronics.

This control panel must be installed in accordance with the instructions described in this manual and in compliance with the laws in force.

All control panels from the **SmartLine** series are **EN54-2; EN54-4** compliant.

All control panels from the **SmartLine** series, and all accessory items and special functions have IMQ Sistemi di Sicurezza certification, unless otherwise stated.

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Chapter 1

Introduction

Note:	*The products described in this manual have been designed and developed to the highest standards of quality, reliability and performance. All product components are capable to application requirements and able to operate in compliance with the related technical specifications when the temperature external to their casing complies with Category 3k5 of IEC 721-3-3.*

Danger:	**The GAS control function is not EN54-2 compliant, as this feature is not mentioned in the aforesaid standard.**

Danger:	**In order to validate the IMQ-SISTEMI DI SICUREZZA certification, and in compliance with EN54-2, all the manual alarm buttons and fire detectors employed in the system must be associated with fire detection and alarm functions.**

1.1 Application and use

The SmartLine conventional fire control panel manages 20 conventional detector lines (zones). Each line (zone) accepts up to 30 devices and is provided with an additional I/O line that can be configured as an open-collector output (the activation principles can be defined during the configuration phase) or as an independent input line (separate from the zone) for Fire detection, Gas detection line, etc. The basic model has 4 on-board zones (2 for the SmartLine020-2 model) expandable to 20 by means of 2 SmartLine/8Z optional attachment boards (8 lines per board). The control panel also provides a series of outputs for the activation of signaling or remote transmission devices. The display and LEDs provide visual indication of the system status and real-time signaling of fault conditions. The control panel supports up to 4 Repeater panels (SmartLetUSee/LCD). These remote consoles replicate all the information provided by the control panel and allow access to level 1 and 2 functions. The control panel can also house and manage the SmartletLoose/ONE gas extinguishant module (optional attachment board).

Figure 1 - Example of a SmartLine application

Overview

[A] The Zones

Each zone is provided with a pair of terminals (lines) for the connection of the fire-detection devices deployed in the protected area. Each line (zone) accepts up to 30 devices (conventional detectors or callpoints). The control panel can be configured to discriminate between detector and callpoint triggered alarms. Each line can be configured to activate various signals (Fire Alarm, Gas Alarm, etc.).

The lines accommodate:

1. **Conventional detectors:** these devices sense for smoke and/or flames and issue alarm signals thereby alerting building occupants to the danger of fire. They can be:
   - **Optical Smoke detectors:** that look for the presence of visible by-products of combustion in the detection chamber (Tyndall effect).
   - **Optical/Heat detectors:** these devices operate in the same way as optical smoke detectors but also sense for increase in the environment temperature. The combination of both sensing methods (smoke and heat) provides faster detection and reduces the false alarm rate.
   - **Heat detectors:** these devices monitor the temperature in the protected environment. There are two types of heat detectors: Fixed temperature — that signal alarm if the temperature exceeds the predefined threshold; and Rate-of-rise — that as well as monitoring the predefined fixed temperature also respond to rapid increase in temperature.
   - **Ionization smoke detectors:** feature a harmless radioactive source within a dual detection chamber. They operate by sensing for a change in electrical conductivity across the detection chamber.
   - **CO detectors:** sense the levels of carbon monoxide given off by all carbon-based materials in the smoldering stages of a fire (often combined with heat detection sensor).
2. **Conventional Callpoints:** these are clearly labeled fire button with instructions for use in the event of fire. Usually placed near building entrances/exits. These push-button alarm-trigger devices allow building occupants to activate system alarms.

For further information regarding the list of the detectors the lines accommodate, and for details regarding their operating principles, refer to *Chapter 10 - Detection line Threshold-adjustment Wizard*.

Danger:	**In order to comply with EN54-2 requirements, no more than 32 detectors/devices should be connected to each line.**

Each detection line must be terminated with a 3900 ohm resistor (included), in such way as to allow the control panel to monitor the integrity of the wiring.

[B] The Repeater (accessory item)

This optional system enhancement tool (equipped with keypad, LEDs, fast buttons and display) replicates all the system data. The panel supports 4 repeaters (maximum cable length 1000m from panel). Repeaters should be located at building entrances/exits in such way as to allow persons in charge to view the system status without going too far inside the building.

[C] Gas extinguishant system (optional system enhancement feature)

The panel can house and manage a gas extinguishant module. The Gas extinguishant module is *EN 12094* compliant.

[D] Audible and visual signaling devices

1.2   Other parts of the system - definitionsi

Zone: a group of points (detectors, etc.) connected to a detection line. The control panel provides an extra terminal (I/O) for each zone. If the terminal (I/O) is configured as an input, the control panel will be able to split the detection line of each zone. This feature can be used when zones require a detector line that is separate from the callpoint line in order to ensure proper operation of one line in the event of fault on the other.

Power supply (refer to Figure 31 - *Connecting the Mains*): a module, connected to the mains 230 Vac, that provides a stabilized voltage @ 24 V (27.6 V) to the system and the charge source to the batteries. The EN54-4 compliant power-supply module is housed below the motherboard. The mains voltage (230 Vac) is the primary power source of the system. Refer also to paragraph *6.13 Connecting the Mains*.

Batteries: the secondary power source of the system. The panel houses two lead batteries @ 12V 7Ah (to be connected in series). The system monitors the battery status (efficiency and charge). In the event of inefficient or low battery conditions, the system will signal battery fault. If primary (230 Vac) power failure occurs, the batteries will take over, however, they will shutdown automatically if the blackout persists. The automatic battery

shutdown feature prevents irreparable damage to the batteries. Refer also to paragraph *6.14 Connecting the batteries*.

Thermal probe: an accessory tool, to be connected to the panel and attached to the battery pack. This device monitors the temperature of the external battery pack and regulates the battery charge accordingly. Refer also to paragraph *6.15 Thermal Probe*.

RS485 Bus: 4 wire BUS for the Repeater connections. Four pole shielded twisted cable must be used for all connections. Refer also to paragraph *6.6 Connecting the RS485 BUS*.

Timer: a logical unit (the panel provides 8 timers) for automatic time-management of preset intervals (2 intervals per day) on preset days of the week and specific dates. The timers can be used in equations and/or to manage predefined operations or activate outputs.

Equation: a group of logical conditions defined by the installer. An equation comprises a series of operators (AND, OR, +, etc.) and a series of operands (Points, Zones, Timers, etc.). An equation can be associated with an output that will activate when the equation is satisfied.

Holidays: a list of days defined during the system configuration phase that can be associated with a timer.

1.3 The SmartLine fire control panel models

The available models are:

- SmartLine020-4 Conventional fire alarm control panel with 4 zones expandable to 20
- SmartLine020-2 Conventional fire alarm control panel with 2 zones (NON expandable)

Chapter 2

General information

2.1   Documentation supplied

- Installation manual (this manual)
- User's Manual

The Installation manual is supplied with the device. For further copies of the Installation Manual, please contact INIM ELECTRONICS offices quoting the order number shown in Appendix B *Order Codes*.

2.2   Manual details

Title: SmartLine Installation and Programming Manual

- Edition, Issue: 1.0
- Month and year of printing: June 2007
- Installation Manual Code: DCMIINE0SLINE

2.3   About the Software

- SmartLine Firmware Version: 1.0.0
- Extinguishant module Firmware Version: 1.0.0
- SmartLeague Software Version: 2.x.x

2.4   Addressees

- Installer
- Technical assistance

2.5   Operator authorization - access levels

The SmartLine is EN-54 compliant. There are four access levels:

Level 1:   The public

       All building occupants can view the active events and the events log; silence the panel beeper, test the control panel LEDs and, under pre-alarm conditions, override pre-alarm status and activate an instant alarm in order to Evacuate the building.

Level 2:   Person/s responsible for the safety of the building and its occupants.

       An authorized key user can, after inserting their key in the keyswitch: silence the outputs; reset the panel; activate the 'Investigate' timer; disable zones and outputs; change the operating mode (Day/Night) and activate instant alarms in order to Evacuate the building.

Level 3:   Authorized technicians appointed by the Installer company.

       Installer company technicians can, by means of a screw driver or similar tool, remove the screws and open panel cabinet, in order to insert the programming jumper and access the programming phase (from panel or PC) or carry out maintenance work. The control panel is unable to process data or generate fault or alarm signals of any kind during the programming phase.

Level 4:   Authorized technicians, appointed by the Manufacturer (INIM Electronics s.r.l.).

       The manufacturer company technicians can, by means of special tools, repair or replace the control panel components.

Note: *This manual is for Authorized installer company technicians (Level 3). However, it also provides some installation information related to level 1 and level 2.*

2.6 Intellectual property rights

The information contained in this document is private property. All rights reserved

No part of this document may be copied or reproduced unless expressly authorized in writing by INIM Electronics, in particular the parts regarding the device specified in *2.15 Device identification details*

2.7 Disclaimer

INIM Electronics s.r.l. shall not be responsible for damage arising from improper application or use.

This control panel should be handled by qualified personnel only. Installation must be carried out strictly in accordance with the instructions described in this manual, and in compliance with the local fire code in force.

2.8 Recommendations

INIM Electronics recommends that the entire system be tested on a regular basis (refer to paragraph *2.9 Testing the system*).

2.9 Testing the system

This system has been designed to the highest standards of quality and performance. However, the system may fail to function as intended due to the failure of a component. Most problems that prevent a fire control system from operating as intended can be found by regular testing and maintenance (refer to *Appendix A* - Maintenance).

Testing should include all detectors, signaling devices and any other operational devices that are part of the system.

2.10 Note to the installer

In order to provide adequate protection and instructions for proper use, you (the installer) must be familiar with the operating procedure of this device. As the only individual in contact with system users, it is your responsibility to instruct them on how to use this system properly and to bring to their attention that every fire is different in the amount of smoke and rate of burning. Therefore, smoke and heat detectors may not provide timely warning of fires caused by violent explosions, escaping gas or improper storage of inflammable materials.

Regardless of its capabilities, a fire alarm system is not a substitute for the necessary precautions building occupants must take to prevent or minimize the harmful effects of fire.

2.11 Technical support

Our professional engineers are readily available to assist you. Call our phone number and you will be connected right away to a person who will answer all your questions and provide you with full technical support.

2.12 Conventions

2.12.1 Glossary and terminology

Panel; device; system: refer to the devices defined in *2.15 Device identification details*.

Left, right, behind, above, below: refer to the directions as seen by the operator in front of the mounted device.

Communicator (telephone, SMS, digital)**:** synonym of dialler.

STP: Shielded twisted pair cable.

Qualified personnel: those persons whose training, expertise and knowledge of the laws and bylaws regarding service conditions and the prevention of accidents, are able to identify and avoid all possible situations of danger.

Select: click on and select a specific item (from drop-down menu, options box, graphic object, etc.).

Press: click on a video button, or press a key on the panel keypad.

2.12.2 Graphic conventions

Following are the graphic conventions used in the text. For a description of the graphic conventions relating to the interface, refer to paragraph *5.1 SmartLine frontplate*.

Conventions	Example	description
Text in Italics	Refer to *paragraph 4.1 Internal devices*	Text in italics: indicates the title of a chapter, section, paragraph, table or figure in this manual or other published reference.
<text>	#<CustomerCode>	Variable data
[lowercase letter] or [number]	[A] or [1]	Representation of a part of the system or video object.
BUTTON	**CANC, ESC, RESET**	Computer or control panel keys.

Note: *The detached notes contain important information about the text.*

Attention: **The attention prompts indicate that total or partial disregard of the procedure could damage the device and/or its attachment/peripheral devices.**

Danger: **The danger warnings indicate that total or partial disregard of the procedure could injure the operator or persons in the vicinity.**

2.13   Menu paths

Example

From panel: **<key>, Programming, Prog. zone, <select a zone>, <OK>, Zone Parameters**

From PC: **Control panel, Zones**

Access to specific functions can be achieved by using the panel keys or PC video objects and the respective path.

Note: *This manual describes the recommended programming flow from the control panel.*

Attention: **For most part this manual describes programming from the control panel.**

2.14   Manufacturer's name and address

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2.15 Device identification details

Figure 2 - Overview

Product type: Fire control panel

Model: SmartLine

Year of Manufacture: 2007

2.16 Warranty

INIM Electronics s.r.l. warrants the original purchaser that for a period of 24 months from the date of final acceptance, the product shall be free of defects in materials and workmanship. The warranty applies only to defects in parts and workmanship relating to normal use. It does not cover:

 • Improper use or negligence
 • Damage caused by fire, flood, wind or lightning
 • Vandalism
 • Fair wear and tear

Inim Electronics s.r.l. shall, at its option, repair or replace any defective products. Improper use, that is, use for purposes other than those mentioned in this manual will void the warranty. For the full details and conditions regarding the warranty, refer to the purchase order.

2.17 Safety laws

The aim of the instructions in this section is to ensure that the device is installed and handled properly. This chapter contains vital information. The installer should be familiar with this section and bring each item to the attention of the system users.

2.17.1 Compliancy

The design and manufacture of the SmartLine control panel comply with EN 54-2 requirements *Fire detection and signaling systems - Control and signaling panels*.

The design and manufacture of the power supply comply with EN 54-2 *Fire detection and signaling systems - Power supply devices*.

The SmartLetLoose/ONE extinguishant board enhanced SmartLine control panel has been developed and designed in compliance with EN 12094-01 Fire-fighting Systems - Components of fire-extinguishant systems - Part 1: Requirements and testing methods for automatic electrical command and fire-extinguish or delay management devices.

2.17.2 Managing electronic devices

The normal motions of any person may generate electrostatic potential of thousands of volts. Discharge of this current through semiconductor devices during handling may cause serious damage which although may not be immediately evident may reduce the reliability of the circuits.

If located in their housings, the electronic circuits of INIM Electronics products are highly immune to electrostatic discharge.

Do not expose the circuits to damage by removing the modules unnecessarily from their housings.

3. When removing or handling the boards, hold the board edges only.

4. Do not touch the electronic components, the printed circuits or the metal parts of the connectors.

5. Do not hand the module to another person without first ensuring that you both have the same electrostatic potential. This can be achieved by simply shaking hands.

6. Place the board on an anti-static surface or a conductor surface with the same potential.

Further information regarding procedures relating to safety when working with electronic devices can be found in Directive *IEC 60147-0F.*

2.17.3 Setting up the system

In order to provide adequate protection and instructions for proper use, security professionals (Installers and maintenance technicians) must be familiar with the operating procedure of this device.

Please read the instructions carefully before installing and/or servicing the system.

Before first power-up, be sure that the earth connection has been completed properly on the respective terminal.

The recommended minimum wire cross section for the earth connection is 2.5 mm^2, that is, unless otherwise stated in accessory documentation.

2.17.4 Replacement and disposal of used devices

Replacement

When replacing used devices, disconnect the devices concerned then complete the connections of the new devices in compliance with the instructions printed on the respective leaflets.

In order to avoid short-circuits, take all the necessary precautions when removing used batteries.

Disposal

Do not burn used electronic devices, or allow them to pollute the environment (countryside, rivers, etc.). Electronic devices must be disposed of in a safe environment-friendly way.

Contact your local municipal offices for information regarding the disposal of electronic devices and/or batteries.

Chapter 3

Device management

3.1   Product handling and storage

This device is safely packed inside a cardboard box, however, care must be taken to avoid accidental damage during handling. Cartons/boxes should be placed in such a way as to avoid knocks and falls, and special care must be taken to protect the devices from extreme heat and/or cold.

3.2   Environmental conditions

Temperature limits:

-10° / +55°C for transport and storage

-5° / +40°C operating temperature

3.3   Unpacking the device

Take due care when unpacking the product, and dispose of all waste packaging in accordance with the local method of disposal.

The cardboard box contains the SmartLine control panel (cabinet in metal).

Note: *The two lead batteries @ 12 V - 7 Ah are not included. Be sure you have the batteries on hand before starting.*

When you remove the four screws and metal-frontplate, you will find:

- The SmartLine motherboard supported by a plastic frame that rests on the sides of the metal backbox.
- Power supply module located under the plastic frame. Power supply module is already connected to the SmartLine motherboard.
- A plastic bag containing:
  - Battery connection wires
  - Resistors and EOL diodes for supervised circuits

Figure 3 - Inside the box

The following accessory items must be ordered separately (refer to Appendix B *Order Codes*).

[A] Extinguishant module

[B] Repeater panel

[C] Thermal probe for battery charge optimization

[D] SmartLine/8Z 8-zone expansion board
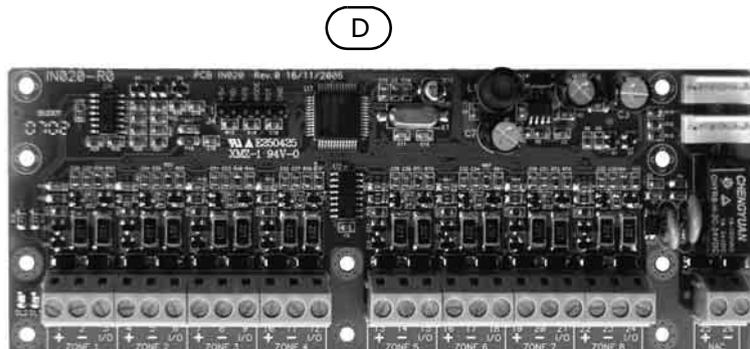
Figure 4 - Accessory devices

Chapter 4

Technical description

4.1 Internal devices
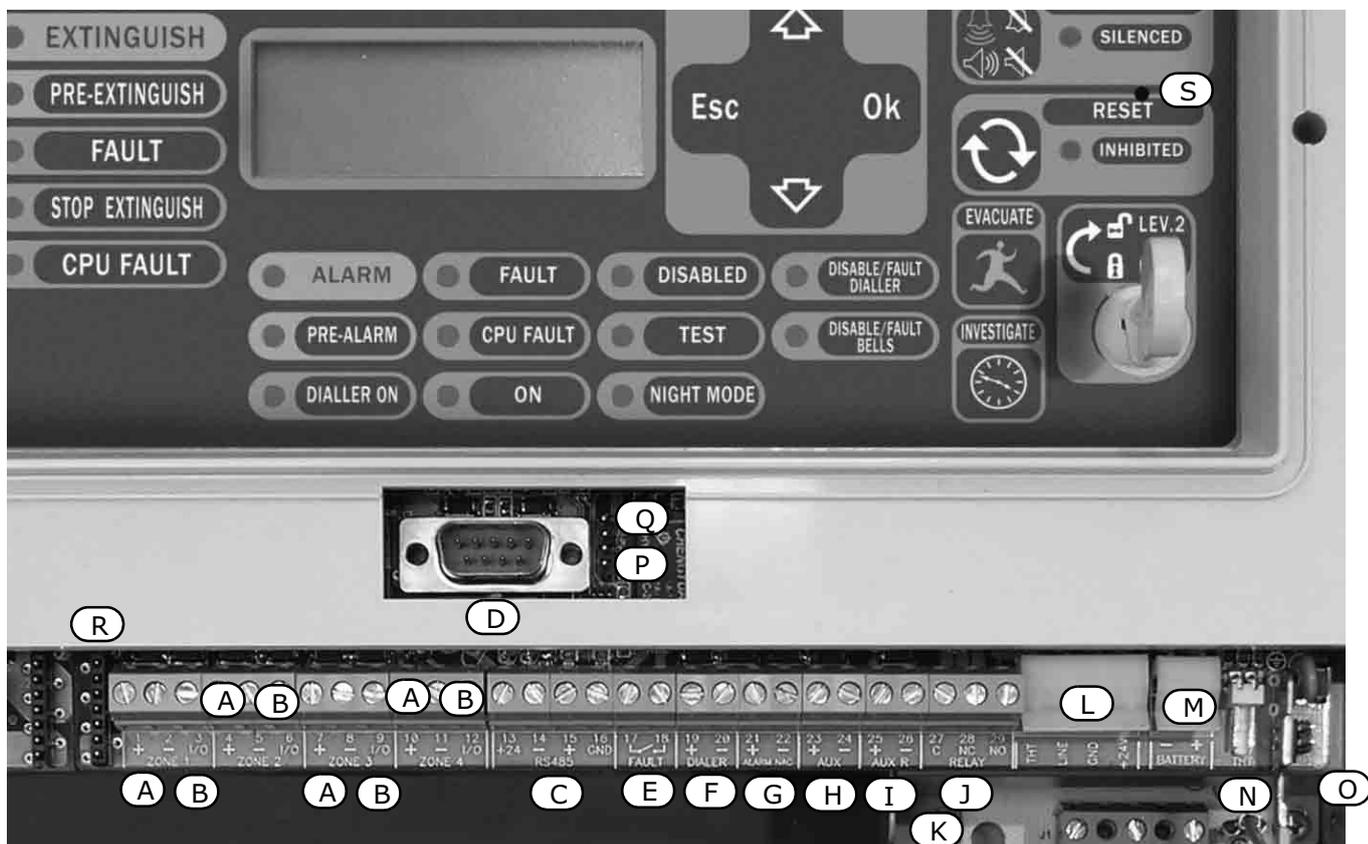
Figure 5 - SmartLine Board

Main components

[A]	Zone detection-line terminals (+ / -)
[B]	Zone I/O terminals
[C]	RS485 BUS terminals for Repeater connections, max. 0.9A
[D]	RS232 serial port for PC connection
[E]	Fault output—dry contact
[F]	Supervised dialler output
[G]	Supervised alarm output
[H]	24 V 0.8A output for external loads
[I]	24 V output - Off during Reset - 0.8 A for external loads
[J]	Programmable dry contact (Alarm at default)
[K]	Connector for the earth wire of the power supply module
[L]	Power-supply module connector
[M]	Battery connector

[N]	Thermal probe connector for batteries
[O]	Earth-fault bypass jumper — if the jumper is removed, earth faults will not be signaled.
[P]	J8 - Jumper for programming from panel (keypad and LCD)
[Q]	J9 - Jumper for programming from PC
[R]	Extinguishant module connector
S	Buzzer

Note: *INIM s.r.l. reserves the right to change, replace, in part or entirely, the components not strictly relating to the installation process described in "Chapter 6 - Installing the SmartLight Panel".*

4.2   Technical specifications

Power supply	230 Vac (-15% + 10%) 50/60 Hz
Maximum current draw 230V	0.5 A
DC current	1.4 A
Nominal output voltage	27.6 V
Maximum current for external loads, boards and optional devices	0.9 A
Maximum current draw on terminal +AUX	0.8 A
Maximum current draw on terminal +AUX-R	0.8 A
CURRENT RIPPLE on AUX and AUX-R outputs	1% MAX
Maximum battery-charge current	400mA
Battery specifications	2 x 12 V/7 Ah YUASA NP-12 FR or similar with case flame class UL94-V2 or higher
Output current	19V - 27.6V
Fuse (F2) - Switching power supply	F 6.3 A 250V
Fuse (F1) - Switching power supply (not resettable)	T 3.15 A 250V
Maximum output current ripple	1%
Operating temperature	-5°C ... 40°C
Dimensions	325 x 325 x 80 mm
Weight	2.8Kg

4.3   PCB current draw

Module	Standby current draw	Maximum current draw
SmartLine motherboard	90 mA	90 mA
SmartLine/8Z motherboard	50 mA	50 mA
Extinguishant module	10 mA	70 mA
SmartLetUSee/LCD (Repeater)	40 mA	80 mA

Chapter 5

User Interface
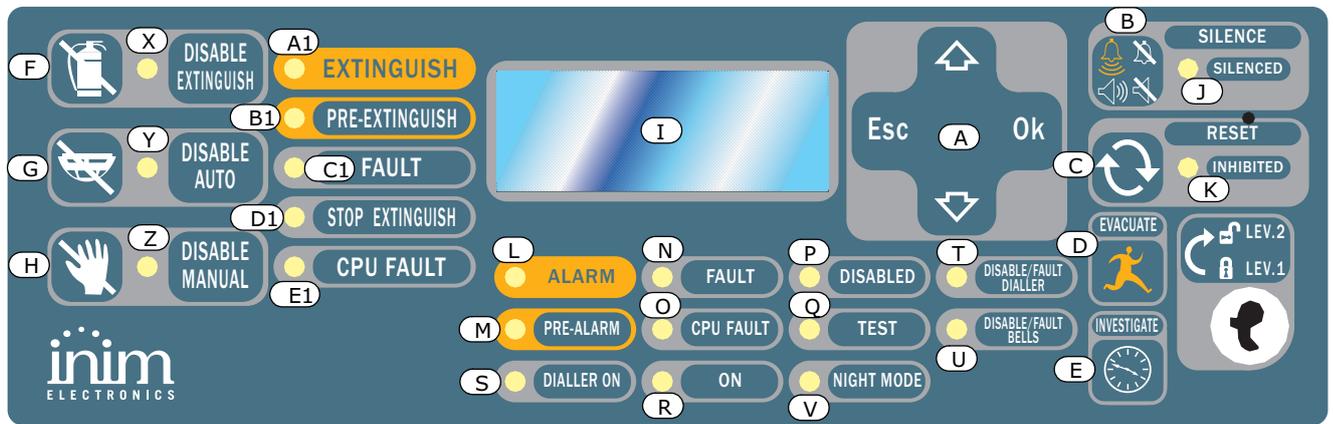
Figure 6 - Frontplate

5.1   SmartLine frontplate

5.1.1   Commands

Buttons/Keys	Access level 1	Access level 2	Note
[A] 4 scroll keys ▲/▼/OK/Esc			To be used to navigate through the menus on the display. The effect these keys have during programming depends on the specific field. Refer to *Chapter 8 - Programming from the panel*.
[B] SILENCE	Push this button to silence (turn OFF) the panel beeper.	Switches Off Silenceable outputs. The silenceable outputs will hold silenced status until a new event occurs that releases the outputs automatically. The SILENCE button operates as a toggle switch, therefore, silenced outputs can be unsilenced by pushing the button again.	If the system is operating in Night mode, SILENCE status will be held for the preset SILENCE time only. This is a safety precaution designed to protect building occupants and persons in charge of night-security who, after silencing the system, may be overcome by smoke or fumes during fire investigation and unable to restart the alarm signaling devices manually.
[C] RESET		Push this button to clear any active events, delete the memory and restore standby conditions.	Any alarm/fault conditions which persist after RESET operations will generate new alarm/fault signals.

Buttons/Keys	Access level 1	Access level 2	Note
[D] EVACUATE	If this button is pressed during active pre-alarm conditions, the system will override the programmed pre-alarm time and generate an instant alarm (i.e. activate all evacuation-warning devices).	If you push this button when pre-alarm conditions are not active, the system will generate a panel alarm.	
[E] INVESTIGATE		If you push this button during active pre-alarm conditions, the system will add the preset time to the running pre-alarm time (this operation can be done once only for input).	The extended alarm delay will allow authorized building occupants and/or security staff to check and verify the fire hazard.
Extinguishant module (accessory item) commands			
[F] DISABLE EXTINGUISH		If you push this button once, the system will disable Extinguish commands. If you push this button again, the system will re-enable Extinguish commands.	This button can be used during testing and maintenance of the fire extinguishant devices.
[G] DISABLE AUTOMATIC		If this button is pressed once, the system will disable automatic extinguish commands generated by the Extinguishant module. If this button is pressed again, the system will re-enable automatic extinguish commands generated by the Extinguishant module.	
[H] DISABLE MANUAL		If you push this button once, the system will disable manual extinguish commands. If you push this button again, the system will re-enable manual extinguish commands. Refer also to "Connecting the Extinguishant module (optional system enhancement tool)" on page 37.	

5.1.2   Visual Signaling

LED	ON Solid:	ON Blinking:	Note
[I] Display			See *Chapter 8 - Programming from the panel.*
[J] SILENCED (giallo)	Indicates that the system has been silenced.		

LED	ON Solid:	ON Blinking:	Note
[K] `INHIBITED RESET` (giallo)	Indicates that reset commands are not allowed during pre-alarm/alarm events. Reset will be allowed when all outputs have been silenced and this LED goes Off.		This feature ensures that persons responsible for the safety of the building and its occupants do not reset the system without first silencing the outputs, and evaluating the alarm. The silence operation will stop the signaling devices and restore quiet thus allowing the operator to consider the best way to proceed. The operator will then be able to reset the system and restore standby status.
[L] `ALARM` (red)	Signals an alarm condition, that is, activation of a zone point (detector, callpoint, etc.) that is programmed with the alarm attribute.		Examples: a smoke detector has sensed a quantity of smoke that exceeds its alarm threshold; a heat detector has sensed rise in temperature that exceeds its alarm threshold; a callpoint has activated, etc. Only authorized persons (level 2) can clear this status (which may occur after an early warning, pre-alarm, etc.) by means of silence/reset operations. Signaling will continue even after the cause of the alarm has ceased.
[M] `PRE-ALARM` (red)	Signals a pre-alarm condition, that is, activation of a zone point (detector, callpoint, etc.) that is programmed with a pre-alarm time.	Signals restoral of a pre-alarm condition (GAS zone pre-alarm).	Examples: a smoke detector has sensed a quantity of smoke that exceeds its alarm threshold; a heat detector has sensed rise in temperature that exceeds its alarm threshold; a callpoint has activated, etc. Only authorized persons (level 2) can clear this status (which may occur after an early warning, pre-alarm, etc.) by means of silence/reset operations. Signaling will continue even after the cause of the alarm has ceased. If the operator does not intervene in the meantime, the point in pre-alarm status will generate an alarm when the programmed pre-alarm time expires. The pre-alarm time is a short alarm delay that notifies the person/s responsible for the safety of the building and its occupants of the possibility of fire. An alarm will be generated when the programmed pre-alarm time expires, thus causing the evacuation of all the building. After pre-alarm notification, the person/s responsible for the safety of the building and its occupants will have time to verify the real risk of fire and, in the event of a false alarm, will be able to avoid unnecessary evacuation signaling. In the event of pre-alarm status generated by the GAS detection line, the pre-alarm signal will reset when the gas detector values drop below the pre-alarm threshold.
[N] `FAULT` (yellow)	Signals an active system fault condition. The display will provide the fault details.	Indicates memory of a cleared fault event. To view the restored fault condition details, consult the events log via the Main menu (level 1).	Reset the panel (level 2) to restore the fault memory (LED Off).

LED	ON Solid:	ON Blinking:	Note	
[O] CPU FAULT (giallo)	Indicates trouble with the panel CPU—the panel must be sent back immediately to the manufacturer for repair.	Indicates that the CPU re-initialized (due to control panel shutdown or fault condition).	**Danger:**	**If this LED "blinks", the efficiency of entire system must be checked. Reset the panel (level 2) to turn this LED Off.**
[P] DISABLED (giallo)	Indicates that one or more components of the system (zone or output) have been bypassed.		The display will provide the respective details. Bypassed components (disabled/ out-of-service components) will be unable to generate faults, alarms or signals of any sort and cannot be activated under any circumstances. Components must be bypassed (put out-of-service) during maintenance work.	
[Q] TEST (giallo)	Indicates that one or more zones are undergoing tests.		A zone which is undergoing tests cannot generate alarms or signaling of any kind. However, the respective LED will turn On for several seconds and then reset and turn Off automatically. The Alarm NAC output will activate for approximately 3 seconds to confirm that the detector is working properly. This feature allows technicians to carry out tests and inspections alone, as it eliminates the need of constantly returning to the panel to verify/reset the events generated by the points.	
[R] ON (verde)	Indicates that the system is operating (On).		This LED will go Off in the event of joint primary (230 V ac) and secondary (batteries) power failure.	
[S] DIALLER ON (red)	Indicates that the dialer activation output is active.		In the event of an alarm, the dialler will activate (after the pre-set delay).	
[T] DISABLE/ FAULT DIALLER (giallo)	Indicates that the dialer activation output is disabled or faulty—the display will provide the respective details.	Indicates restoral of a fault event. This condition can be cleared by reset only (level 2).		
[U] DISABLE/ FAULT BELLS (yellow)	Indicates that the sounder/ flasher activation output is disabled or faulty—the display will provide the respective details.	Indicates restoral of a fault event. This condition can be cleared by reset only (level 2).		
[V] NIGHT MODE (giallo)	Indicates that the panel is operating in night mode.		In tale modalità il tempo di preallarme sarà ridotto a zero per tutte quelle zone per le quali non è programmato il preallarme in modo notte. As a further safety precaution, the system can be silenced for the pre-set SILENCE time only. Night Mode should be applied when no or few persons are present or awake in the building, and the building security is the responsibility of a night watchman or security patrol guard notified by the dialler.	

Extinguishant module signaling (optional system enhancement tool)

LED	ON Solid:	ON Blinking:	Note
[X] DISABLE EXTINGUISH	Indicates disablement of all types of extinguish commands, via key [F] (refer to the previous table *5.1.1 Commands*).		
[Y] DISABLE AUTOMATIC	Indicates disablement of automatic extinguish commands, via key [G] (refer to the previous table *5.1.1 Commands*).		
[Z] DISABLE MANUAL	Indicates disablement of manual extinguish commands, via key [H] (refer to the previous table *5.1.1 Commands*).		
[A1] EXTINGUISH	Indicates that fire extinguish is running.		
[B1] PRE- EXTINGUISH	Signals activation or the pre-extinguish output - refer to table on page 38, "PRE-EXT.	Indicates that only one zone is in alarm status, therefore, the extinguishant system will not be activated. If another zone latches in alarm, the extinguishant system will activate.	
[C1] FAULT	Indicates trouble with the fire extinguish circuits.	Indicates restoral of a fault event.	This condition can be cleared by reset only (level 2).
[D1] STOP EXTINGUISH	Indicates that the fire extinguishant system has been stopped from a remote Hold-off unit (refer to table on page 37, "STOP-EXT).	Indicates restoral of a Stop extinguishant event.	
[E1] CPU FAULT	Indicates a CPU fault. The device must be sent back to the manufacturer for immediate repair.	Indicates restoral of a fault event.	

5.2 Repeater (optional system enhancement panel)

Up to four Repeater panels can be connected to the RS485 Bus. Repeater panels replicate all the information provided by the control panel and allow access to all Level 1 and 2 functions (View active events, Reset, Silence, etc. Access to the Main menu is not possible).


Figure 7 - Front view of the Repeater panel

The SmartLetUSee/LCD Repeater is supported by most control panel models. However, when it is connected to a SmartLine control panel, some of the command buttons are not operational. The following keys/buttons are operational:

[A] ▲/▼	Scroll keys which will allow navigation through menus, etc.
[B] EVACUATE	As per paragraph *5.1 SmartLine frontplate*
[C] SILENCE	As per paragraph *5.1 SmartLine frontplate*
[D] RESET	As per paragraph *5.1 SmartLine frontplate*
[E] INVESTIGATE	As per paragraph *5.1 SmartLine frontplate*
[F] BUZZER	Turns the panel beeper Off
[G] TEST	Turns On al the LEDs to verify functionality.

Repeaters provide the following signals.

5.2.1 Display

The display provides same event data as the panel.. For further details refer to paragraph *2.5 Signaling on the display* in the User's Manual.

5.2.2 LED

LED	ON Solid:	ON Blinking:
[H] SILENCED	As per paragraph *5.1 SmartLine frontplate*	

LED	ON Solid:	ON Blinking:
[I] INHIBITED RESET	As per paragraph *5.1 SmartLine frontplate*	
[J] INVESTIGATE	Indicates that time to investigate the fire risk has been requested.	
[K] ALARM	As per paragraph *5.1 SmartLine frontplate*	
[L] PRE-ALARM	As per paragraph *5.1 SmartLine frontplate*	
[M] FAULT	As per paragraph *5.1 SmartLine frontplate*	
[N] CPU FAULT	Indica che la CPU del repeater è guasta (è necessario inviare il repeater in riparazione) o che non c'è comunicazione con la centrale (controllare le connessioni).	
[O] DISABLED	As per paragraph *5.1 SmartLine frontplate*	
[P] TEST	As per paragraph *5.1 SmartLine frontplate*	
[Q] NIGHT MODE	As per paragraph *5.1 SmartLine frontplate*	
[R] BATTERY	Indicates that the panel batteries are low or inefficient.	Indicates restoral of the low/ inefficient battery event.
[S] EARTH	Indicates voltage dispersion to earth.	Indicate restoral of the voltage dispersion to earth event.
[T] FUSE	Indicates that either the "AUX" or "AUX-R" output is shorted and the protection fuse has intervened.	Indicates the restoral of "AUX" or "AUX-R" output-shorted event.
[U] MAINS	Indicates Mains failure.	Indicates restoral of the Mains failure event.
[V] BELLS - ACTIVE	Indicates that the ALARM NAC output is active.	
[W] BELLS - FAULT	Indicates an "ALARM NAC" output fault.	Indicates restoral of the "ALARM NAC" output fault event.
[X] BELLS - DISABLED	Indicates that the "ALARM NAC" output is disabled.	
[Y] DIALLER - ACTIVE	Indicates that the "Dialer" output is active.	
[Z] DIALLER - FAULT	Indicates a "Dialer" output fault.	Indicates restoral of the "Dialler" output fault event.
[Z1] DIALLER - DISABLED	Indicates that the "Dialer" output has been disabled.	

Chapter 6

Installing the SmartLight Panel

6.1   Mounting the SmartLine/8Z expansion board (accessory item)

The SmartLine/8Z zone expansion board can be used with the SmartLine020-4 model only. The control panel can manage 2 SmartLine/8Z zone expansion boards (8 zones each board) bringing the total number of zones to 20. The zone expansion board also provides a 1A supervised output, the operating principles of which can be defined during the system configuration phase.

The zone expansion board is packed inside a separate cardboard box. Together with the expansion module (IN015), you will find a plastic bag containing:

• A cable for the zone expansion board to SmartLine motherboard connection.
• Metal plate
• Screws
• Resistors and EOL diodes
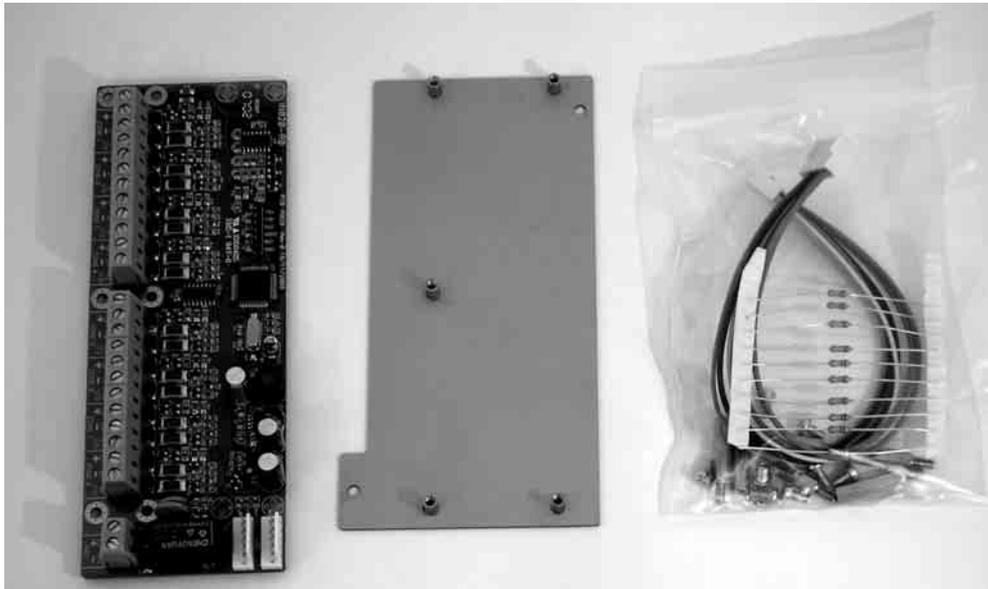
**Figure 8 - Zone expansion board - in box components**
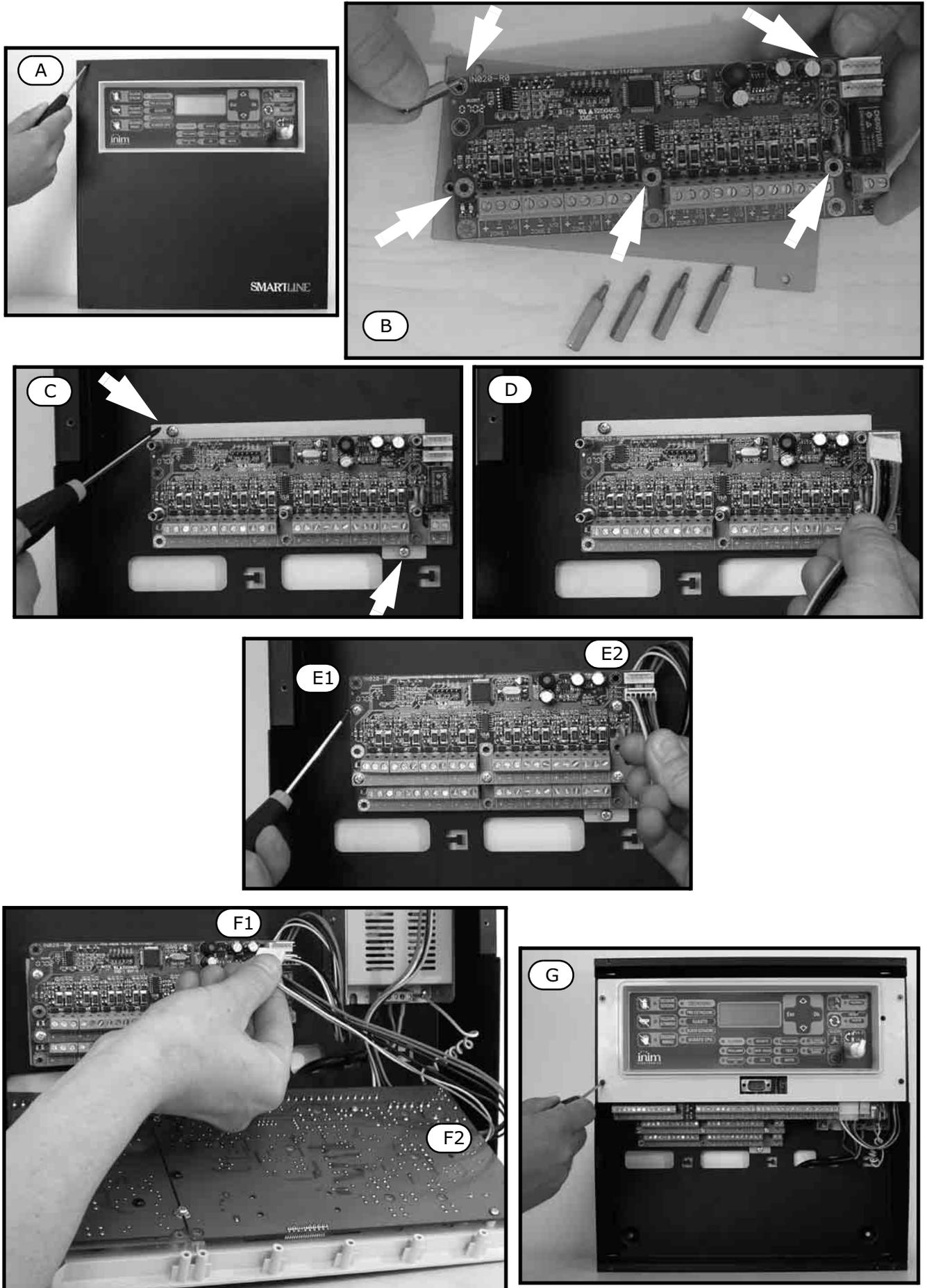
Figure 9 - Mounting the expansion Module

1. Remove the four securing screws and the frontplate (*Figure 9* - A).

2. Remove the four securing screws and the plastic holder.

3. Locate the zone expansion board in its housing, using the metal supports if you are installing two boards (*Figure 9* - B) or the screws if you are installing one board only. Be careful to use the mounting holes indicated in the photograph.

4. Position the zone expansion board in its location on the backbox (*Figure 9* - C).

5. Using the respective wire, plug the expansion board in (*Figure 9* - D).

6. If you are not installing two zone expansion boards, go to step 10.

7. Locate the second zone expansion board (if necessary) on the metal spacers. Be careful to use the mounting holes indicated in the photograph (*Figure 9* - E1).

8. Connect the wire coming from the first zone expansion board (*Figure 9* - E2).

9. Insert the wire for the connection with the SmartLine motherboard (*Figure 9* - F1)

10. Connect the wires coming from the zone expansion board to the SmartLine motherboard (*Figure 9* - F2).

11. Replace the plastic holder and close the control panel cabinet (*Figure 9* - G).

Note: *The control panel will consider the board that is directly connected to the motherboard as expansion 1 (zones 5 to 12), and the board that is connected downstream as expansion 2 (zones 13 to 20).*

Note: *In order to allow the control panel to manage the expansion board, you must include it in the configuration. Refer to the **Programming** section for details.*

6.2   Installing the Extinguishant module (accessory item)

The Extinguishant module is packed in a separate cardboard box. Together with the Extinguishant module (IN015), you will find a plastic bag containing:

• Connector for the Extinguishant board to SmartLine motherboard connection.
• Screws
• EOL resistors and diodes
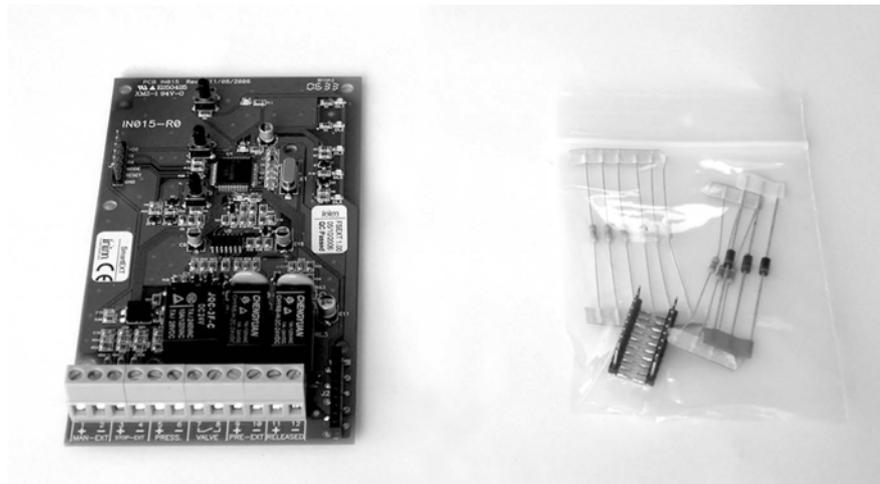
**Figure 10 - Extinguishant module—in box**
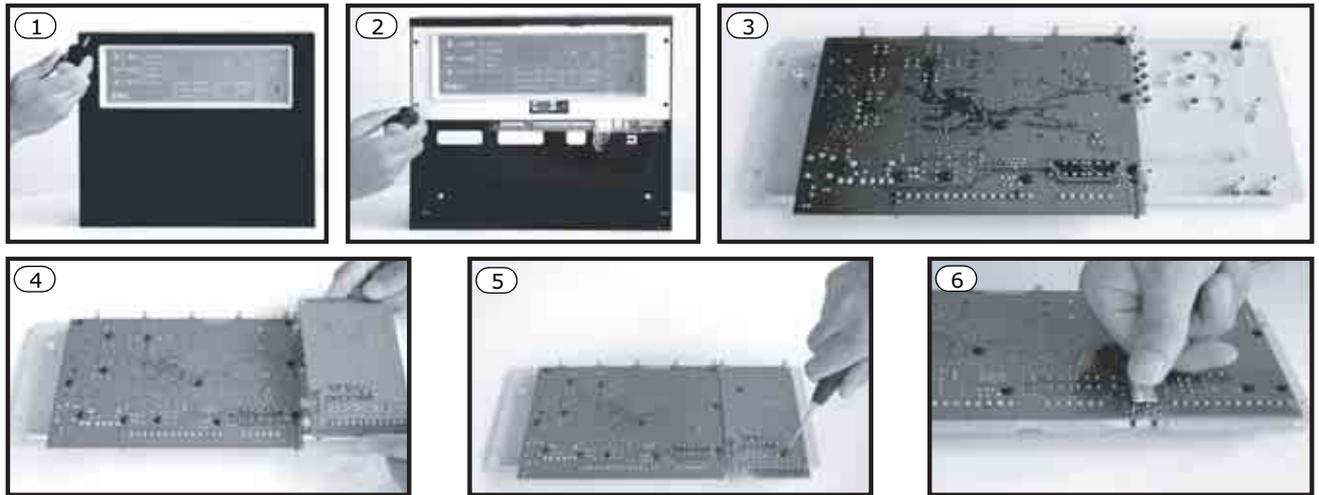
Figure 11 - Mounting the Extinguishant Module

1. Remove the four securing screws and the frontplate.

2. Remove the four securing screws and the plastic holder.

3. Move the SmartLine motherboard to the position indicated in Figure 10.

4. Position the Extinguishant module in its location.

5. Using the four screws, secure the Extinguishant module in place.

6. Connect pins J13 of the SmartLine motherboard to the respective pins J2 on the Extinguishant board.

7. Move the SmartLine motherboard back to its original position.

8. Replace the plastic holder.

Note: *In order to allow the control panel to manage the connected extinguishant board, you must include it in the configuration. Refer to the **Programming** section for details.*

6.3   Wall mounting

6.3.1   Panel

Figure 12 - Mounting the panel

• Pull the wires through the wire entry and ensure they do not get in way of operations.

• Using the wall plugs, attach the backplate to the wall.

Danger:	**Care must be taken not to drill in the vicinity of electrical wiring, heating ducts and plumbing.**

### 6.3.2   Repeater (optional system enhancement panel)
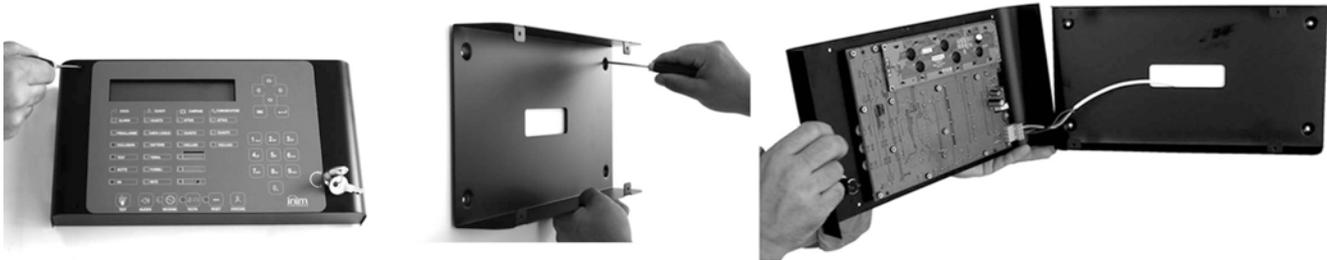
Figure 13 - Mounting a Repeater

• Remove the four frontplate screws and lift off the frontplate.
• Pull the wires through the wire entry on the back of the Repeater and ensure they do not get in way of operations.
• Using the wall plugs, attach the backplate to the wall.

6.4   Connecting the Lines

6.4.1   Connecting the Detection Lines

Each control panel zone has a pair of detector or callpoint connection terminals (Detection Line).

Attention:	**In order to validate the IMQ-SISTEMI DI SICUREZZA, NOT more 512 detectors and/or manual callpoints can be connected.**

The following diagrams illustrate the AURORA devices detection line wiring:
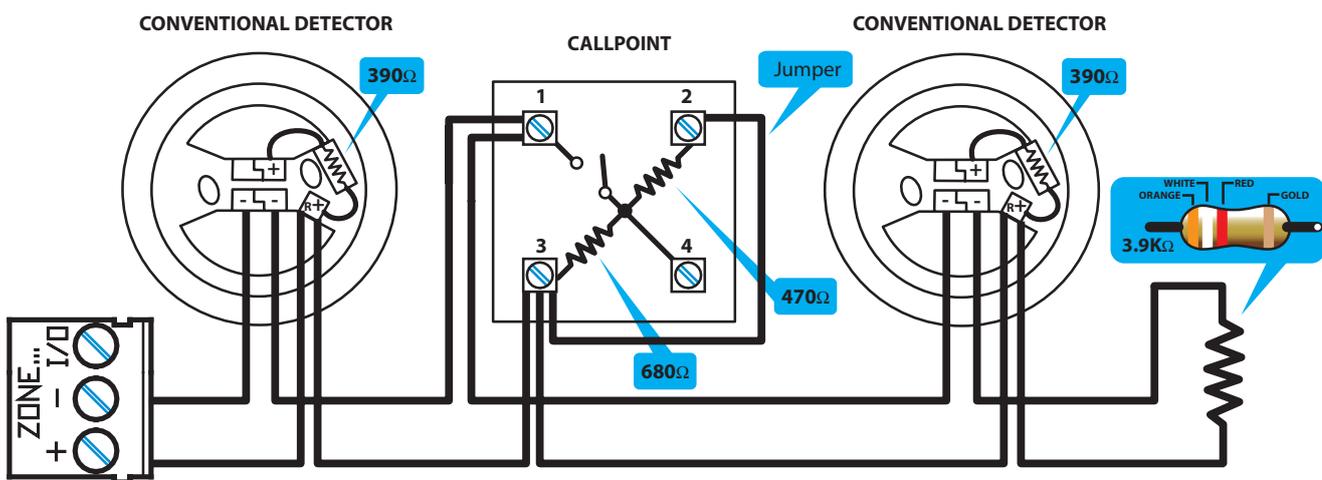
Figure 14 - Connecting detectors and manual callpoints

If detectors and callpoints are wired as per the diagram and the zone "Monitor Callpoints" option is enabled, the control panel will discriminate between detector and callpoint triggered alarms.
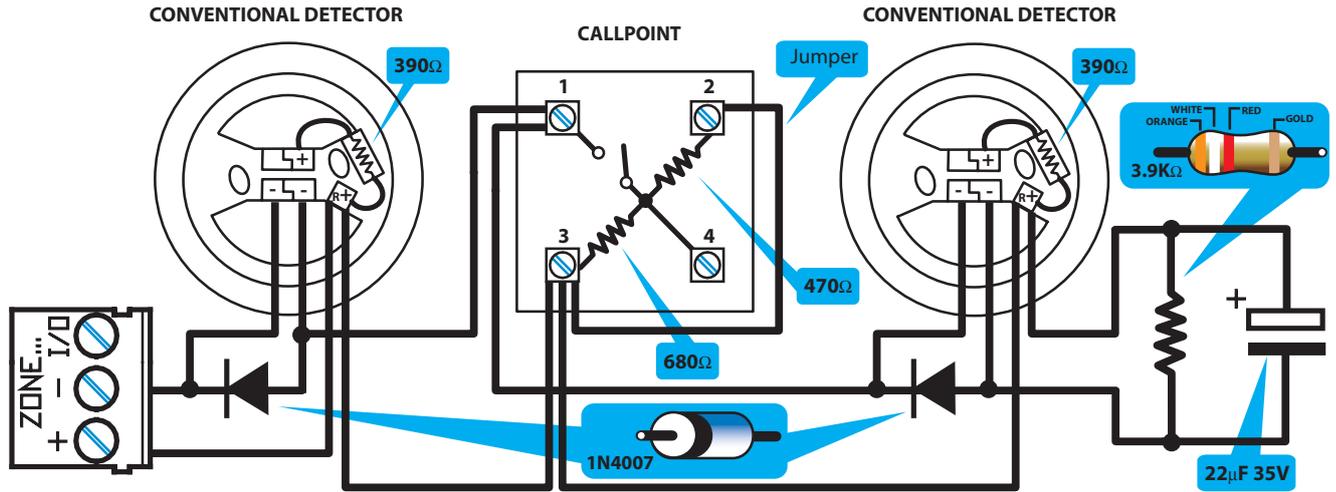
Figure 15 - Connecting detectors using bases with diodes

If detectors and callpoints are wired as per the diagram and the "Det.Missing" option is enabled, the control panel will generate a fault signal when a detector is removed from its base and at the same time will be able to receive alarm signals from other detectors connected downstream.

Attention:	If you enable the "Det.Missing" option for a zone that is not wired as illustrated in the diagram, the control panel will signal fault only.
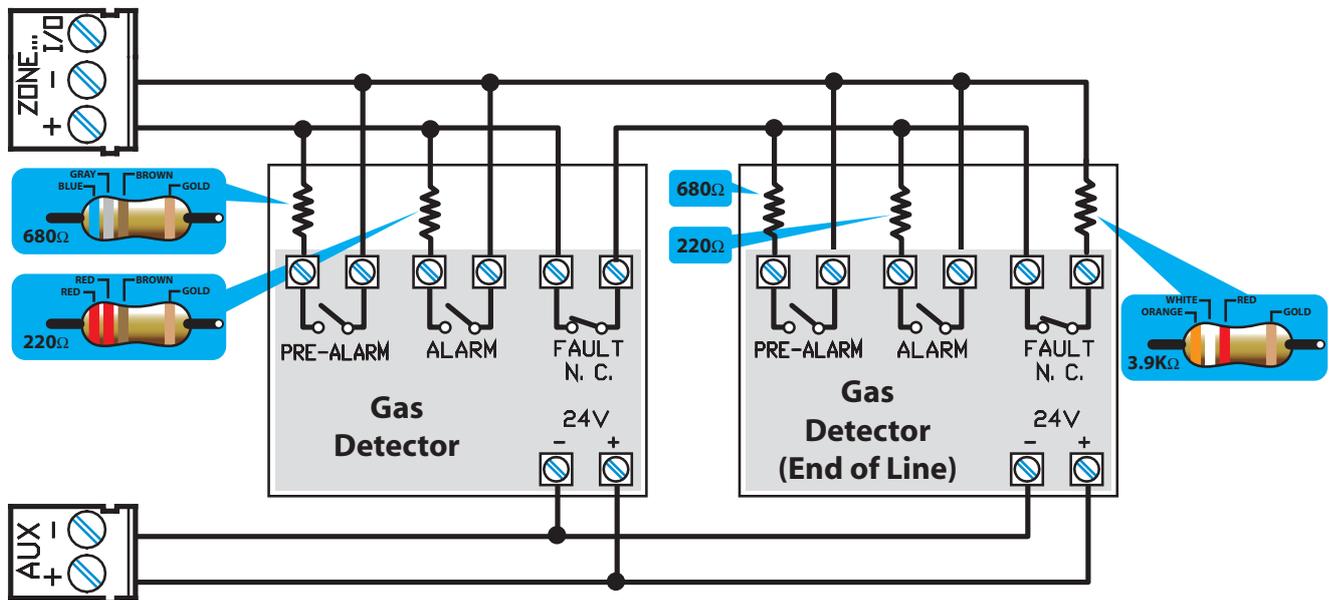
Figure 16 - Connecting GAS detectors to the detection line

If the wiring is completed as per the diagram, it will be possible to interface the control panel with a GAS line (Line configured as a GAS line - refer to the Zone programming section).
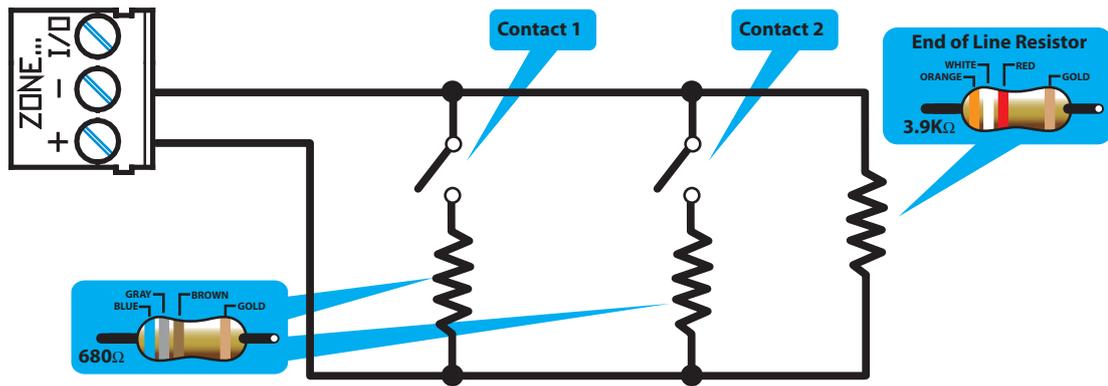
Figure 17 - Connecting generic contacts to the detection line

The wiring diagram above illustrates the connection of a generic device (callpoint, switch, generic device output) to the detection line. If the line is wired in this way, it will signal a fault if a short-circuit or cable interruption occurs, and will generate the pre-set line signals (Alarm, Sprinkler, Change Class, etc.) if the contact closes.

6.4.2 Connecting I/O Lines

Each zone I/O line can be wired in one of the following ways:
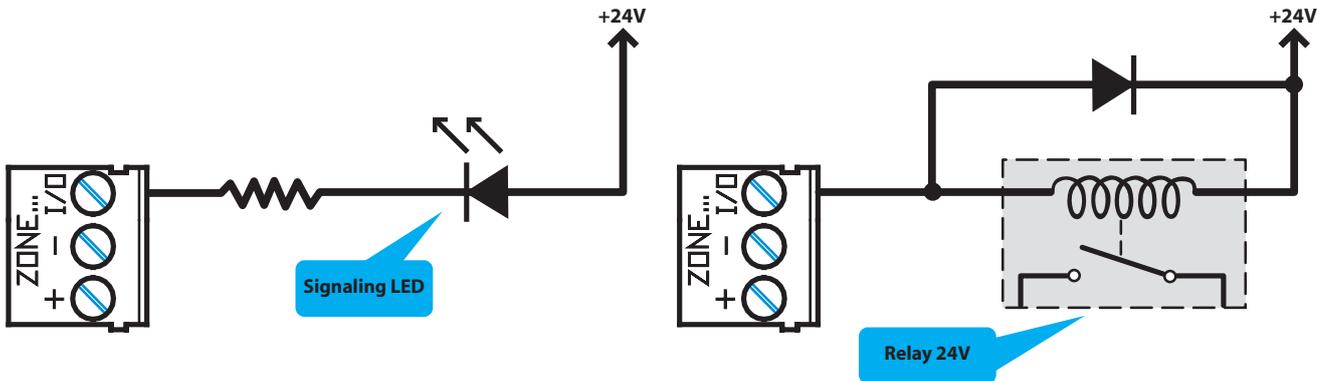
Figure 18 - Wiring the I/O Line as an Output

The diagram above illustrates a line wired as an output. The terminal will operate in the same way as an open-collector output, that is, it will be open during standby status and close to Ground (-) in the event of activation.
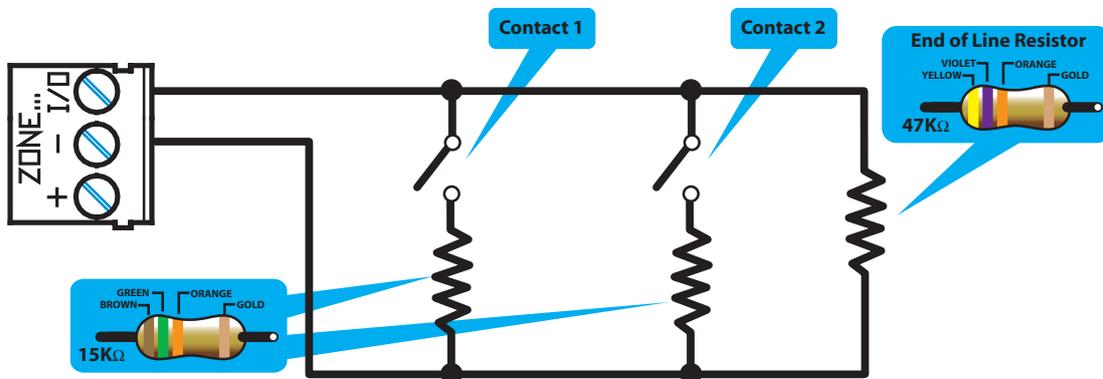
Figure 19 - Wiring the I/O Line as an Input

The diagram above illustrates a line wired as an input. The EOL resistor will allow the control panel to supervise the wiring, and the resistor connected in series to the activation contact will allow it to discriminate between an activation signal and short-circuit.
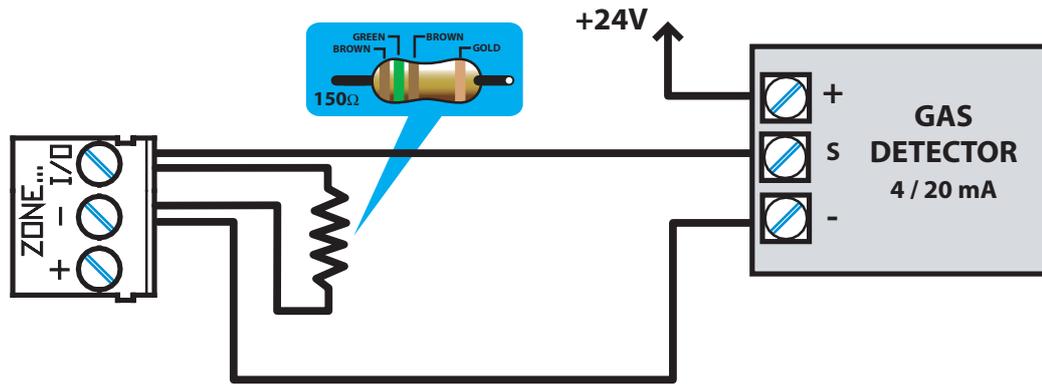
Figure 20 - Connecting 4-20mA GAS detectors

The diagram above illustrates a line wired as a 4-20mA GAS input, this wiring method allows the line to interface with a 4-20mA GAS detector.
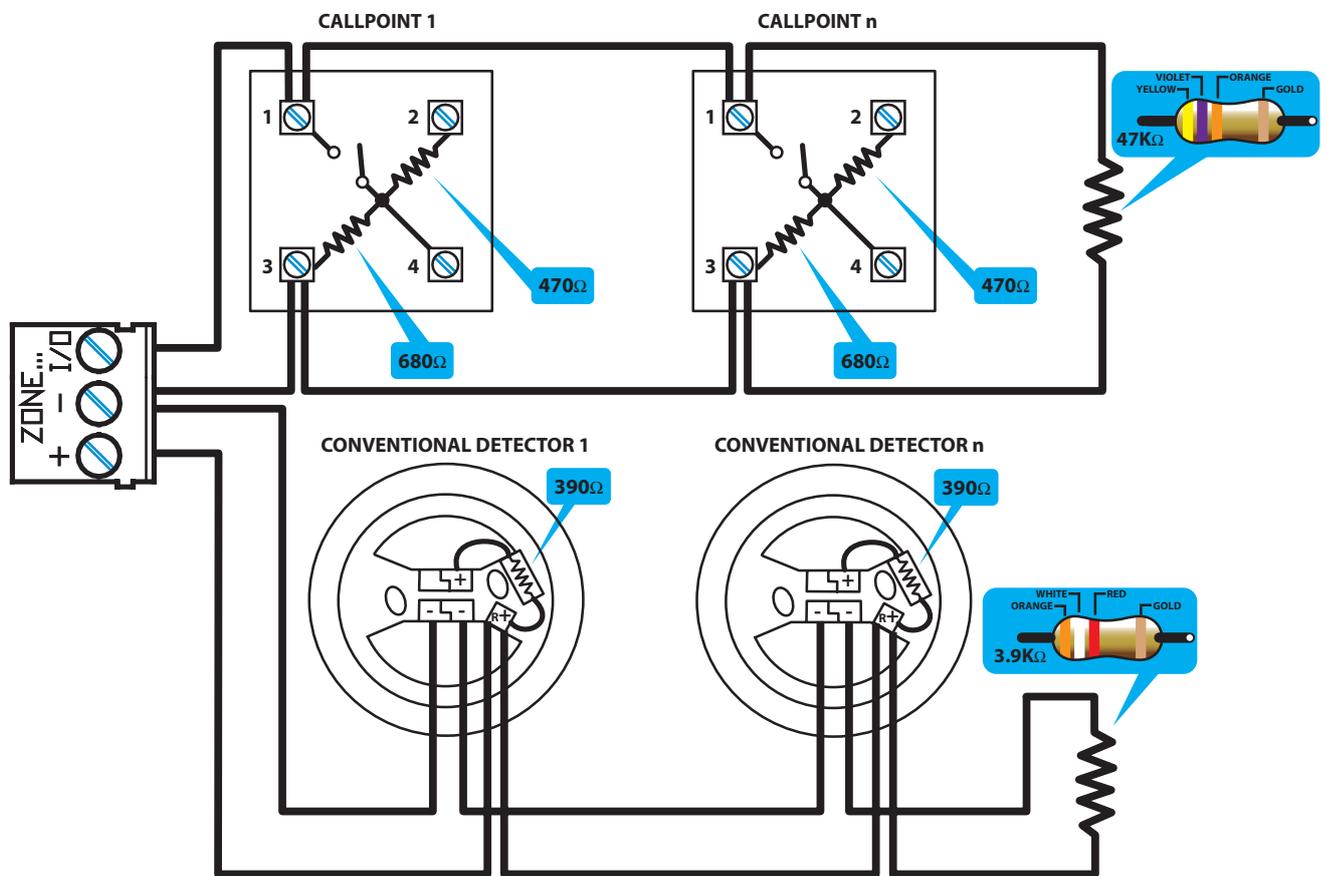
Figure 21 - Setting up two separate lines for each zone (detectors and callpoints)

The diagram above shows how to set up two separate lines in the same zone , one for detectors and the other for callpoints. The I/O Line is wired as a "Fire Alarm Input and the Pre-alarm option is set as "NO".

Note:	*In order to validate the IMQ-SISTEMI DI SICUREZZA certification, this output should not be used as a type C, E or J output (EN 54-1), and must not be used to command Fire-alarm or Fault transmission devices.*

6.4.3   Wiring

1. Use 2 pole cable with Fire code compliant flame class.

Note: *In order to validate the IMQ-SISTEMI DI SICUREZZA certification:*
the total number of fire detectors and/or manual callpoints connected to a zone using the split method (terminals + with - and I/O with -), must not exceed 30 units;
the maximum wire length must not exceed 3000m and the wire resistance must not exceed 100 ohm.

2. Fire alarm wires must be separate from other power wiring circuits.

3. All cabling, connections and junctions should be completed using the local country Fire Code compliant method.

Fire code guidelines

Danger: **All circuits should be wired using the local country Fire Code compliant method.**

6.5   Connecting the Dialler

The panel dialler must have an activation terminal that will generate calls when it connects to *GND* (activation -A).
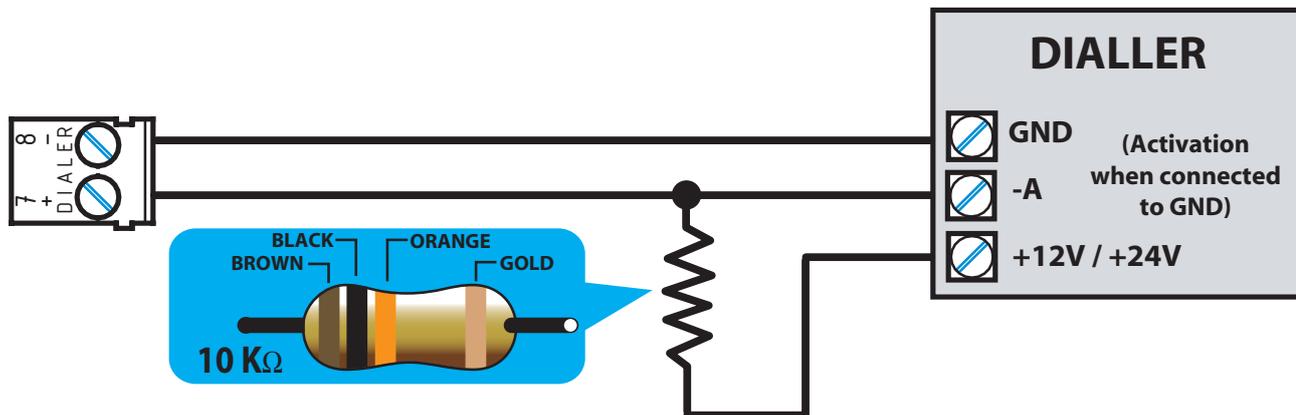
Figure 22 - Connecting the Dialler

1. Connect the telephone dialler to the *Dialler* terminals.

2. Connect a 10 kΩ resistor to the telephone dialler, as illustrated in the previous wiring diagram. The resistor will monitor the integrity of the connection between the control panel and the telephone dialler and will signal any short-circuits or interruptions.

In the event of an alarm, the panel will trigger the dialler which, after the programmed delay, will send the respective calls to pre-set telephone numbers.

6.6   Connecting the RS485 BUS

The *RS485* BUS terminals accommodate up to 4 Repeaters. These devices replicate all the panel data and provide remote access to the system. Repeaters should be located near the entrances/exits of the protected premises.

Repeater panels should be connected in parallel. The panel communicates with the Repeater panels using a highly noise-immune digital protocol.
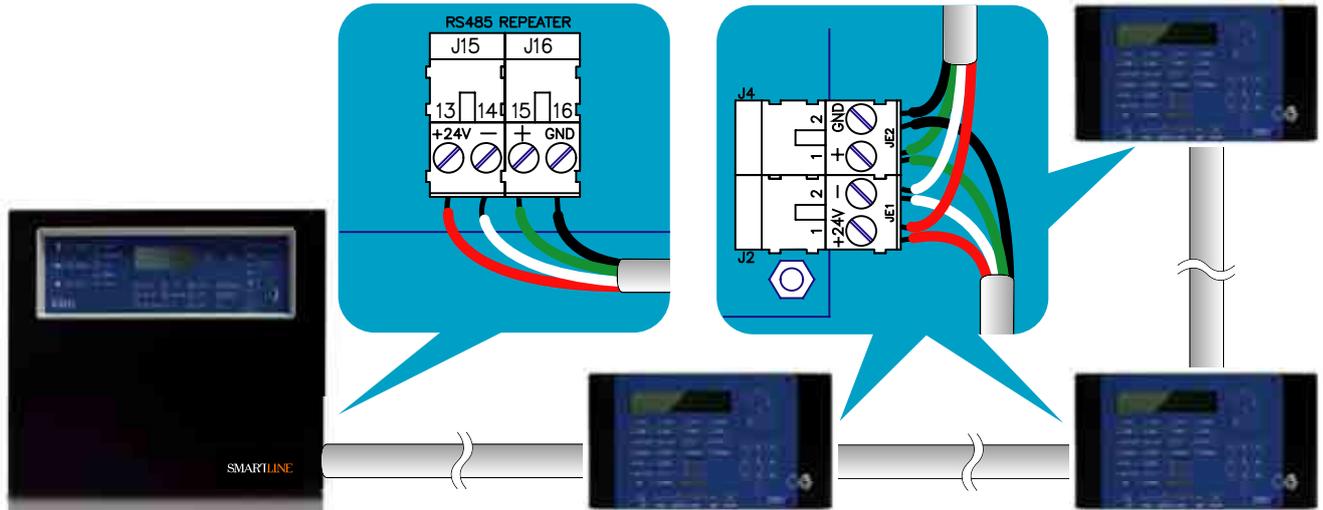
Figure 23 - Connecting the RS485 BUS

6.6.1 Wiring

1. Use 4 pole STP cable.

2. The cable length between the panel and Repeater should not exceed 1000 m.

3. Connect the shield to earth (terminal 6 can be used for this connection).

6.6.2 Repeater settings

1. Using the *Dip Switch [A]*, assign an address to the Repeater.
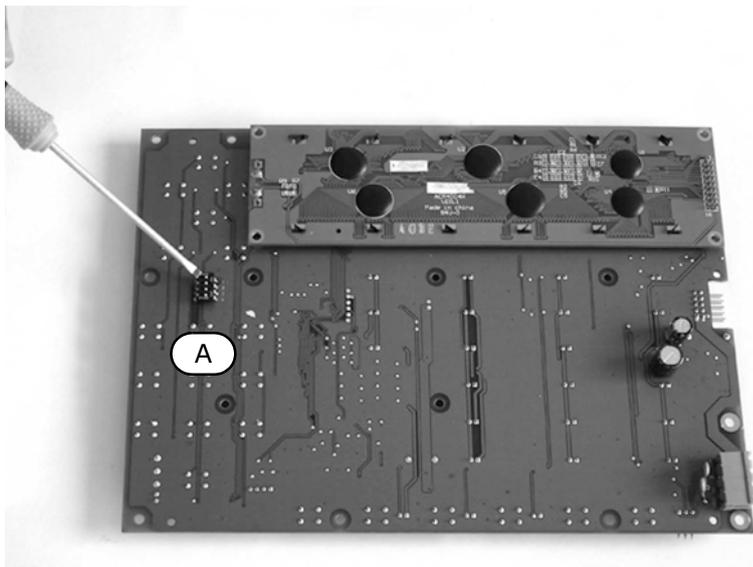
DIP Switch	Address
	1
	2
	3
	4

Figure 24 - DIP Switch

Attention: **All other DIP switch configurations are NOT allowed.**

2. Ensure that the EOL jumper is set in the EOL position on the last Repeater on the line ONLY.

Jumper in EOL position for the last Repeater

Jumper position for other Repeaters
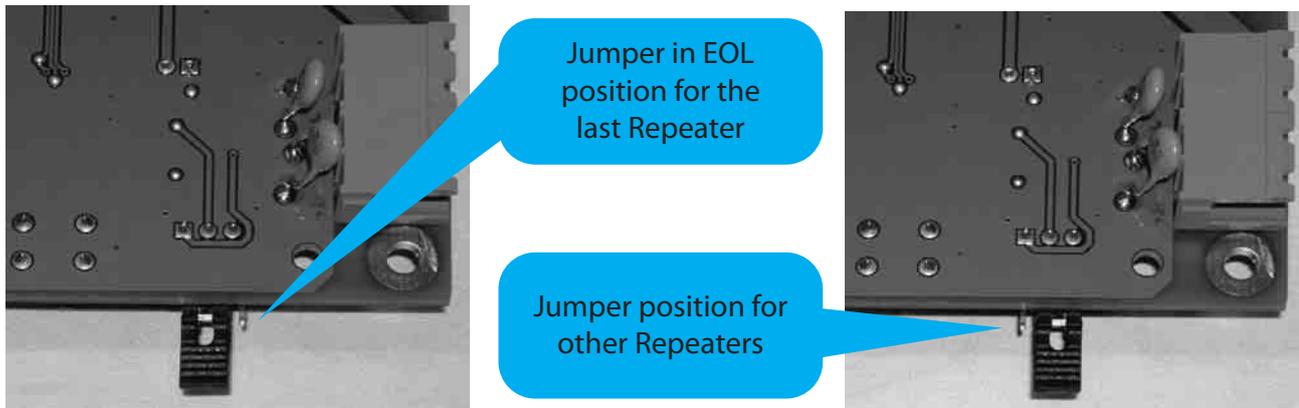
Figure 25 - Jumper position

6.7 Connecting the fault signaling outputs

The control panel provides a Fault signal output (Normally Open, NON-Supervised contact).

FAULT signaling Light
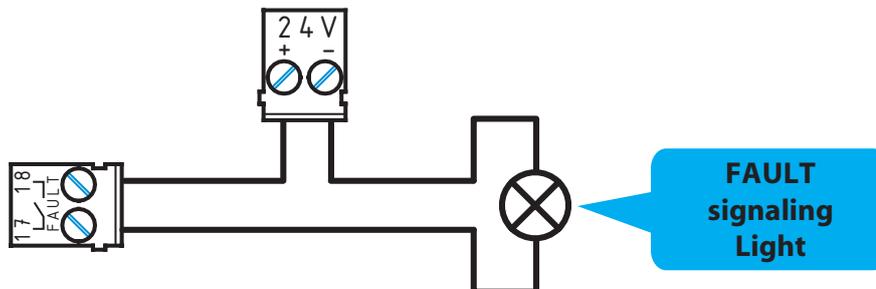
Figure 26 - Connecting the Fault signal output

During standby status, the 2 terminals will be open. If the control panel detects any type of fault, the two terminals will close together. The contact can switch a maximum load of 1A - 30V.

Note: *In order to validate the IMQ-SISTEMI DI SICUREZZA certification, this output should not be used as a type J output (EN 54-1), therefore, it must not be used to command Fault transmission devices.*

6.7.1 Wiring

Use NON-shielded cable. The wire section should be compatible with the wire length and load connected to the output.

6.8   Connecting the Alarm signaling output
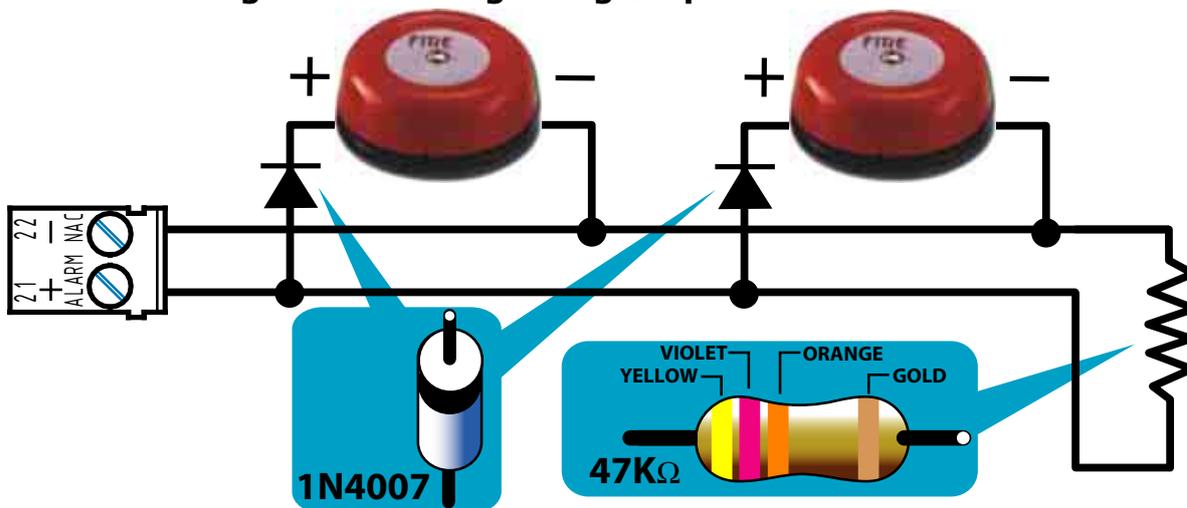
Figure 27 - Connecting the Alarm output

The alarm output is a silenceable supervised output protected by a resettable fuse @ 0.9 A.

During standby status the panel will allow a low supervisory current to circulate on the line, with reverse polarity to that indicated on the board. The diodes connected in series to each load on the line will ensure that the current closes on the EOL resistor. This current allows the panel to verify cable integrity. Open or shorted conditions on the wires will generate a fault signal: `Open OR Shorted Alarm Output`.

In the event of an alarm, the output will activate and the panel will supply 24 V in accordance with the polarity indicated on the board.

6.8.1   Wiring

1. Use NON-shielded cable.
   The wire section should be compatible with the wire length and load connected to the output.
2. Connect the EOL resistor (47 KΩ) in parallel to the last device on the line.
3. Connect a 1N4007 diode (or equivalent) in series to each load.

6.9   Connecting NAC outputs to the Smart/8Z expansion board

The NAC outputs on the expansion boards are programmable, supervised outputs protected by a resettable 0.9 A fuse.

During standby status the panel will allow a low supervisory current to circulate on the line, with reverse polarity to that indicated on the board. The diodes connected in series to each load on the line will ensure that the current closes on the EOL resistor. This current allows the panel to verify cable integrity. Open or shorted conditions on the wires will generate a fault signal: `Open OR Shorted Alarm Output`.

In the event of an alarm, the output will activate and the panel will supply 24 V in accordance with the polarity indicated on the board.

Note: *In order to validate the IMQ-SISTEMI DI SICUREZZA certification, and to comply with type C outputs, thus suitable to command Fire Alarm signaling devices, these outputs must be programmed to activate only in the event of fire. Furthermore, they should not be used as type E or J outputs (EN 54-1) and consequently should not be used to command Alarm or Fault transmission devices.*

6.9.1   Wiring

Refer to paragraph *6.8.1 Wiring*.

6.10   Connecting AUX and AUX-R outputs
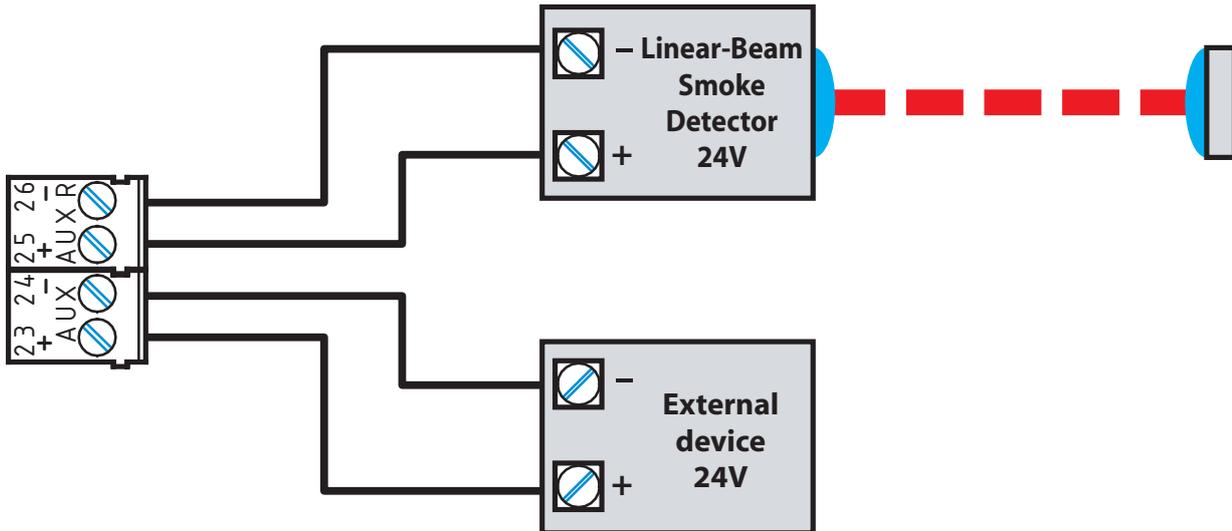
Figure 28 - Connecting AUX and AUX-R outputs

The AUX output supplies 24V (27.6V), 0.9A current (maximum) power source for external devices.

The AUX-R output supplies 24V (27.6V) and 0.9A current (maximum) that is removed during Reset, and therefore can be used as a power source to beam detectors, that once latched in alarm must be switched off in order to reset to standby status. The AUX-R output can be wired to activate/deactivate as a consequence of different conditions (refer to the Programming section).

6.10.1 Wiring

Use NON-shielded cable. The wire section should be compatible with the wire length and load connected to the output.

6.11   Connecting the RELAY output
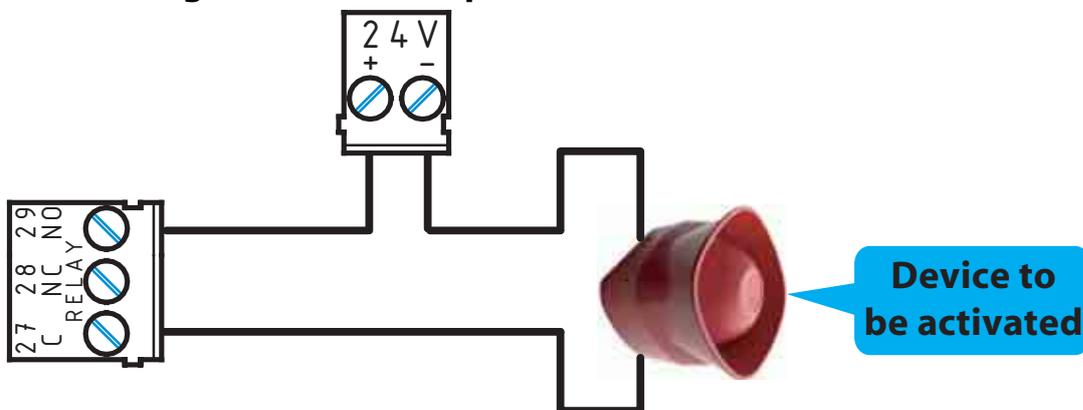
Figure 29 - Connecting the RELAY output

The RELAY output provides a dry contact that can switch 1A 30V loads. At default the relay is configured to activate in the event of an alarm but can be configured to activate in the event of various conditions.

Note: *In order to validate the IMQ-SISTEMI DI SICUREZZA certification, this output should not be used as a type C, E or J output (EN 54-1), and must not be used to command Fire-alarm or Fault transmission devices.*

6.11.1 Wiring

Use NON-shielded cable. The wire section should be compatible with the wire length and load connected to the output.

6.12 Connecting the Extinguishant module (optional system enhancement tool)
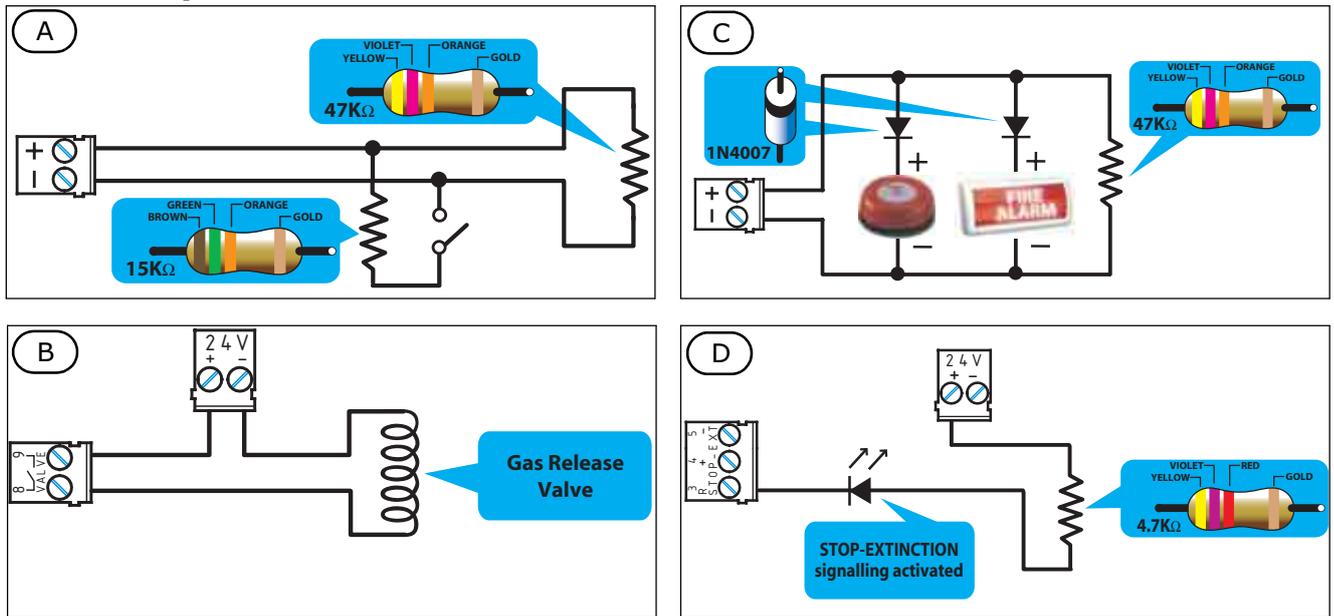
Figure 30 - Extinguishant module

6.12.1 Inputs

Terminal description	Device to be connected	Input Type	Note	Wiring Diagram
MAN-EXT	extinguish system Start button	Supervised	Up to 20 devices can be connected to this input.	see *Figure 30* - A 47K = Standby 15K = Active
STOP-EXT	extinguish system Stop button	Supervised	The STOP EXTINGUISH button should always be located near to the protected area. This will allow any persons present during the release of extinguishant gas to stop the process and evacuate the area unharmed. Up to 20 devices can be connected to this input.	see *Figure 30* - A 47K = Standby 15K = Active
PRESS	Gas extinguishant pressure switch	Supervised	The pressure switch has two functions: - Under normal operating conditions, it monitors the pressure of the Gas extinguishant. If the pressure drops spontaneously below the pre-set value, it will generate a fault signal. - After an 'Extinguish' command, it confirms that the command has been carried out.	see *Figure 30* - A 47K = Standby 15K = Active

6.12.2 Outputs

Terminal description	Device/s to connect	Output Type	Note	Wiring Diagram
VALVE	Electrovalve for gas release	Supervised		see *Figure 30* - B
PRE-EXT	Audible and visual signaling devices	Supervised	The signaling devices activate as soon as the detectors sense fire conditions that require gas extinguishant intervention. This will allow building occupants to evacuate the building before the gas extinguishant is released. The delay between the activation of alarm signaling devices and the release of the gas extinguishant is customizable.	see *Figure 30* - C 47K Balancing
RELEASED	"Extinguishant Gas release" signaling devices	Supervised	There are two activation modes: - activation on confirmation of Extinguishant Gas release; - simultaneous activation with the electrovalve output. This mode requires gas detectors in the protected environment.	see *Figure 30* - C 47K Balancing
R	Remote LED that signals the deployment of a STOP EXTINGUISH button.	Open Collector (non-supervised)	Activates (closes to GND) in the event of activation of the STOP EXT input (max 100 mA).	see *Figure 30* - D

6.13   Connecting the Mains

The switching power supply module (housed inside the box under the motherboard) provides the power source to the entire system and recharges the batteries.

The panel must be connected to a separate line on the electrical switch board. The line must be protected by a fire code compliant sectioning device.

The protective earthing system must be compliant with the local safety regulations, fire code, laws and bylaws in force.

6.13.1 Technical specifications

Primary power source: 230 V ac (-15% + 10%) 50/60 Hz

Panel current draw: 0.5 A. (max.)

6.13.2 Wiring
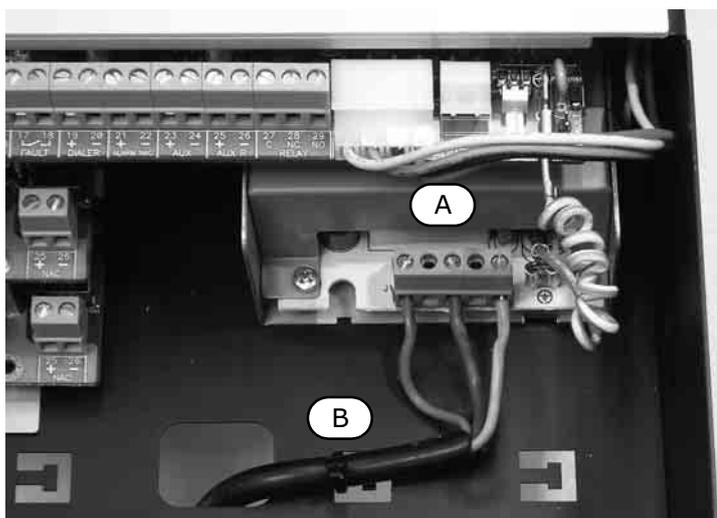
Figure 31 - Connecting the Mains

Danger:	**Switch Off the mains power before starting the mains connections.**

1. Connect the wires to the terminal board [A] of the power supply.
2. Using a plastic cable tie, secure the cable to the hook [B] on the back of the control panel.

Attention:	**Wiring circuits must not be commingled without proper separation. Adhere to the connection wiring in the diagram.**

6.14   Connecting the batteries

The panel box provides housing for two 12 V-7 Ah lead batteries. The two batteries must be connected in series, in such way as to provide a 24 V current.

Using the connection wires (included), connect the batteries together and then connect the batteries to the Smartline control panel. The actual connection must be completed during the process described in "Powering up the system" on page 45.

The batteries are the secondary power supply of the system. Once powered up, the panel will charge and monitor the batteries automatically. The battery monitoring process is as follows:

• Efficiency Test
  The panel checks the efficiency of the batteries approximately every 60 seconds by decreasing the output voltage of the power supply and simulating load current demand. If the batteries fail to meet the demand, the event will be signaled on the respective fault LED `Battery disconnected`.

- Battery level test
  In the event of mains failure, the panel continuously monitors the battery voltage. If it drops below 22.8 V, the panel will signal `Low Battery`. The event will end when the voltage restores to 24.6 V.
- Deep discharge shutdown
  If a mains failure event lasts for a long period, and the battery voltage drops below 18 V, the panel will shutdown the batteries automatically in order to avoid irreparable damage.

6.15   Thermal Probe

Attention: **In order to validate the IMQ-SISTEMI DI SICUREZZA certification and comply with EN 54-4 requirements, installation of a thermal probe is essential.**

The battery has an on-board connector for a Thermal probe (accessory item). This device will regulate the charging process in accordance with the battery temperature. The thermal probe protects against battery overheating and consequent damage.

6.15.1 Connecting a thermal probe
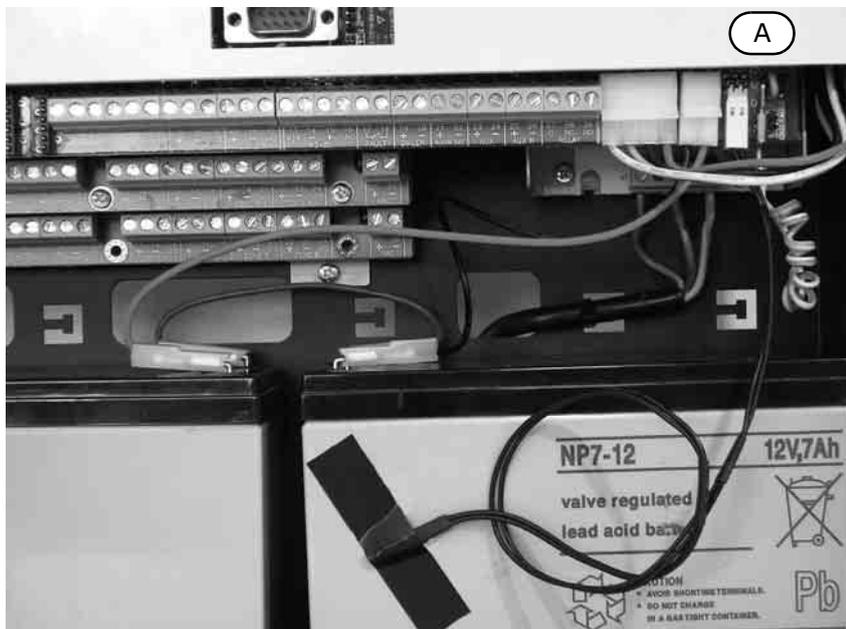
Figure 32 - Connecting a thermal probe

1. Disconnect the batteries (if already connected).
2. Connect the thermal probe to the connector [A].
3. Using adhesive-insulating tape, attach the thermal probe to one of the batteries, in such way as to provide optimized heat-transfer measurements.
4. Hold a thermometer against the probe, and measure the probe temperature.

5. Using the following graph, find the value the measurement will be based on.
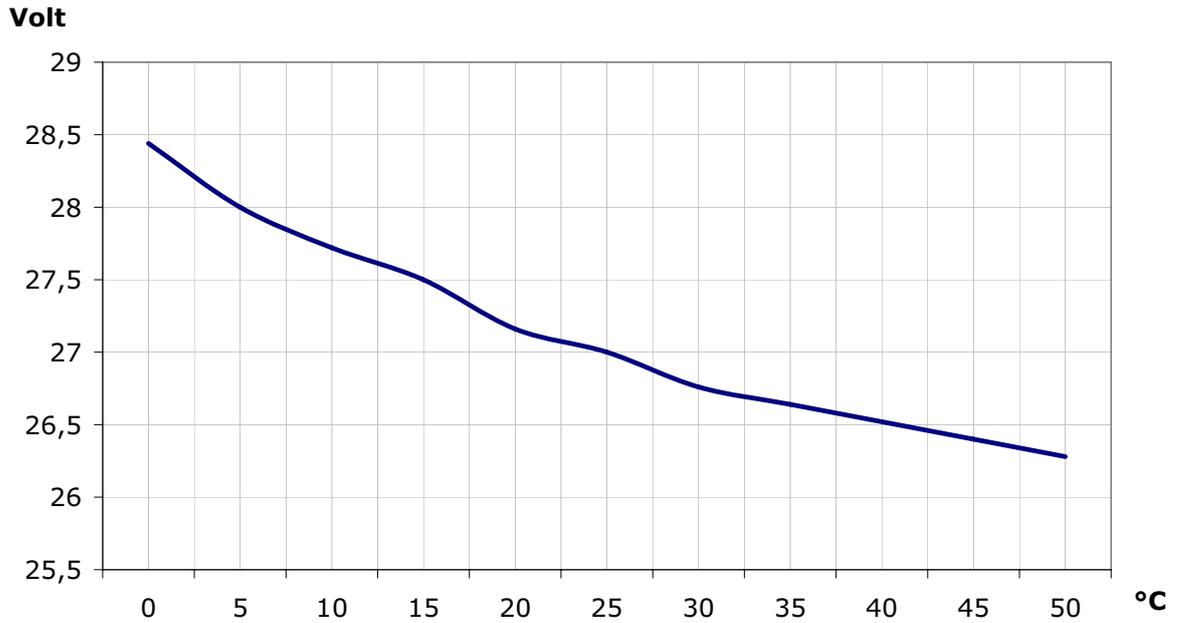
Volt

Figure 33 - *Voltage charge* in relation to *Battery Temperature*

6. Using a tester, measure the voltage on the *AUX [B]* terminals and turn the trimmer [C] to the previously measured value.

Figure 34 - Adjusting the voltage charge

Chapter 7

Powering up and configuring the system

7.1   Testing wiring integrity

Double check the integrity of the wiring before first power up.

7.1.1   Earth Isolation
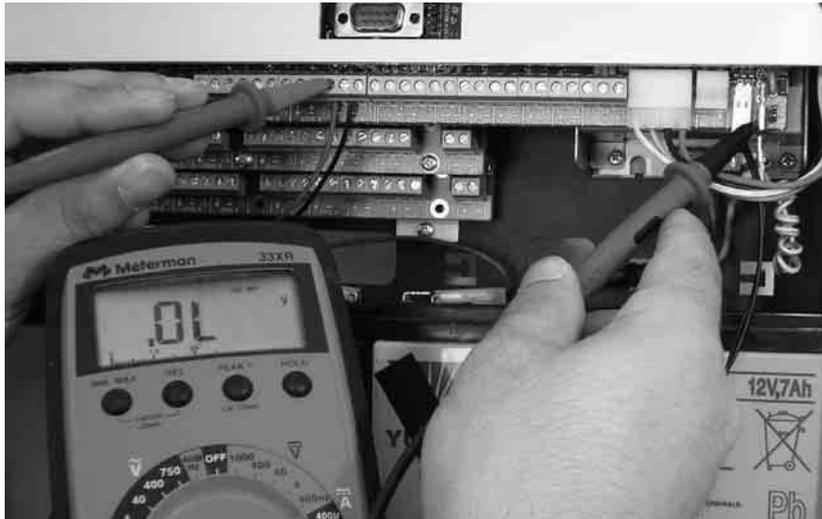
Figure 35 - Isolation between cable shields and earthing system

1. Remove the jumper J3 in order to bypass earth fault check.
2. Using a tester, check that the resistance between each wire and earth (see Figure above) is infinite.
3. Replace the jumper J3 in order to unbypass earth fault check.
4. Disconnect the wires of each line.
5. Using a tester, ensure that the line resistance corresponds to the value as the EOL resistance.

7.1.2   Testing the wiring integrity of the supervised outputs
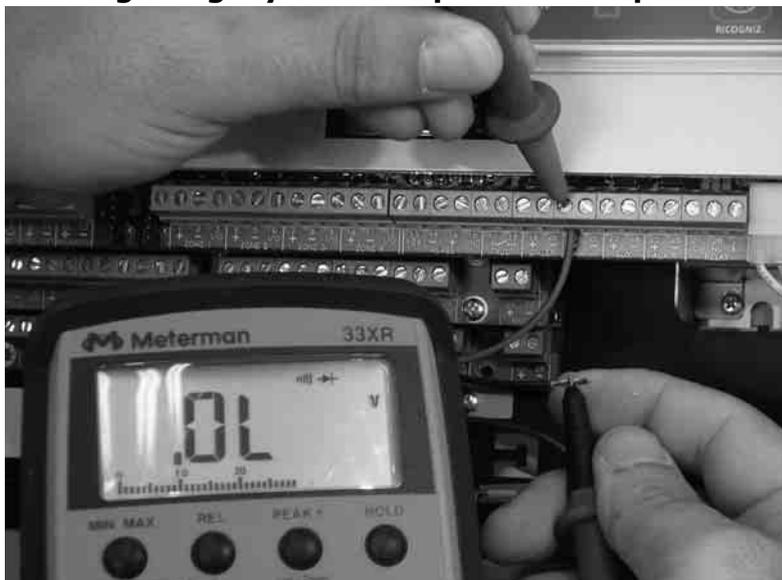
Figure 36 - Supervised outputs

6. Disconnect the wires of the supervised outputs from the respective terminals on the motherboard.

7. Using a tester, measure the cable resistance. Test both polarities. At least one must have the same resistance value as the EOL resistor indicated in the previous figure.

7.1.3 Final tests

Refer to paragraph *6.13.2 Wiring*.

8. Check that all cables are properly bunched (by means of cable ties) and attached firmly to the cable hooks on the backbox.

9. Check the proper polarity of the primary power source connections (230 Vac).

10. Ensure that the cable is attached firmly (by means of a plastic cable tie) to the cable hook.

7.2 Testing Repeaters
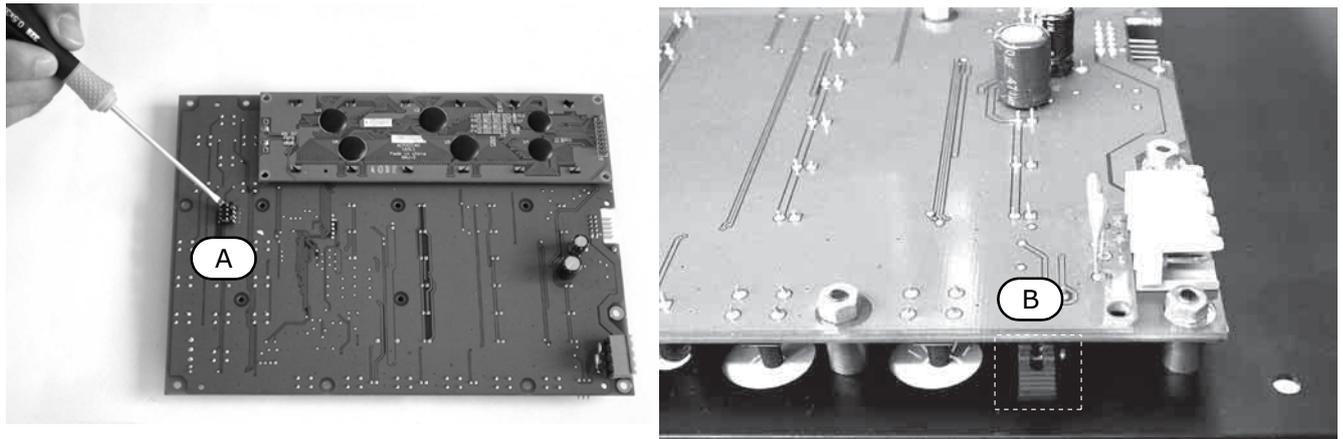
Figure 37 - Testing Repeaters

11. Check that the Repeater panel DIP microswitches [A] have been set properly. Refer to "Repeater settings" on page 33.

12. Check that the EOL resistance jumper [B] is in the EOL position on the last Repeater panel only.

7.3 Connecting the RS232 PC serial link

Connect the RS232 cable to the device as indicated in the figure.
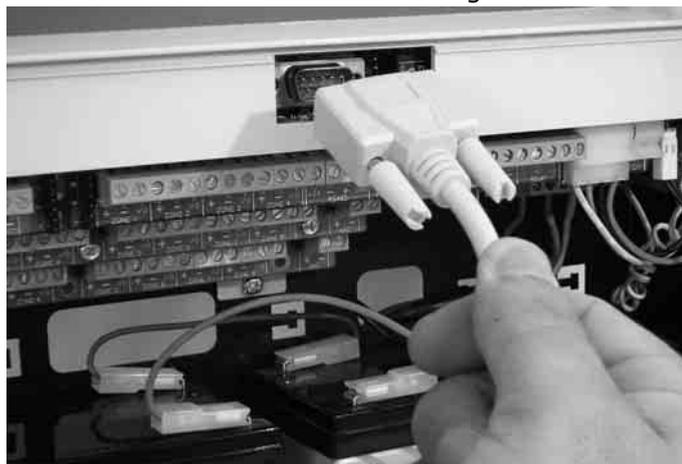
Figure 38 - RS232 serial port connection

Note: *The connection between the panel and the PC will be operative only when the PC programming jumper is inserted.*

The cable should be connected to the device as shown:

SmartLine end DB9F connector	PC end DB9F connector
2	3
3	2
4	4
5	5
6	6
7	7
8	8

SmartLine-GP end DB9F connector	PC end DB25F connector
2	2
3	3
4	20
5	7
6	6
7	4
8	5

Note: *The RS232 link can be ordered separately. The order code is indicated in "Appendix B".*
If the computer you are working on has a USB port, and not a RS232, use an RS232-USB adapter.
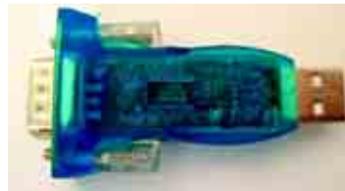
7.4   Powering up the system
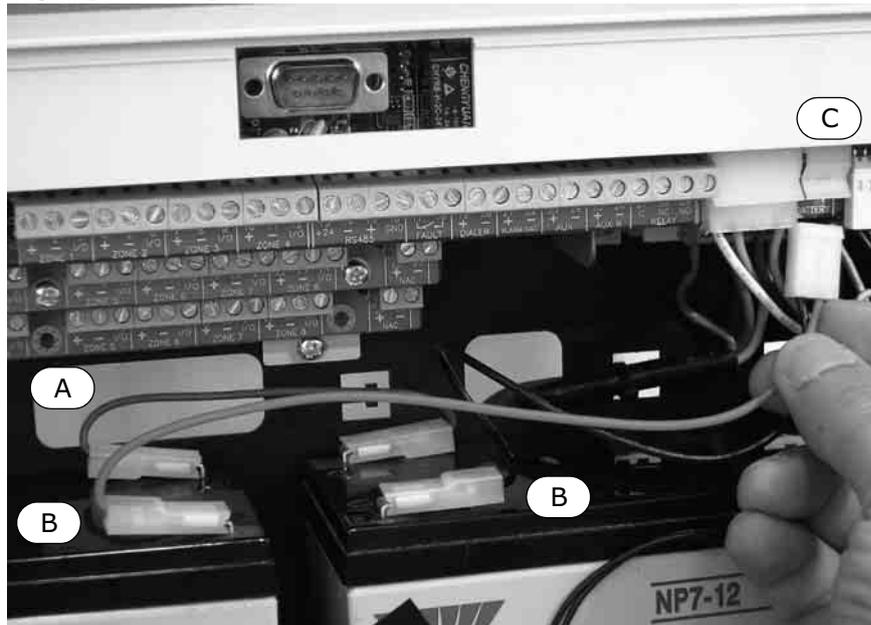
Figure 39 - Connecting the batteries

1. Connect the connection wire [A] to the batteries. Refer also to "Connecting the batteries" on page 39.

2. Connect the connection wire [B] to the batteries.

Attention: **Be sure that cable polarity is correct.**

3. Connect the connector [C] of the battery wire to the control panel.

Attention: **Ensure that connector polarity is correct.**

The panel will take several seconds to stabilize, start up will be indicated by an intermittent audible signal and the `Resetting` message.
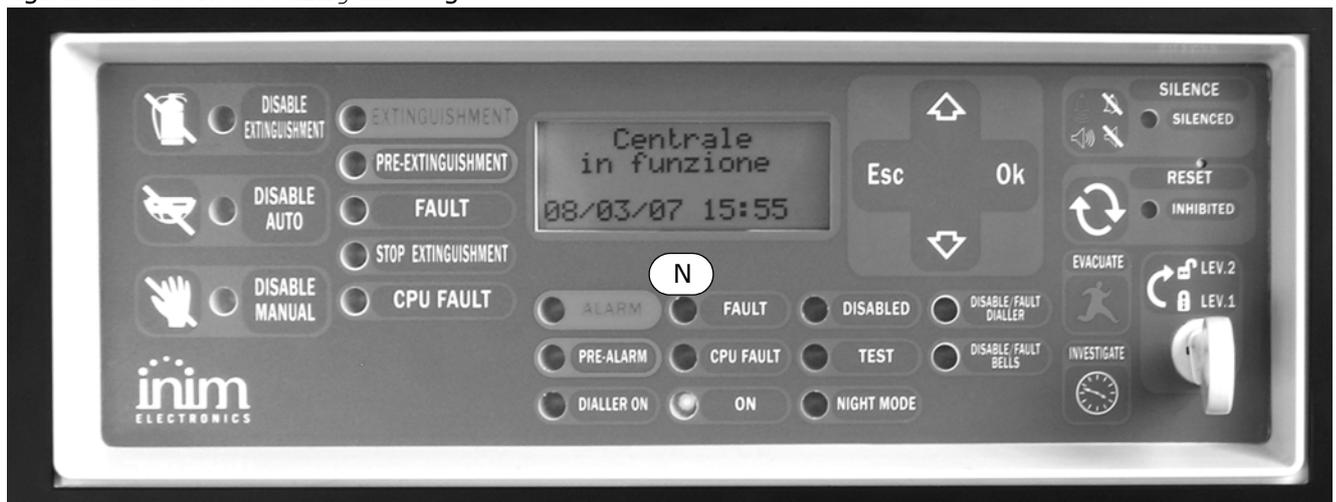
Figure 40 - Reset signaling

Full panel reset will be indicated by:

- The On status of the green LED (indicating that the panel is operative).
- Blinking on the `CPU` LED (indicating that the board has just reinitialized).
- If the following step (Power up the panel) is not completed within two minutes, the `FAULT` LED [N] will go On and the display will show the "`Mains Fault`" message.

4. Power up the panel from the mains.

A restored 'Mains faults' will be signaled by:

    - Blinking on the Fault LED (indicating fault memory).

5. If the fault persists, check all wiring sections thoroughly. Refer to *Chapter 15 - Diagnostics - Clearing Faults*.

6. Once all faults have been cleared, turn the key (inside the control panel keyswitch) to Access Level 2 and press the RESET button [C].

Figure 41 - RESET

Once the Reset operation has been completed, all the LEDs will go Off except for the green LED [R] ON.

The display will show the IN SERVICE message.

7. Press any key to access the main menu. Using the scroll key ▼, select the "Test LEDs"option from the menu. Press and hold <OK>, and check that all the LEDs go On.

Chapter 8

Programming from the panel

Access to programming is allowed only after the programming jumper has been inserted:

```
        Panel
  IN PROGRAMMING
      Ver.  1.00
 01/01/00   00:00
```

1. Remove the frontplate.

2. Insert the **jumper J8** (see *Figure 5 - P*).

3. The display shows the relevant message

4. The panel switches Off: no faults or alarms will be signaled.

```
        Panel
  IN MAINTENANCE
      Ver.  1.00
 01/01/00   00:00
```

If this message appears, the programming phase has been blocked via PC. If this occurs, only maintenance functions can be accessed.

Note: *To unblock the programming phase, start the SmartLeague application on the PC and type in the code previously used to block it. This feature protects the system from being accessed by persons other than qualified technicians authorized by the Installer company.*

Menu options

```
→001<Zone Descr.>
 002<Zone Descr.>
 003<Zone Descr.>
  004<Zone De-
```

Press <OK> to access the zone screen.

'↓' indicates that there is further information after the last line.

Press <ESC> to step back to the previous screen.

Editable alphanumeric field

```
Modify descr.
↑↓: move Ok: edit

<Zone   001>
```

Use keys ▲ and ▼ to move along the string.

Press and hold <OK> to scroll the alphanumeric characters.

Press <ESC> to confirm the data entry, exit and step back to the previous screen.

Editable numeric field

```
→Rit. mains fail-
ure
 -- hour -- min
 Delay dialler
```

Press and hold <OK> to scroll the values the two-digit counters (for example, 0 to 99 and "--", which means non-specified).

Use key ▲ or ▼ to move to the next programming field.

Press <ESC> to confirm the data entry, exit and step back to the previous screen.

Variable field

```
Alarm:      YES
Pre-alarm:   YES
GAS Alarm: YES
 GAS Pre-Alarm:
```

Use key ▲ or ▼ to scroll the list.

Press <OK> to toggle the value (YES, NO).

Press <ESC> to confirm the data entry, exit and step back to the previous screen.

Chapter 9

Programming the Control panel

This section describes how to program the control panel.

9.1   Configuring the control panel

From panel: **<key>, Programming, Configuration**

From PC: **Go to Design, Devices/Extinguishant board or Repeater, drag and drop the devices to the SmartLine control panel** (if Repeaters are connected to the BUS RS485).

The first step is to configure the control panel. Select "Acquire int. bus" and press OK, the display will show the current configuration of the control panel (i.e. the number of extinguish and expansion boards).

```
Current devices
Extin. module    0
Expansion        0
OK to execute
```

Press OK to initiate the scanning phase. On completion of this phase, the control panel will enroll the properly connected extinguish board (one only) and expansion boards (maximum 2). Ensure that the configuration is correct, then press ESC to exit.

Select "Acquire ext.bus" and press OK, the display will show the number of Repeaters in the current system configuration.

```
Current devices
Repeater         0

OK to execute
```

Press OK to initiate the RS485 BUS scanning phase. On completion of this phase, the control panel will enroll all the properly connected Repeaters found on the RS485 BUS.

Once a component has been enrolled, it will be monitored by the control panel. If the device for any reason does not respond or is not functioning properly, the control panel will signal a fault.

9.2   Programming the zones

From panel: **<key>, Programming, Progr. zone, <select zone number>, <OK>**

From PC: **Go to SmartLine control panel/ Zones, Programming**

This section describes the zone parameters of the detection line and the I/O line.

Attention:	Consult the local laws in force for any restrictions regarding the "definition of zones" (dimensions and installation).

9.2.1   Zone Parameters

ZONE	Pre-set Zone Number (from 2 to 20 depending on the control panel model).
<aaaaaaaaaaaaaa>	Zone Description (e.g.downstairs kitchen).
Pre-alarm	Length of pre-alarm signal for the zone. The zone will trigger an alarm when the set time expires..
Investigate	Length of "Investigate" time. The countdown starts when the <INVESTIGATE> button is pressed during pre-alarm status. Pressing this button will stop the pre-alarm timer and start the <INVESTIGATE> timer.

Verify alarm time If this option is enabled for the detection line (details follow), the control panel will not activate an alarm when it receives an alarm signal from one of the line detectors but will reset the detector that triggered the alarm and will start the pre-set verify alarm time. The control panel will consider the alarm valid only if the detector signals the condition again within the preset time.

Filter time If the "Filtered" option is enabled for the zone detection line or I/O line, this represents the minimum duration of an line alarm or fault signal before the control panel will consider it as valid. This filter avoids unnecessary signaling of alarms and/or faults generated by a instantaneous activation (for example, when a fork-lift truck passes in front of the detection beam for an instant).

Detection line Press OK when the cursor is positioned on this line, to access the programming page relating to the detection line of the selected zone.

I/O line Press OK when the cursor is positioned on this line, to access the programming page relating to the I/O line of the selected zone.

9.2.2 Detection Line Parameters

<aaaaaaaaaaaaaa> Zone Description (e.g.downstairs kitchen). The field cannot be edited at this point. If you wish to change the string, you must step back to the previous menu.

Line Type Using the OK key, scroll the various activation types that can be assigned to the detection line:

FIRE ALARM The line will operate as a fire detection line. Activation of the line will generate a fire alarm. The line will remain active until the control panel resets.

RESET. ALARM The line will operate as a fire detection line. Activation of the line will generate a fire alarm. The line will remain active until the detectors connected to it remain in alarm status, once the detectors restore to standby, the signaling on the control panel will stop.

SPRINKLER The line will operate as a resettable alarm line (it will remain active for the duration of the alarm condition). Activation of the line will generate a fire alarm and the display will indicate activation of the "Sprinkler" system. The line will also generate the "Sprinkler" signal that can be used for the activation of specific outputs which provide separate signals.

SUPERVISORY The line will signal a specific Fault condition and will activate Fault and Supervision signals that can be used for the activation of specific outputs.

GAS RELAY The line will interface between the detectors and output relay (see the respective diagram). Pre-alarm activation will generate a pre-alarm GAS signal, if the pre-alarm clears (restores to standby), the control panel will stop signaling. In the event of alarm activation, the control panel will signal a GAS Alarm.

EXTINGUISH The line will be used to command the Extinguishment board functions. The type of command that is achieved by activating the line can be set on the two lines that follow. The available functions are: Bypass Extinguish; Bypass Manual Extinguish; Bypass Automatic Extinguish; Confirm Extinguish; Manual Extinguish; Stop Extinguish. For further details regarding the previously mentioned functions, refer to the Extinguishant board section.

Modify levels Position the cursor on this option then press OK to access the detection line threshold-adjustment wizard, refer to the respective paragraph for details.

Det.Missing If this option is enabled, the voltage on the line will be reversed periodically for several mS, in order to check if any detectors have been removed from their bases. This function mode can be applied only when bases with diodes have been suitably wired using an EOL diode/capacitor connected in parallel (refer to the wiring diagram).

Detect CP If this option is enabled, the line will discriminate between alarms generated by callpoints and detector. Alarms generated by callpoints will override the pre-alarm time and activate instant alarms. This option can be enabled only when the line is wired as indicated in the respective wiring diagram.

Short=Alarm	If this option is enabled, short-circuits on the line will activate the line itself (depending on the type of line: Alarm, Supervision, etc.).
Night Preal.	If this option is enabled, the line will signal pre-alarm conditions even when the system is operating in Night Mode (the Pre-alarm feature must also be enabled).
Verify	If this option is enabled, the control will remove the power from the line (and its detectors) when it receives an alarm signal from one of the line detectors. After reset (several seconds), it will repower the line (and detectors) and will consider the alarm valid only if the detector signals the condition again within the preset "Verify Alarm Time".
Pre-alarm	If this option is enabled, the control will signal pre-alarm for the pre-set time when the line tigers an alarm.
Filtered	If this option is enabled, an alarm or fault condition on the line will be activated only when it persists for a period of time longer than the pre-set "Filter Time".

9.2.3   I/O Line Parameters

<aaaaaaaaaaaaaa>	Zone Description (e.g.downstairs kitchen). The field cannot be edited at this point. If you wish to change the string, you must step back to the previous menu.
Line Type	Using the OK key, scroll the various programming options for the I/O line:
OUTPUT ZONE STATUS	In this mode, the line will operate as an Open-Collector output that will activate in response to any of the selected signals ("Alarm", "Pre-alarm", "Gas alarm", "Gas pre-alarm", "Sprinkler", "Supervisory", "Class Change" and "Fault") relative to the control panel (if the "Panel" option is selected from the following list), or relative to the zones specified in the list (All zones set as "YES").

	At least 1	The output will activate if one or more signals activates on at least one of the selected zones.
	At least 2	The output will activate if one or more signals activates on at least two of the selected zones.
	All	The output will activate if one or more signals activates on all of the selected zones.
	Silenceable	If "YES" is selected, it will be possible to switch Off the activated output by inserting the key and pressing the <SILENCE> button.
	Inverted	If selected, the output will always be closed to ground and will open when activated.
	Duration -- min -- sec	Activation time (0 to 10 minutes); if the duration is not defined ("--" or "bistable" for SmartLeague) the output will not deactivate. Under all circumstances, if the condition clears the output will deactivate.
OUTPUT DISABLEMENTS		In this mode, the line will operate as an Open-Collector output that will activate when any of the control panel components is bypassed (if t"Panel" option is selected), or when one or more zones (all the zones set as "YES") are bypassed.
	At least 1	The output will activate if at least one of the selected zones is bypassed.
	At least 2	The output will activate if at least two of the selected zones are bypassed.
	All	The output will activate if all selected zones are bypassed.
	Silenceable	If "YES" is selected, it will be possible to switch Off the activated output by inserting the key and pressing the <SILENCE> button.
	Inverted	If selected, the output will always be closed to ground and will open when activated.
	Duration -- min -- sec	Activation time (0 to 10 minutes); if the duration is not defined ("--" or "bistable" for SmartLeague) the output will not deactivate. Under all circumstances, if the condition clears the output will deactivate.

OUTPUT EXTINGUISH	In this mode, the line will operate as an Open-Collector output that will activate in response to the selected Extinguishant Module signals: "Disable manual"; "Disable automatic"; "Pre-extinguish"; "Extinguish"; "Confirm extinguish"; "Pressure Switch".
Silenceable	If "YES" is selected, it will be possible to switch Off the activated output by inserting the key and pressing the <SILENCE> button.
Inverted	If selected, the output will always be closed to ground and will open when activated.
Duration -- min -- sec	Activation time (0 to 10 minutes); if the duration is not defined ("--" or "bistable" for SmartLeague) the output will not deactivate. Under all circumstances, if the condition clears the output will deactivate.
OUTPUT SIGNALS	In this mode, the line will operate as an Open-Collector output that will activate in response to the selected conditions: ("Reset", "Day", "Night").
Silenceable	If "YES" is selected, it will be possible to switch Off the activated output by inserting the key and pressing the <SILENCE> button.
Inverted	If selected, the output will always be closed to ground and will open when activated.
Duration -- min -- sec	Activation time (0 to 10 minutes); if the duration is not defined ("--" or "bistable" for SmartLeague) the output will not deactivate. Under all circumstances, if the condition clears the output will deactivate.
OUTPUT TIMERS	In this mode, the line will operate as an Open-Collector output that will activate in response to the activation of the specified Timers (i.e. all Timers set as "YES").
Silenceable	If "YES" is selected, it will be possible to switch Off the activated output by inserting the key and pressing the <SILENCE> button.
Inverted	If selected, the output will always be closed to ground and will open when activated.
Duration -- min -- sec	Activation time (0 to 10 minutes); if the duration is not defined ("--" or "bistable" for SmartLeague) the output will not deactivate. Under all circumstances, if the condition clears the output will deactivate.
OUTPUT EQUATIONS	In this mode, the line will operate as an Open-Collector output that will activate when at least one of the specified equations is satisfied (all the equations set as "YES").
Silenceable	If "YES" is selected, it will be possible to switch Off the activated output by inserting the key and pressing the <SILENCE> button.
Inverted	If selected, the output will always be closed to ground and will open when activated.
Duration -- min -- sec	Activation time (0 to 10 minutes); if the duration is not defined ("--" or "bistable" for SmartLeague) the output will not deactivate. Under all circumstances, if the condition clears the output will deactivate.
OUTPUT GAS OUTPUT	In this mode, the line will operate as an Open-Collector output that will activate when the average reading of the values relating to the 4-20 mA GAS detector, connected to the I/O lines of the selected zones, exceeds the set level.
Analogue	This option is available for the first four zones on the motherboard only.; if selected, the output will operate as a PWM (Pulse Width Modulation) output with a period of 0.5 s and a Duty Cycle of: • 0%, if the average smoke reading is less or equal to the "Level 1" setting; • 100%, if the average smoke reading is more or equal to the "Level 2" setting; • proportional to the average reading, if it is between the two set levels. If the output is set as "Analogue" and is equipped with an external filter, it can be used to control an inverter that activates a ventilator whose speeds will be proportionate to the average smoke reading.
Silenceable	If "YES" is selected, it will be possible to switch Off the activated output by inserting the key and pressing the <SILENCE> button.

	Inverted	If selected, the output will always be closed to ground and will open when activated.
INPUT FIRE ALARM		The line will operate as a fire detection line. Activation of the line will generate a fire alarm. The line will remain active until the control panel resets.
	Pre-alarm	If "YES" is selected, a pre-alarm signal will be sent when the line activates and will last for the duration set for the zone concerned.
	Night Preal.	If this option is enabled, the line will signal pre-alarm conditions even when the system is operating in Night Mode (the Pre-alarm feature must also be enabled).
	Filtered	If "YES" is selected, alarms or faults on the I/O line will be signaled only when the conditions persist for longer than the "Filter Time" of the zone concerned.
INPUT GAS 4-20mA		In this mode, the I/O line will operate as a GAS detection line for GAS detectors with 4-20mA output. If a detector exceeds the pre-alarm threshold, it will generate a GAS Pre-Alarm signal. If the current output drops below the pre-alarm threshold, the signal will clear. If a detector exceeds the Alarm threshold, it will generate a GAS Alarm signal.
	Modify levels	This option accesses the Detection line Change-Threshold Wizard (refer to the respective paragraph).
	Resettable alarm	If you select "Yes", alarm signalling will cease when the value returns below the set threshold; otherwise alarm signalling will persist until the next reset operation occurs.
	Filtered	If "YES" is selected, alarms or faults on the I/O line will be signaled only when the conditions persist for longer than the "Filter Time" of the zone concerned.
INPUT DISABLEMENTS		In this mode, the I/O line operates as a supervised input line that when activated bypasses the zones specified in the lines that follow (all zones with "YES").
	Filtered	If "YES" is selected, alarms or faults on the I/O line will be signaled only when the conditions persist for longer than the "Filter Time" of the zone concerned.
INPUT CLASS CHANGE		During this operating mode, the I/O line will operate as a supervised output which when activated will not provide any data on the display but will activate the "Class Change" signal for the zones specified below (all zone set as "YES"). In this way it will be possible to activate al the outputs that are set up to activate the "Class Change" signal of the respective zones. This function is useful in school building installations, where the alarm bells can be activated manually in order to signal the end of a lesson.
	NAC on Class Change	If you select "Yes", each time the "Change Class" signal activates, the Alarm NAC output on the panel will also activate .
	Filtered	If "YES" is selected, alarms or faults on the I/O line will be signaled only when the conditions persist for longer than the "Filter Time" of the zone concerned.
INPUT SPRINKLER		The line will operate as a resettable alarm line (it will remain active for the duration of the alarm condition). Activation of the line will generate a fire alarm and the display will indicate activation of the "Sprinkler" system. The line will also generate the "Sprinkler" signal that can be used for the activation of specific outputs which provide separate signals.
	Pre-alarm	If "YES" is selected, a pre-alarm signal will be sent when the line activates and will last for the duration set for the zone concerned.
	Night Preal.	If this option is enabled, the line will signal pre-alarm conditions even when the system is operating in Night Mode (the Pre-alarm feature must also be enabled).

	Filtered	If "YES" is selected, alarms or faults on the I/O line will be signaled only when the conditions persist for longer than the "Filter Time" of the zone concerned.
INPUT COMMAND		In this mode, the I/O line will operate as a supervised output that when activated will perform the actions specified below :
	Reset	Replicates the <RESET> button on the control panel.
	Investigate	Replicates the <INVESTIGATE> button on the control panel.
	Silence	Replicates the <SILENCE> button on the control panel.
	Toggle day	Inverts the Day/Night operating from Day to Night.
	Force night	The control panel will operate in Night mode for the time the input is active.
	EVACUATE	Functions only when the pre-alarm time is running, in this case the pre-alarm time will be ignored and the control panel will generate an instant alarm. If the pre-alarm time is not running, it will have no effect
	Filtered	If "YES" is selected, alarms or faults on the I/O line will be signaled only when the conditions persist for longer than the "Filter Time" of the zone concerned.
INPUT EXTINGUISH		The line will be used to command the Extinguishment board functions. The type of command that is achieved by activating the line can be set on the two lines that follow. The available functions are: "Disable extinguish"; "Disable manual"; "Disable automatic"; "Confirm extinguish"; "Manual extinguish"; "Lock extinguish". For further details regarding the previously mentioned functions, refer to the Extinguishant board section.
	NC input	If you select "Yes", the standby and alarm intervals will be reversed - for use with Normally Closed contacts.
	Filtered	If "YES" is selected, alarms or faults on the I/O line will be signaled only when the conditions persist for longer than the "Filter Time" of the zone concerned.

9.2.4 Programming the Outputs

From panel: **<key>, Programming, Progr. output, <select an output>, <OK>**

From PC: **Go to SmartLine control panel/Outputs to configure, Programming**

This option will allow you to set up the operating mode of each output (RELAY, Expansion board NAC outputs).

9.2.5 Parameters

Relay		Name of the output you are configuring (Relay, NAC Exp 1, NAC Exp. 2)
Activation Type		Using the OK key, scroll the various activation types that can be assigned to the output:
OUTPUT ZONE STATUS		In this mode, the output will activate in response to any of the selected signals ("Alarm", "Pre-alarm", "Gas alarm", "Gas pre-alarm", "Sprinkler", "Supervisory", "Class Change" and "Fault") relative to the control panel (if the "Panel" option is selected from the following list), or relative to the zones specified in the list (All zones set as "YES").
	At least 1	The output will activate if one or more signals activates on at least one of the selected zones.
	At least 2	The output will activate if one or more signals activates on at least two of the selected zones.
	All	The output will activate if one or more signals activates on all of the selected zones.

	Silenceable	If "YES" is selected, it will be possible to switch Off the activated output by inserting the key and pressing the <SILENCE> button.
	Inverted	If selected, the output will always be closed to ground and will open when activated.
	Duration -- min -- sec	Activation time (0 to 10 minutes); if the duration is not defined ("--" or "bistable" for SmartLeague) the output will not deactivate. Under all circumstances, if the condition clears the output will deactivate.
OUTPUT DISABLEMENTS	In this mode, the output will activate when any of the control panel components is bypassed (if t"Panel" option is selected), or when one or more zones (all the zones set as "YES") are bypassed.	
	At least 1	The output will activate if at least one of the selected zones is bypassed.
	At least 2	The output will activate if at least two of the selected zones are bypassed.
	All	The output will activate if all selected zones are bypassed.
	Silenceable	If "YES" is selected, it will be possible to switch Off the activated output by inserting the key and pressing the <SILENCE> button.
	Inverted	If selected, the output will always be closed to ground and will open when activated.
	Duration -- min -- sec	Activation time (0 to 10 minutes); if the duration is not defined ("--" or "bistable" for SmartLeague) the output will not deactivate. Under all circumstances, if the condition clears the output will deactivate.
OUTPUT EXTINGUISH	In this mode, the output will activate in response to the selected Extinguishant Module signals: "Disable manual"; "Disable automatic"; "Pre-extinguish"; "Extinguish"; "Confirm extinguish"; "Pressure Switch".	
	Silenceable	If "YES" is selected, it will be possible to switch Off the activated output by inserting the key and pressing the <SILENCE> button.
	Inverted	If selected, the output will always be closed to ground and will open when activated.
	Duration -- min -- sec	Activation time (0 to 10 minutes); if the duration is not defined ("--" or "bistable" for SmartLeague) the output will not deactivate. Under all circumstances, if the condition clears the output will deactivate.
OUTPUT SIGNALS	In this mode, the output will activate in response to the selected conditions: ("Reset", "Day", "Night").	
	Silenceable	If "YES" is selected, it will be possible to switch Off the activated output by inserting the key and pressing the <SILENCE> button.
	Inverted	If selected, the output will always be closed to ground and will open when activated.
	Duration -- min -- sec	Activation time (0 to 10 minutes); if the duration is not defined ("--" or "bistable" for SmartLeague) the output will not deactivate. Under all circumstances, if the condition clears the output will deactivate.
OUTPUT TIMERS	In this mode, the output will activate in response to the activation of the specified Timers (i.e. all Timers set as "YES").	
	Silenceable	If "YES" is selected, it will be possible to switch Off the activated output by inserting the key and pressing the <SILENCE> button.
	Inverted	If selected, the output will always be closed to ground and will open when activated.
	Duration -- min -- sec	Activation time (0 to 10 minutes); if the duration is not defined ("--" or "bistable" for SmartLeague) the output will not deactivate. Under all circumstances, if the condition clears the output will deactivate.

OUTPUT EQUATIONS	In this mode, the output will activate when at least one of the specified equations is satisfied (all the equations set as "YES").	
	Silenceable	If "YES" is selected, it will be possible to switch Off the activated output by inserting the key and pressing the <SILENCE> button.
	Inverted	If selected, the output will always be closed to ground and will open when activated.
	Duration -- min -- sec	Activation time (0 to 10 minutes); if the duration is not defined ("--" or "bistable" for SmartLeague) the output will not deactivate. Under all circumstances, if the condition clears the output will deactivate.

9.3   Setting holidays

From panel: **<key>, Programming, Progr. holidays, select a holiday, <OK>**

From PC: **Go to SmartLine control panel/Holidays, Programming**

This option will allow you to set specific periods which determine exceptions with regard timer programming, for example, holidays, bank holidays, etc. Navigate through the programming field and set the new values.

9.3.1   PARAMETERS

HOLIDAY	Number of holidays (maximum 15), already preset.
Day, Month, Year	Date of the holiday or start date of the holiday period. To indicate any day, month or year, set "--" (for example, every 3rd day of every month: "Day" = 3, "Month" = "--", "Year" = "--").
Duration	Length of time (expressed in days) of the holiday period (0 at default). If you set 0, the system will not take the holiday into account.
Sunday, etc.	Day of the week for weekly arrangements. Valid only when "Duration"=1 and "Day", "Month", "Year" = "--".

9.4   Setting the Timers

From panel: **<key>, Programming, Progr. timer, <select a timer>, <OK>**

From PC: **Go to SmartLine control panel/Timers, Programming**

This option will allow you define the timer intervals (e.g. 13.00 to 14.00) and dates (e.g. 25-12-2007) or special days (e.g. Sundays and days off). The timer can be included in an equation and can contribute to the activation of an output. Timer activation may trigger associated actions (e.g. bypass a zone, switch to Night Mode).

Navigate through the programming field and set the new values.

9.4.1   PARAMETERS

TIMER	Timer number (maximum 8), preset.
Enabled	If you select "Yes", the selected Timer will be enabled.
Start/End time 1	Hour and minutes of the Start and End of the interval 1.
Start/End time 2	Hour and minutes of the Start and End of the interval 2.
Day, Month, Year	Operational date of the timer. To indicate any day, month or year, set "--" (for example, every 3rd day of every month: "Day" = 3, "Month" = "--", "Year" = "--").
Sunday, etc.	Day of the week for weekly arrangements. Valid only when "Day", "Month", "Year" = "--".

Holiday	If "YES" has been selected, the timer will activate during the programmed holiday periods (refer to *paragraph 9.3 Setting holidays*).
NO Holiday	If you select "Yes", the timer will not activate during holiday periods; this option has priority over the previous two options.
Force night	Activation of the timer will switch the panel to Night mode. The panel cannot be switched back to Day mode until the set timer interval expires. Once the set timer interval expires, the panel can be switched back to day mode either by another timer or manually from the panel (refer to paragraph *14.4 Day/Night Mode*).
Set night	Activation of the timer will switch the panel to Night mode. The panel can be switched back to Day mode either by another timer or manually from the panel.
Set day	Activation of the timer will switch the panel to Day mode. The panel can be switched back to Night mode either by another timer or manually from the panel.
Disable zone	On activation the timer will bypass the specified zone.
Enable zone	On deactivation, the timer will unbypass the selected zones.
Disable verif.	Se il timer è attivo, sulla zona selezionata è disabilitata la verifica allarme.
Zone	List of zones to be bypassed on timer activation (zones set as "YES" will be bypassed).

9.5   Setting the Control panel options

From the panel: **<key>, Programming,Options**

From PC: **Go to SmartLine control panel, Programming**

Navigate through the programming field and set the new values.

9.5.1   PARAMETERS

Delay mains failure	This is the delay (0 to 30 minutes) between a mains failure event and mains failure signaling on the control panel. This delay avoids unnecessary signaling of brief 'Mains failure' events. From PC: **Go to SmartLine control panel/Power supply, Programming**
Delay dialler	Delay (0 to 10 minutes): time between a zone alarm and DIALLER output activation. If an alarm is activated from a manual callpoint or by means of the <EVACUATE> button, the output will activate immediately. From PC: **Go to SmartLine control panel, Programming**
Silence lenght	Silence Time (0 to 10 minutes) during Night Mode (starts when the <SILENCE> button is pressed) From PC: **Go to SmartLine control panel, Programming**
Time Lock Reset	This is the period (0 to 30 minutes), after activation of the Valve output, during which Reset operations are not allowed. If the extinguishant module receives a confirmation signal during this period, reset will be re.-enabled.
Time Reset	Line reset time (2 to 10 seconds): during this period the power supply to the line is removed, in order to restore the detectors to standby after an alarm.
Time Ignore	During this period (1 to 5 seconds), which starts after reset, the lines will not be taken into account thus allowing the line devices to stabilize and restore to standby.

| **24VR cond.** | If this option is set as "NO", the AUX-R output will always be active except during Reset time when it will be Off.
If this option is set as "YES", the AUX-R output will always be active except when one or more of the zones listed under the option is set as "YES" go into alarm status. |

Real time

| Panel | If this option is enabled (option ="YES"), the display provides a value bar showing the real-time values of the I/O lines of the specified zones during standby status. This function can be used when the I/O lines are configured as 4-20mA GAS lines, and allows users to view the level of gas detected by each line. |
| Repeater n | If this option is enabled (option ="YES"), the Repeater display provides a value bar showing the real-time values of the I/O lines of the specified zones during standby status. This function can be used when the I/O lines are configured as 4-20mA GAS lines, and allows users to view the level of gas detected by each line. |

9.6 Setting up equations

From Panel: **NOT Available**

From PC: **Go to SmartLine control panel/Equation, Programming**

This section will allow you to define 7 equations that the control panel can use in order to activate the outputs.

Each equation can be defined using operands (Zone Signals, Timers and constants) and operators (AND, OR, NOT, XOR, + , >, >=, <, <=, !=, =).

Chapter 10

Detection line Threshold-adjustment Wizard

By means of the guided Threshold Settings procedure, it is possible to configure the intervention thresholds of the detection lines and I/O lines configured as "INPUT GAS 4-20mA".

From panel: **<key>, Programming, Progr. zone, <select a zone>, Detection line or I/O line, Modify levels, Use wizard, <OK>**

From PC: **NOT Available**

The control panel will ask you to perform a series of operations on the line you are working on (open the line then press OK, Balance the line then press OK, etc.). During each phase, the display will show the terminal value reading (expressed in Volts), and a graphic bar that indicates the reading.

Once the requested operations have been completed, the display will show the value in volts and the point on the graphic bar where the various thresholds are set. Each threshold can be adjusted by means of the UP and DOWN scroll keys. After setting the required value, press OK to confirm the entry.

This threshold-setting procedure will allow you to define the current limit (for each line) that discriminates standby status from an alarm, etc.

In this way, the control panel can be set up to work with all types of conventional detectors and existent detection lines with unknown resistance and balancing values. etc.

From panel: **<key>, Programming, Progr. zone, <select a zone>, Detection line or I/O line, Modify levels, Import from, <OK>**

From PC: **NOT Available**

The control panel will allow you to import the thresholds of a previously configured zone.

Attention:	**If you change the line type of a zone, the thresholds will be restored automatically to default values.**

Chapter 11

Programming the Extinguishant module

The extinguishant module manages a gas extinguishant system activated by automatic or manual commands:

- automatic commands triggered by the fire-control panel when the programmed zones go into alarm status.
- manual commands from devices connected to the extinguishant module inputs or set up as fire-detection loop input point.

Therefore, the board makes use of it own terminals and those of the control panel zones, in order to obtain the activation conditions and command the outputs:
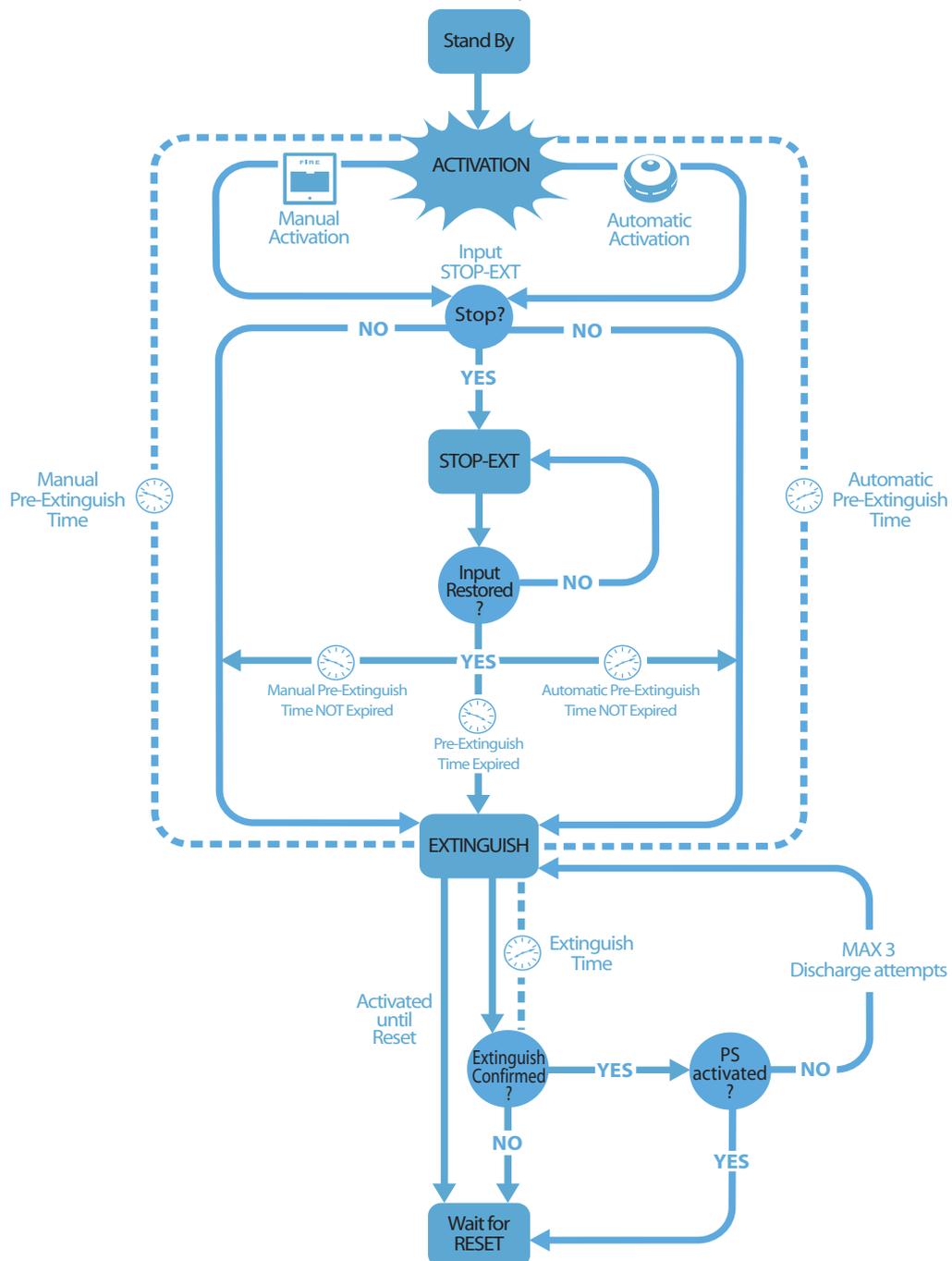

Figure 42 - Extinguishant module: operating principles

To ensure proper programming of the gas extinguishant system you must:

1. Configure the extinguishant module
2. Program the operating principles
3. Configure the Detection Lines and I/O utilzed by the extinguishant module.

11.1   Enable programming via PC

If the programming jumper is not inserted, access to the programming via PC will be denied.

Program.
From PC

1. Remove the frontplate.

2. Insert the **jumper J9:** the respective message will appear. The panel keys will be disabled.

3. Connect your PC to the serial port (J7)

11.2   Configuring the extinguishant module

From PC: **Go to Design, Devices/Extinguishant module, drag and drop it to the SmartLine control panel**

From panel: **<key>, Programming, Configuration, Acquire int. bus, <OK>, <OK>**

This function allows the control panel to detect the presence of the expansion boards and the extinguishant module.

11.3   Programming the module

From PC: **Go to SmartLine control panel/Extinguish module, Programming**

From the panel: **-<key>, Programming, Extinguish module, <OK>**

It is necessary to define the parameters that determine the operating mode of the fire-extinguishment system.

11.3.1 PARAMETERS

Zone mask	Zones that activate Extinguish commands when they go into alarm status.	
Operating mode:	At least 1	If you select this mode, only one of the selected zones need be in alarm status in order to activate the fire extinguishant system.
	At least 2	If you select this mode, at least 2 of the selected zones must be in alarm status in order to activate the fire extinguishant system.
	All	If you select this mode, ALL the selected zones must be in alarm status in order to activate the fire extinguishant system.
Confirm extinguish	Extinguishant module feature that provides confirmation of extinguishant gas release.	
	No confirm	If an "Extinguish" event occurs, the extinguishment module will activate the VALVE output (for the pre-set time) and the RELEASED output without awaiting confirmation of extinguishant gas release.
	Confirm by pressure switch	The RELEASED output will be activated when the Extinguish Time ("T. extinguish") expires, that is, if the "pressure switch" signal has been activated (from the pressure switch input or from an point set up as a "pressure switch" input). The "pressure switch" signal will be considered valid only when the signal persists after expiry of the Extinguish Time. EXAMPLE: You can connect a pressure gauge to the PRESS. input, or to an input with the "pressure switch" attribute, that will signal when the cylinders empty (in order to confirm the successful saturation of the protected space) .

Confirm by flow		The RELEASED output will be activated when the Extinguish Time ("T. extinguish") expires, that is, if the "from flow detector" signal has been activated during this phase (from the pressure switch input or from a point set up as a "flow detector" input). EXAMPLE: You can connect a gas-flow signaling device to the PRESS input or a point set up as a "flow detector" input (the device will signal when gas is being released).
Pressure switch		Defines the significance of the signal coming from the PRESS. input.
	Supervisory	Activation of the input signals a drop in gas extinguishant pressure.
	Confirm	Activation of the input confirms that the gas cylinders are empty (therefore, the protected space is saturated), and activates the "confirm extinguish from pressure switch" signal.
	Flow sensor	Confirmation from flow detector: activation of the input indicates that gas has been released, and activates the "confirm extinguish from flow detector" signal. If this option is selected, and the pressure switch activates during control panel standby status, it will trigger a control panel alarm.
T. pre-extinguish		Duration of the automatic Pre-extinguish Time, activated by a zone in alarm status.
T. Extinguish		Length of time the electrovalve remains active, starting from the end of the pre-extinguish phase. If the value is not specified, Fire extinguishment will be continue until the control panel <RESET> button is pressed.
T. Pre-extinguish manual		The duration of the manual pre-extinction phase, activated by a MAN-EXT input or Detection line set up as a manual extinction input.
T. Confirm extinguish		Delay between activation of the electrovalve output and the pressure switch activation analysis (if programmed as "Confirm extinguish"). EXAMPLE: In this way, the device connected to the pressure switch input can detect the pressure drop inside the cylinders and intervene.
T. gap discharges		Length of the pause between one gas discharge and another in the event of non-confirmation of gas discharge (extinguishant module allows three discharge events).

11.4   Programming extinguish Inputs/Outputs

From PC: **Go to SmartLine control panel/Zones/Detection Line or I/O, Line, Programming, tick extinguish point**

From panel: **<key>, Programming, Progr. zone, <select a zone>, Detection line or I/O line, <OK>**

Each Detection Line or I/O Line can be set up to generate functional signals to the Extinguishant board, or to be activated by (in the case of an I/O Line configured as an output) signals from the Extinguishant board.

For further details regarding the extinguishment functions that can be associated with zones, refer to the Zone Configuration section.

Chapter 12

Configuring Repeaters

From panel: **<key>, Programming, Configuration, Acquire ext.bus, <OK>, <OK>**

Repeaters are clone panels. They are equipped with displays and LEDs and replicate all the information provided by the panel. The panel supports up to 4 repeaters which, under normal circumstances, should be located at entrances/exits, in such way as to allow building occupants or fire officers to view alarm details without going too far inside the building.

After installing and addressing each Repeater, you must include them in the system configuration.

```
Current devices
Repeater        n

OK to execute
```

This will allow the panel to recognize how many repeaters are connected to the BUS and show those found.

Note: *The panel uses the screen above, to indicate the current configuration of repeaters and extinguishant modules. if you press* OK *(working from this screen), the panel will search the communication BUS and include any newly found devices in the configuration.*

From PC: **Design, Devices/Repeaters, drag and drop to RS 425 BUS**

Chapter 13

Closing the programming session

Once you have completed the programming, remove the panel/PC programming jumper. The panel will be ready to go into service and the display will be as follows.

```
        Panel
       working

  07/07/07  07:00
```

Double check the functionality of all the input/output devices.

13.1   Reset default programming

In the Main programming menu, after Options, you will find Default data. If you select this option, you will access the 'Confirm' screen. If you press OK (working from this screen) all the programming data (panel and extinguishant module) will reset to default values (factory settings).

Chapter 14

Other maintenance operations

14.1   Set Time and date

From the panel: **<key>, Maintenance, Date & Time**

From PC: **Go to SmartLine control panel, Programming, Date/Time**

Navigate through the programming field and set the new values. The system will select the day of the week automatically.

14.2   Test Panel LEDs

Press <key>, Test LED, <OK>: all the panel LEDs will go On briefly.

14.3   View Events

The system displays information regarding real-time events of major importance and disregards those of minor importance (for example, if the system is dealing with three fault events when a pre-alarm event occurs, the fault events will be disregarded and cleared from the display and the pre-alarm will take priority). All events are saved to the log and can be viewed.

14.3.1 Signaling on the display

If several events of the same type occur, only the first will be shown on the display. If several alarms occur, the first alarm will remain on the first line of the display and the most recent alarm will be shown on the line below.

To view the events on the display, press button ▲   or   ▼.

14.3.2 Viewing the events log

Press <key>, View log, <OK>: all the recorded events (maximum 100) can be viewed in chronological order.

14.4   Day/Night Mode

14.4.1 day

There are people in the building, therefore, those in charge of the safety of the building and its occupants should be duly informed before the evacuation command is given.

Silence	Silences (turns Off) the panel beeper and silenceable outputs. The Silence command will be undone automatically, if a new alarm event occurs (for example, if another detector signals alarm conditions).
Pre-alarm	Some points can be programmed to signal pre-alarm status. If no-one intervenes during the pre-alarm phase, the system will generate an alarm when the programmed pre-alarm time expires. Refer to paragraph *9.2.2 Detection Line Parameters* to enable/disable the pre-alarm time of points.

14.4.2 night

There are no people in the building, therefore, there is only one person in charge of building safety (e.g.: night watchman, guard).

Silence	The Silence command holds off signaling. The Silence phase will run for the pre-set time. If no-one intervenes during this phase, the system will undo the silence command and the alarm will continue. To change the night-mode silence time, refer to paragraph *9.5 Setting the Control panel options*.
Pre-alarm	The pre-alarm signal can be disabled on certain points. Alarm events will generate instant alarms. Refer to paragraph *9.2.2 Detection Line Parameters* to enable/disable the pre-alarm time on points during Night mode.

14.4.3 Changing Day/Night mode manually

From the panel:**<key>, Settings**

14.4.4 Changing Day/Night mode automatically

Setting up a timer (refer to paragraph *9.4 Setting the Timers*) to toggle the panel status.

14.5   Bypassing a zone

From the panel:**<key>, Maintenance, Test zone, <select a zone>, <OK>**

During maintenance or under fault conditions, it may become necessary to bypass a zone. Bypassed zones or points cannot generate fault or alarm signals and cannot be activated.

14.6   Bypass the Dialler output or Alarm NAC output

From panel:**<key>, Disablement, Disablement output, <OK>**

During maintenance or under Fault conditions, it mat become necessary to bypass one of the dialler outputs (terminals 19-20) or Alarm NAC (terminals 21-22). The bypassed element cannot be activated.

Bypass may be necessary in the event of fault signaling triggered by the Dialler or a Supervised output (refer to *Chapter 15 - Diagnostics - Clearing Faults*).

14.7   Testing the zones

From Panel:**<key>, Maintenance, Test zone, <select a zone>, <OK>**

During maintenance, it may become necessary to put a zone in Test status. Activation of an alarm when a line is in Test status will activate the ALARM NAC output for approximately 3 seconds. The control panel will reset the line automatically when the brief output signal ends. This feature allows the technician to test the system without the assistance of another person.

Note: *The LEDs of detectors in test status will go On for several seconds, and the ALARM NAC will activate for 3 seconds to confirm reception of the alarm signal. The detector will reset automatically.*

```
Zone          04    ↑
<Zone  04       >

In test             ↓
```

1. Press <OK> to put the zone into Test/In Service status.

2. Press ▲ o△   ▼ to go to the adjacent zones.

14.8   Activate the outputs manually (only I/O lines configured as outputs).

From Panel:**<key>, Maintenance, Test outputs, <select a zone>, <OK>**

In the event of maintenance or first power up, it may be necessary to activate manually the output of an I/O line configured as an output.

```
Zone          04     ↑
<Zone    04   >

Off                   ↓
```

1. Press <OK> to activate/deactivate the output.

2. Press ▲ or ▼ to go to the adjacent output.

14.9   Setting the date for the next maintenance session

From panel:**<key>, Maintenance, Maintenance Data, <OK>**

From PC: **Go to SmartLine control panel, Programming**

```
Maint. Fault

1/1/01 01:01
Monday
```

Once you have set the date of the next maintenance session, the system will signal a fault event on the specified date. Only a new date, selected via this menu, will clear this fault signal.

Chapter 15

Diagnostics - Clearing Faults

Danger:	Only authorized operators (Level 2 or 3) may search for, and correct faults.

15.1   Fault "Open"

The panel is unable to find the EOL resistor on the supervised input/output terminals. The following line will specify the terminals concerned (NAC, Detection Line, I/O Line, etc.).

Check the EOL resistor connection on the last device. Using a tester check that the resistor has not burnt out.

15.2   Fault "Shorted"

A short-circuit has occurred on the input/output terminals, the following line will specify the terminals concerned (NAC, Detection Line, I/O Line, etc.). Check the device connections and cable sections.

15.3   Repeater faults

If the **number of Repeaters recognized** by the control panel is **less** than expected (refer also to *Chapter 12 - Configuring Repeaters*):

1. Check that the address of each Repeater has been set properly (by means of the DIP switches [D]).
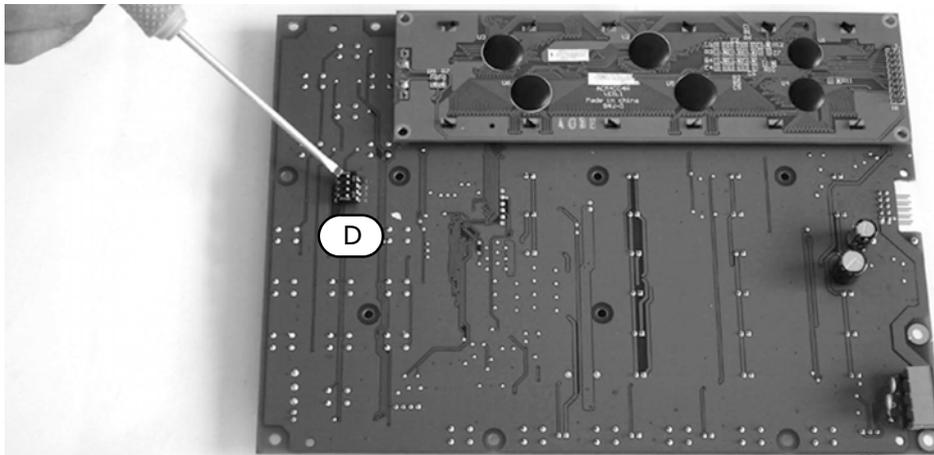
Figure 43 - Repeater Settings

2. Check that the cabling is intact.

3. Check the connection polarity.

4. Check that the EOL jumper is in the EOL position only on the last Repeater connected the BUS.

5. Using a tester measure the voltage over terminals +24 V and GND of the RS485 BUS.
   If it is below 20 V, the resettable fuse is open due to an excessive load (current draw) on the BUS. Disconnect the BUS devices and reconnect them one by one until you find the problem.

15.4 Battery Fault

15.4.1 Battery Disconnected

The battery is not connected or has failed the battery efficiency test.

1. Allow the batteries to charge for several hours.

2. If the fault signal persists, disconnect the batteries from the panel and test them separately.

3. If only one of the batteries has a voltage below 12.5 - 13 V:
    - •Replace the faulty battery only.
    - •Allow the batteries to charge for several hours.
    - •Check that the fault has cleared.

4. If both batteries have a voltage of 12.5 - 13 V, it means they are both inefficient (even though the voltage without load is correct).
    - •Replace both batteries.
    - •Allow them to charge for several hours.
    - •Check that the fault has cleared.
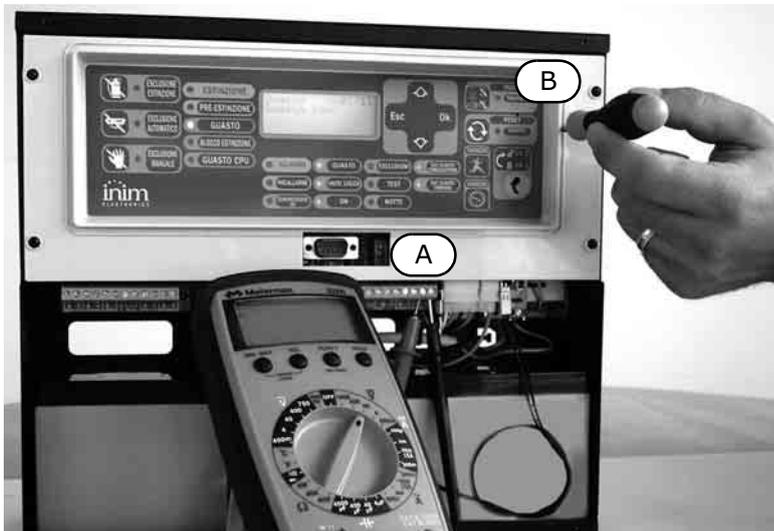
Figure 44 - Battery charge

- •With the batteries disconnected, check the voltage on the battery connector [A], ensure that it is:
  -27.6 V, without a thermal probe, or
  -that it matches the measurement indicated on the graph in *Figure 33 - Voltage charge in relation to Battery Temperature* on page 41, if a thermal probe is fitted.
- •If the voltage is incorrect, use the trimmer [B] to adjust it.

15.4.2 Low Battery

The batteries are running low.

This signal should only be present during primary power source failure (Main 230 Vac). Mains power must be restored in order to charge the batteries.

15.5 Other faults

The panel shows the message:	Meaning
Fault Dialler	Trouble on the dialler communication line (dialler output).
Fault AUX	Short-circuit on the AUX terminals protected by the resettable fuse.
Mains failure	Primary power failure (230 Vac).
Ground fault	Voltage dispersion detected
Maintenance	The pre-set date for Maintenance has expired.

Appendix A

Maintenance

The following operations must be carried out regularly.

1. Using a damp lint-free cloth, remove any dust that may have gathered on the control panel (do not use any kind of cleaning product or solvent!).

2. From panel, **Press <key>, Test led, <OK>** to check the proper operating capability of the LEDs and beeper.

3. Check the battery efficiency and change them if necessary.

4. Check the integrity of all wires and connections.

5. Ensure that there are no insects inside the control panel.

6. Carry out maintenance on the detectors (clean the outside and the detection chamber).

Note: *Points 1 and 2 can be carried out by authorized persons, whereas all other points must be carried out by qualified technicians.*

Appendix B

Order Codes

Quote the following order codes when ordering INIM Electronics s.r.l. products:

Code	Description
SmartLine020-2	Conventional fire control panel with 2 Zones (NON expandable)
SmartLine020-4	Conventional fire control panel with 4 Zones espandable to 20 Zones
SmartLine/8Z	8 Zone conventional zone- expansion board
DCMIINE0SLINE	Installation Manual
DCMUINIE0SLINE	User's Manual
SmartLetLoose/ONE	Extinguishant Module
ProbeTH	Thermal probe for battery charge optimization
SmartLetUSee/LCD	Repeater
SmartLeague	Programming software, runs under Windows
Link232F9F9	RS232 link

Notes:

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