

# ANALOGUE FIRE CONTROL PANEL

FireClass



## INSTALLATION MANUAL



**BENTEL**<sup>®</sup>  
SECURITY



This Fire Control panel can be programmed only using the Software **FireClass500** Console release 1.0 or higher.

BENTEL SECURITYsrl shall not assume the responsibility for damage arising from improper application or use.

This Fire Control panel has been designed and manufactured to the highest standards of quality and performance.

Installation of this Control panel must be carried out strictly in accordance with the instructions described in this manual, and in compliance with the local laws and bylaws in force

The **FC510** and **FC520** Fire Control panels comply with the essential requirements of standards  **EN54-2; EN54-4.**

## Recycling information

BENTEL SECURITY recommends that customers dispose of their used equipments (panels, detectors, sirens, and other devices) in an environmentally sound manner. Potential methods include reuse of parts or whole products and recycling of products, components, and/or materials.

For specific information see:

[www.bentelsecurity.com/en/environment.htm](http://www.bentelsecurity.com/en/environment.htm)

## Waste Electrical and Electronic Equipment (WEEE) Directive



■ In the European Union, this label indicates that this product should NOT be disposed of with household waste. It should be deposited at an appropriate facility to enable recovery and recycling.

For specific information see:

[www.bentelsecurity.com/en/environment.htm](http://www.bentelsecurity.com/en/environment.htm)

**NOTE-** The series FC500 Fire control panel can support several addressable devices (Detectors, Modules, Manual call Points, etc). The present manual includes the instructions for their programming, but for further informations on those devices and their accessories, please visits: [www.bentelsecurity.com](http://www.bentelsecurity.com) , logging in the **Reserved Area**, under **Installation Manuals**.

BENTEL SECURITY srl reserves the right to change the technical specifications of these products without prior notice.

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## FC500 Fire Control Panel


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In this manual we will use the term FC500 control panel to indicate the common features of Fire control panel. Otherwise we will use the specific terms.

FC500 Fire control panel is available in the following models:

- **FC510** - Analogue addressable Fire Control Panel with one not expandable Loop and with Switching Power supply 5,5 A;
- **FC520** - Analogue addressable Fire Control Panel with two not expandable Loops and with Switching Power supply 5,5 A;

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 *The components of these Control panels operate as intended when the external ambient conditions comply with the requirements of class 3k5 of IEC 721-3-3:1978.*

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The Loops of FC500 control panel provide the following features:

- max 250 analogue devices.
- The conventional line of the FC500 control Panel can support up to 30 devices.  
In any case, FC500 Fire control panel cannot support more than 2000 devices (500 devices for every couple of Loop) (up to 2000 m (Loop) with shielded cable 2x2.5).

The FC500 control panel must be powered by BENTEL BAQ140T24 (27,6 V - 5,5 A ) switching power supply.

Moreover all FC500 models provide housing for an LCD module with 40 characters for line and 4 lines backlit, which provides written information regarding the system status and for programming the control panel.

## ■ Accessory Items

**FC500REP** This Repeater panel is intended for connection (via 4 wires) to **FC500** Control panels. It provides all the visual and audible warnings generated by the Control panel and allows end-users to manage the system from a remote location (up to 1000 m, with double twist shielded cable).

The **FC500** "Master" Control panels can support up to (8) eight **FC500REP** Repeater panels.

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 *The Repeater FC500REP has NOT IMQ-SECURITY SYSTEM certification.*

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**FC500 Slave** The **FC500** "Master" Control panels can support up to (7) seven FC500 Slave Control panels. These Control Panels can be used to expand the FC500 system, in modular way.

**Software FireClass500 Console** This user-friendly software application (Windows) offers a quick and easy way to program the Control panel and provides event log functions.

## Description

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### ■ Input

250 devices max every Loop

30 devices max on the conventional line

### ■ Outputs

This section describes how the Control panel outputs operate.

**Supervised outputs** The Control panel will be able to detect and signal short-circuits and power supply interruptions on this type of output.

**Bypassable outputs** The user will be able to disable (by means of the respective key) this type of output.

**Silenceable outputs** The user will be able to stop (via the **Silence** key) this type of output.  
The outputs can be silenced for an indefinite period (during Day Mode), or for the programmed Silence Time (during Night Mode).

## ■ Operating Features

**Warning** The FC500 control panel can be programmed to provide WARNINGS or PREALARMS status before ALARM status.

This status will be signalled by the WARNING display. The panel will generate a warning when an input point (detector) exceeds its warning threshold and there is risk of an alarm.


-WARNING STATUS will be signalled by:

- a screen on LCD display
- the WARNING output points if the **Pre-alarm** option is enabled;

**Pre-alarm** If a zone generates an alarm during Day Mode, the Control panel will start the **Pre-alarm Time**. This status will be signalled by:

- a **slow intermittent** beep;
- glowing on the **Pre-al.** LED;
- a screen on LCD display
- Activation of respective outputs, if the **Pre-alarm** option is enabled;

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 *This Control panel will generate an Instant Alarm if alarm conditions are detected during **Night Mode** or if an alarm is triggered from a Callpoint.*


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During Pre-alarm status, you will be able to:

- activate an Evacuation Alarm by pressing and holding the **Evacuate** Key (**Access Level 1** — refer to “Access to signalling and commands”),
- stop the Silenceable outputs and interrupt the Pre-alarm Time by pressing the **Silence** key (**Access Level 2**).

During **Silence** status (**Silence** LED glowing), it is possible to use the **Silence** key to release the **Silenceable** outputs, or use the **Reset** key to restore standby status.

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 *If the Control panel is operating in Night Mode, the Control panel will exit **Silence** status automatically when the programmed **Night mode Silence time** expires.*

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**Alarm** The Control panel will generate an alarm when the **Pre-Alarm Time** expires. Alarm status will be signalled by:

- a **fast intermittent** beep;
- glowing on the **Alarm** LEDs;
- a screen on LCD display;
- activation of the **NAC FIRE** output;
- activation of the **FIRE** outputs;
- activation of other programmed outputs

During Alarm status, **PIN Code users** (**Access Level 2** — refer to “Access to signalling and commands”) will be able to:

- stop the Silenceable outputs by pressing the **Silence** key.

During **Silence** status (**Silence** LED glowing), it is possible to use the **Silence** key to release the **Silenceable** outputs, and the **Reset** key to restore standby status.

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 *If the Control panel is in Night Mode (**Day Mode** LED OFF), the Control panel will exit **Silence** status when the programmed **Night mode Silence time** expires*

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**Day/Night Mode** The control panel can operate in DAY or NIGHT Mode. See "PC PROGRAMMING" chapter.

If the system is silenced during DAY Mode, SILENCE status will be held until the system is unsilenced (i.e. unless new alarms). If the system is silenced during NIGHT Mode, SILENCE status will be held until the Night Mode Silence time expires.

On power up (at default) the system will set to DAY Mode. During this operating mode, silenced alarms/faults will not be unsilenced automatically until the Night Mode Silence time expires.

**Fault** This Control panel can detect and signal the Faults shown in the Table n.1:

Fault conditions will be signalled by:

- a **slow intermittent** beep (at 1 second intervals);
- glowing on the **Fault** LED and on relative Fault LED;
- a screen on LCD display;
- activation of the **Fault** output;
- activation of other programmed outputs;
- slow blinking on the Fault LED.

The **Fault** output and other outputs (if duly programmed by your Installer) will restore to standby automatically when fault conditions clear.

Under certain circumstances, fault conditions may clear spontaneously, if this occurs, the event will be stored in the memory until the Control panel Resets.

Stored Fault events will be signalled by:

- slow blinking on the Fault LED.

Switching 1	<i>Switching 1 Fault</i>
Switching 2	<i>Switching 2 Fault</i>
Mains fault	<i>The Control panel is NOT powered from the Mains</i>
Battery	<i>The Control panel batteries charger not working properly</i>
Low battery	<i>The Control panel batteries are empty</i>
Earth	<i>Leakage to Earth</i>
24A Output	<i>24A Output is shorted</i>
24R Output	<i>24R Output is shorted</i>
Conv. zone open	<i>Conventional zone (LC terminal) open</i>
Conv. zone short	<i>Conventional zone (LC terminal) is shorted</i>
Flash writing	<i>Flash writing error</i>
Flash erasing	<i>LOG erasing error</i>
Main controller	<i>Main controller fault</i>
Firmware main contr.	<i>Checksum fault</i>
Prog.data main cont	<i>Data programming Checksum fault</i>
Firmware Display	<i>Display Checksum fault</i>
Loop Communication	<i>Communication Loop fault controller</i>
Loop return open	<i>Loop negative signal open</i>
Loop signal open	<i>Loop positive signal open</i>
Loop local short	<i>Local short on Loop controller</i>
Loop right short	<i>Right side Loop short</i>
Loop left short	<i>Left side Loop short</i>
Non answer	<i>Loop device doesn't answer</i>
Dirty level	<i>(Smoke detector ONLY) the dirty threshold has been exceeded</i>
Short circuit	<i>Short circuit on Input module</i>
Open circuit	<i>Open circuit on Input module</i>
Power supply	<i>Main fault</i>
Wrong value	<i>A Loop device has a wrong value</i>
Stuck output	<i>An Output module relays is not switched</i>
Same address	<i>Loop several devices have the same address</i>
Display communic.	<i>Communication fault on Display controller</i>
LOG Full	<i>LOG fault</i>
LOG not valid	<i>LOG contents not valid</i>
OS1 Open	<i>OS1 terminal (Supervised output) open</i>
OS2 Open	<i>"</i>
OS3 Open	<i>"</i>
OS4 open	<i>"</i>
OS5 open	<i>"</i>
OS6 open	<i>"</i>
OS7 open	<i>"</i>
OS8 open	<i>"</i>

OS1 short	<i>OS1 terminal is shorted</i>
OS2 short	<i>"</i>
OS3 short	<i>"</i>
OS4 short	<i>"</i>
OS5 short	<i>"</i>
OS6 short	<i>"</i>
OS7 short	<i>"</i>
OS8 short	<i>"</i>
TRANSISTOR OS1	<i>OS1 Transistor fault</i>
TRANSISTOR OS2	<i>"</i>
TRANSISTOR OS3	<i>"</i>
TRANSISTOR OS4	<i>"</i>
TRANSISTOR OS5	<i>"</i>
TRANSISTOR OS6	<i>"</i>
TRANSISTOR OS7	<i>"</i>
TRANSISTOR OS8	<i>"</i>
NAC FIRE short	<i>NAC Fire terminal is shorted</i>
NAC 1 short	<i>"</i>
NAC 2 short	<i>"</i>
NAC 3 short	<i>"</i>
NAC FIRE open	<i>NAC FIRE terminal is open</i>
NAC 1open	<i>NAC1 terminal is open</i>
NAC 2open	<i>"</i>
NAC 3open	<i>"</i>
Transistor NAC FIRE	<i>NAC FIRE transistor fault</i>
Transistor NAC 1	<i>NAC 1 transistor fault</i>
Transistor NAC 2	<i>"</i>
Transistor NAC 3	<i>"</i>


**Table 1** *Faults Table*

**Silence** This Control panel provides a **Silence** key which can be used to restore the Silenceable outputs to standby status.

Silence status will be signalled by:

- glowing on the **Silence** LED.

Silence status will be held until the **Silence** key is pressed again or, if the Control panel is operating in **Night Mode**, until the programmed **Night mode Silence time** expires, or until a new Alarm condition is detected.

 *Only when the control panel is at Level 2 or at Level 3 can SILENCE the Silenceable outputs.*

**Table 1** *Faults table (Continued..)*

**Disabled** This Control panel can disable: the devices on the Loop (input and Output devices), the bell outputs, the software zones; the network devices (Repeaters or Slave control panels).

DISABLED zones cannot generate alarms or warnings of any kind, and DISABLED outputs cannot be activated.

Disabled status will be signalled by:

- glowing on the **Disabled** LED;

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☞ *Only when the control panel is at Level 2 or at Level 3 can DISABLE zones and/or outputs.*

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**Reset** Resetting the Control panel will restore the outputs to standby status, clear the memory, and interrupt the power supply to terminals 24R.

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☞ *Only when the control panel is at Level 2 or at Level 3 can Reset the system.*

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### ■ Interface

**Visual Signalling** The system status will be signalled on the Control panel LEDs as follows:

**GREEN** indicates normal operating conditions;  
**AMBER** indicates specific operating modes (for example Day or Night mode), and/or Fault conditions;  
**RED** indicates Alarm conditions.

**Memory** The Control panel will signal Fault events (FAULT LED blinking) until the system Resets, even if the event clears in the meantime.

**Audible Signalling** The Buzzer will signal the Control panel status as follows:

Status	Sound	Pause	Description
Warning	2 s	2 s	Slow Intermittent Beep
Prealarm	0.5 s	0.5 s	Intermittent beep
Alarm	0.2 s	0.2 s	Fast Intermittent Beep
Fault	1 s	1 s	Slow Intermittent Beep
Reset	no sounds		
Test	no sounds		

**Table 2** Buzzer signalling

**Test LAMP-BUZZ-TEST** key will allow ALL users to test the Control panel Buzzer and LEDs.

### ■ Access to Signalling and Commands

There are 4 access levels, in compliance with the Fire Safety Regulations in force.

**Access Level1 (L1)** Viewing: **ALL** persons can view the Control panel status (No password requested).

**Access Level 2 (L2)** Operating the system (PIN Code entered): PIN Code Users can operate the system. (User level)

**Access Level 3 (L3)** Programming and Opening the Control panel (PIN Code entered): **ONLY Qualified persons with authorization** are allowed to open the Control panel door (requires removal of the screws) for maintenance purposes or replace batteries. (Installer Level).

**Access Level 4** Repairing or replacing the PCB: **ONLY the Manufacturer** should be allowed to repair or replace the PCB, (requires removal of the screws).

### ■ Power Supply

The power supply system of the **FC500** Control panels complies with EN54-4.

All models are powered by the Mains (230 V, 50 Hz):

- the **FC510** model has Switching Power Supply which supplies up to 5.5 A at 27.6 V;
- the **FC520** model has Switching Power Supply which supplies up to 5.5 A at 27.6 V;

All models can house two 12 V batteries which, when connected in series, will supply 24 V to the Control panel and peripherals in the event of black-out, and will also provide any pickup currents which exceed the maximum current supplied by the Switching Power Supply.

The **FC510 and FC520** model can house two 12V 17 Ah batteries (YUASA NP 17-12 FR model or similar — flame class UL94-V2 or higher).

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☞ *If necessary, (Full configured Loop or for particular requirements of the system) FC510 or FC520 control panel model can be connected to two 12V 38 Ah batteries in an external metal box (see Figure 14).*

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This Control panel can detect, signal and store in memory the following power faults: shorted 24V or 24R outputs; Low battery, Battery fault or Battery disconnected (**Low Battery** LED and **No Battery** LED), Ground fault (**Earth** LED) and Mains failure (**Mains** LED).

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☞ *The “No Battery or Low Battery” fault may be signalled with a delay up to 1 minute. The “Mains” (Amber) fault will be signalled when the programmed delay expires.*

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# PARTS IDENTIFICATION

## The status LED

The following section describes how the Control panel LEDs operate. During standby status, ONLY the GREEN Mains LED and the Day mode LED (if the control panel is in Day mode) should be On (glowing) .

 ONLY the two FAULT LEDs **slow blinking** indicate a FAULT event in **memory**.

LEDs	DESCRIPTION
FIRE	<b>Glowing</b> indicates Alarm status. In the event of an Alarm, the Control panel will activate the unbypassed alarm outputs.
More Alarms	<b>Glowing</b> indicates more Alarm status.
Pre-alarms	<b>Glowing</b> indicates Pre-alarm status.
Communicator (Red)	<b>Glowing</b> indicates that the Telephone device output is active. On display of control panel it is possible to know the connection type: PSTN, GSM, or LAN network.
FAULT	<b>Glowing</b> indicates the presence of a Fault: the following LEDs or the screen on the display indicate the type of the Fault. <b>Slow blinking</b> indicates a fault event in memory (Reset turns OFF).
Logic Unit	<b>Glowing</b> indicates a blocked Control panel. <b>IMPORTANT:</b> Maintenance required. NOTE – When the Control panel is switched on for the first time, this LED will blink until a Reset has been performed.
Lost Device	<b>Glowing</b> indicates that a Loop device has disappeared (missing address).
Communicator (Amber)	<b>Glowing</b> indicates the Dialer has been disabled; <b>Slow blinking</b> indicates the presence of a Fault on Dialer
Nac Fire Output	<b>Glowing</b> indicates the presence of a Fault on NAC FIRE Output, <b>Slow blinking</b> indicates the presence of a Fault on NAC FIRE Output.
Earth	<b>Glowing</b> indicates a Voltage leakage to Earth. <b>IMPORTANT:</b> Check wiring insulation
Low Battery	<b>Glowing</b> indicates Batteries empty or faulty. If this condition persists, the batteries will be unable to function as intended in the event of blackout. <b>IMPORTANT:</b> New batteries required.
NO Battery	<b>Glowing</b> indicates Batteries empty or disconnected ; check if the connections are correct.
MAINS (amber)	<b>Glowing</b> indicates Mains failure (230 V) or Switching Power supply fault. During this condition, the Control panel will be powered by the batteries.
Day mode	<b>Glowing</b> indicates that the Control panel is operating in Day Mode <b>OFF</b> indicates that the Control panel is operating in Night Mode
Disabled	<b>Glowing</b> indicates the Disabled status of any bypassable entity.
Silence	<b>Glowing</b> indicates that Silenceable outputs have been forced to standby by means of SILENCE key; in Day Mode the SILENCE will remain until the SILENCE key will not be pressed again, while in Night Mode after the Silence Time expires automatically the SILENCE will end.
Test	<b>Glowing</b> indicates Test conditions on at least one zone.
MAINS (Green)	<b>OFF</b> indicates Mains failure (230 V). <b>IMPORTANT:</b> Power must be restored before the batteries empty.

Table 3 Description of the status LEDs

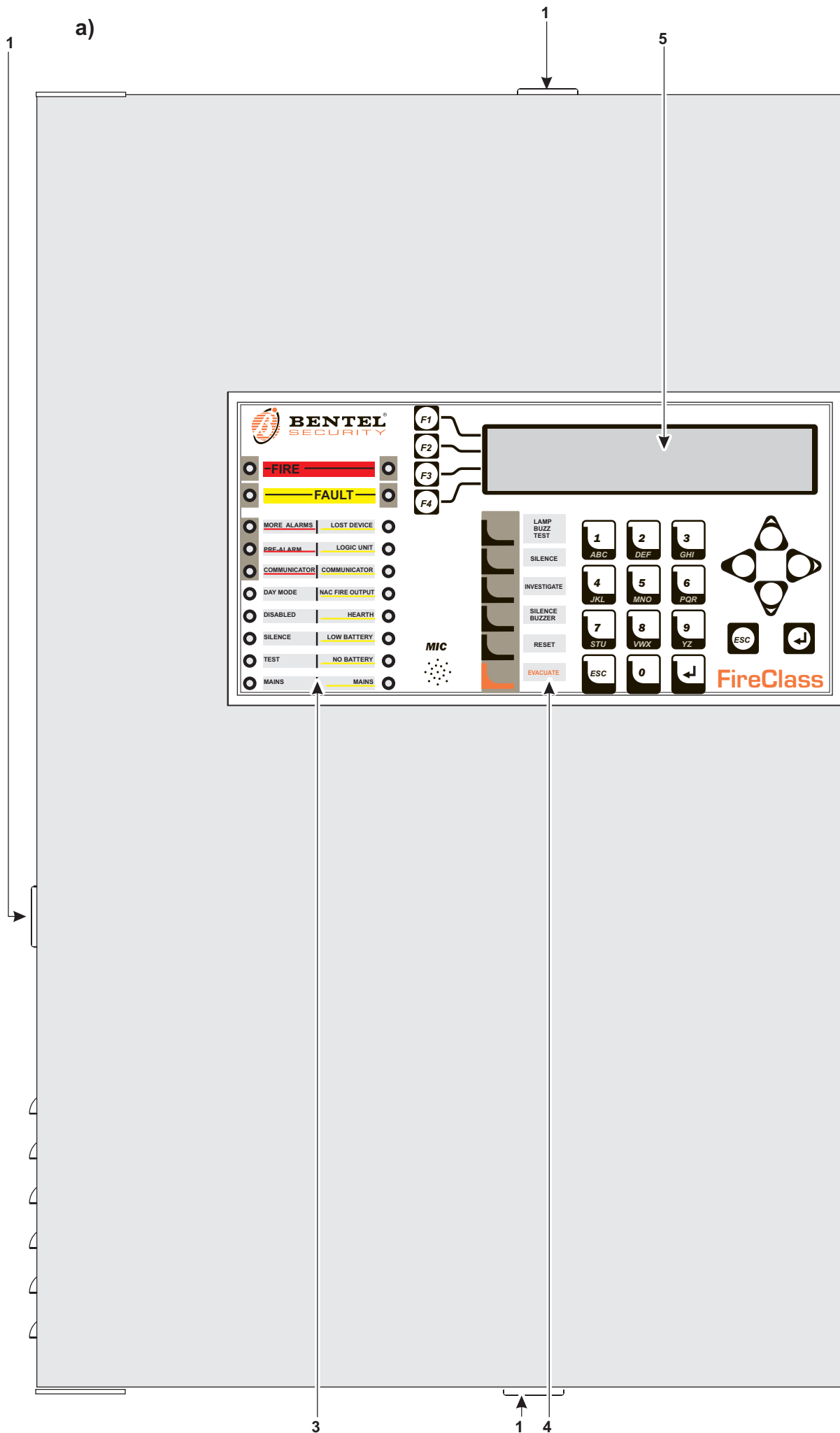
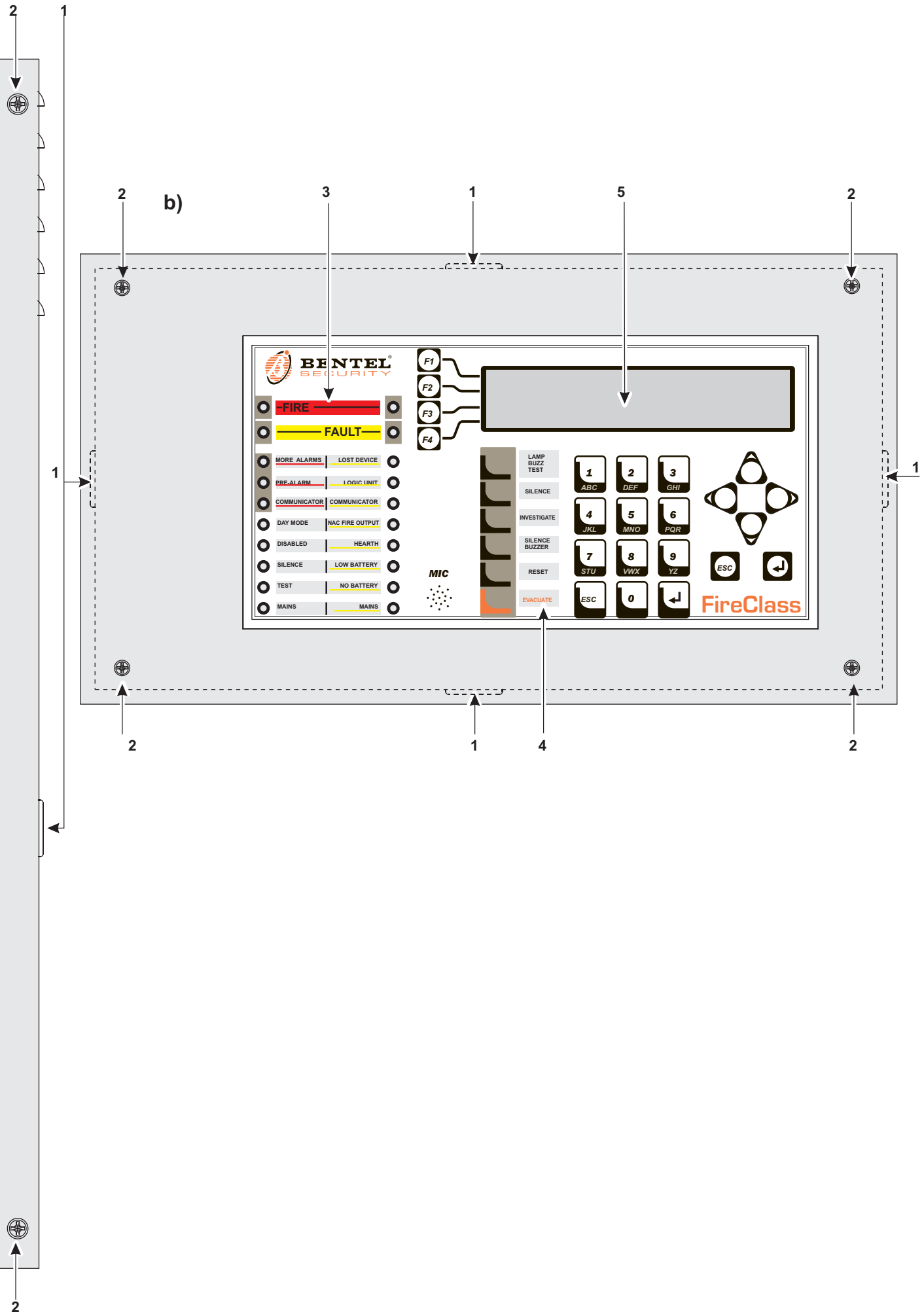
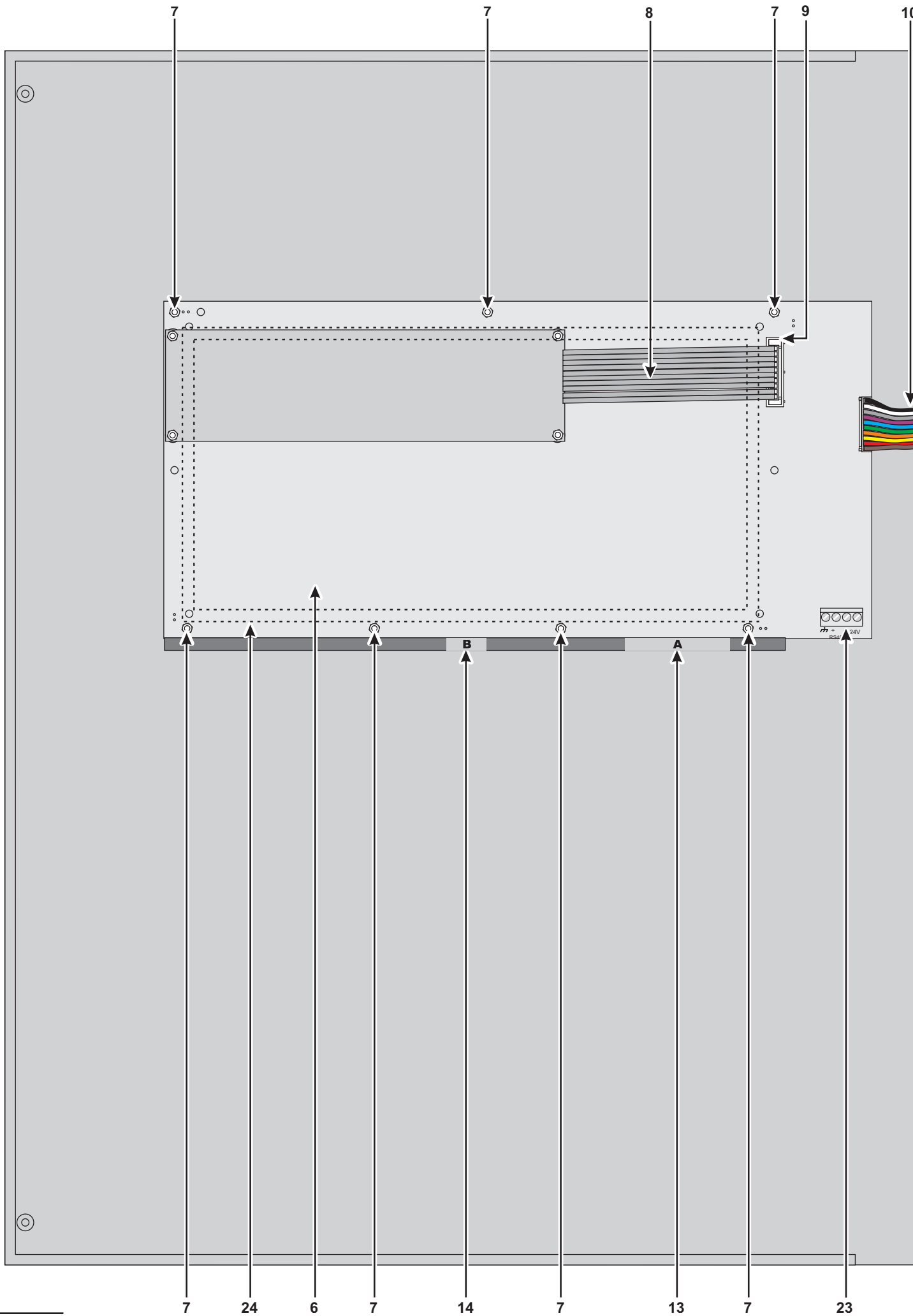


Figure 1 Front view of the FC510, FC520 control panel (a), and of Repeater FC500REP (b)






**Figure 2** Configuration of the FC510, FC520 control panel.




## Description of Parts

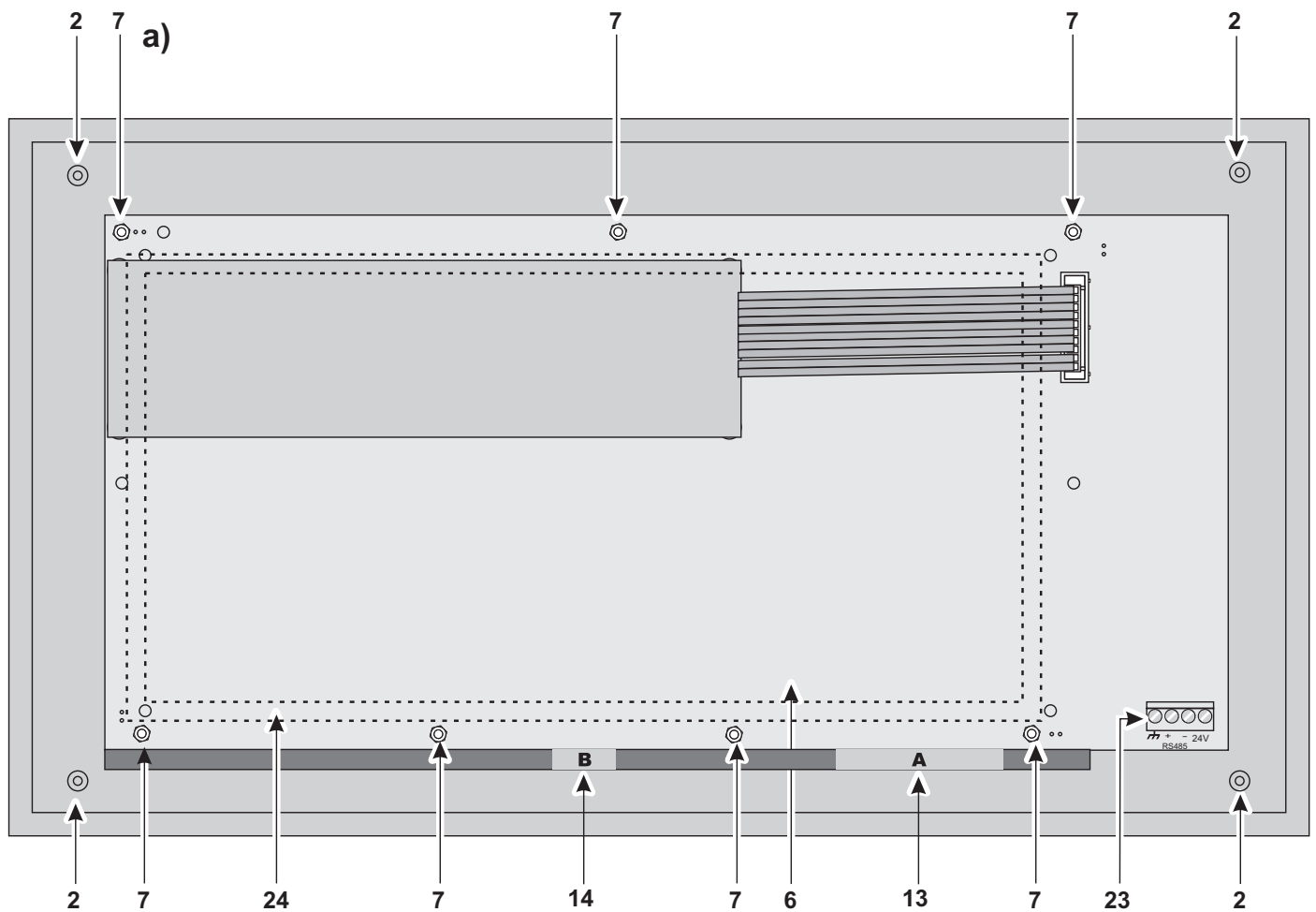
This section describes the components of the FC500 serie Control panels, and FC500REP Repeater.

 The Repeater FC500REP has NOT IMQ-SECURITY SYSTEM certification.

Unless otherwise stated, the numbers in boldface in this Manual refer to the Tables and Diagrams in this section.

The parts identification numbers in the diagrams go clockwise.

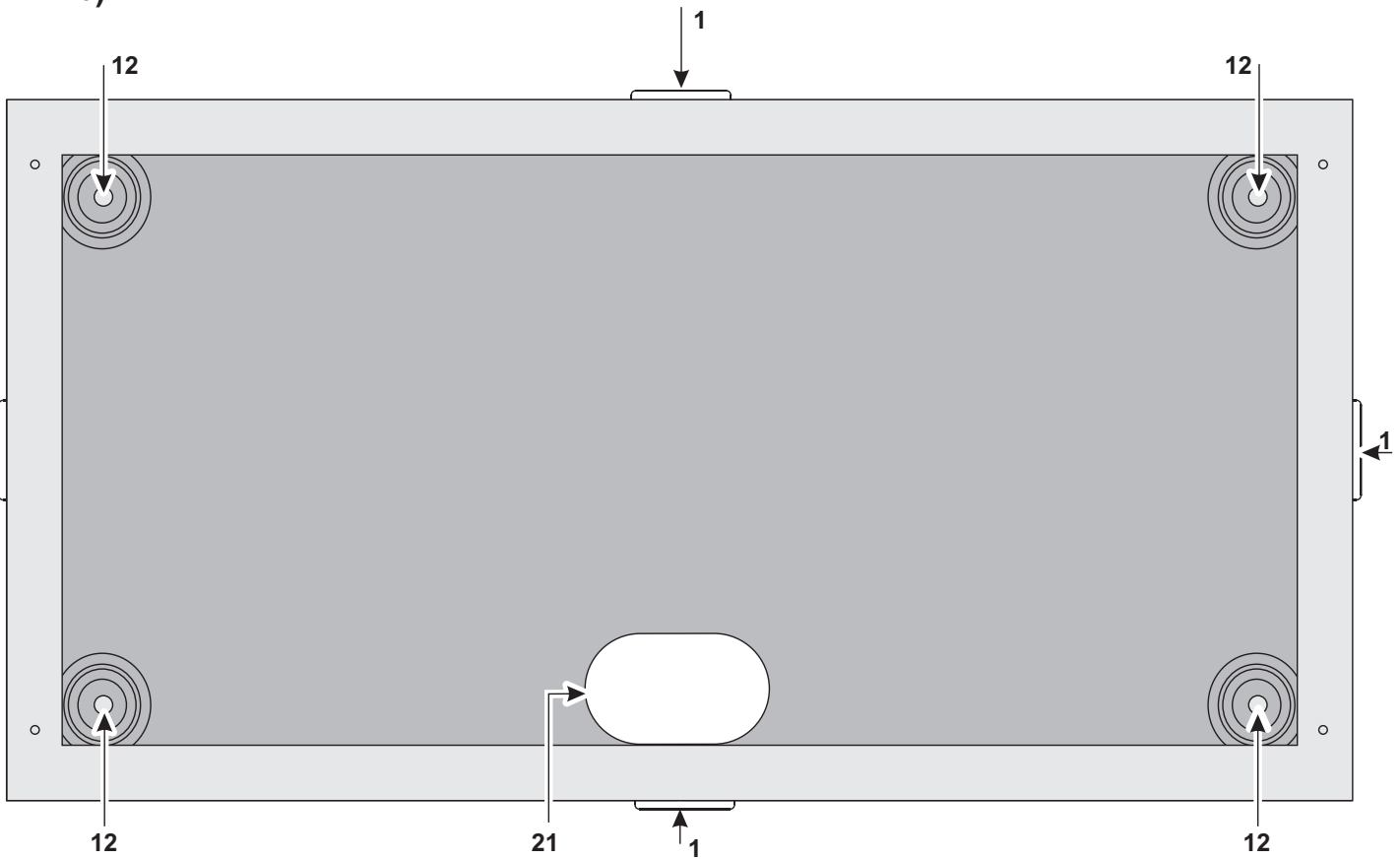
P.	Description
<b>1</b>	Surface Cable conduit entry
<b>2</b>	Door screws
<b>3</b>	LED label slots
<b>4</b>	KEYs label slots
<b>5</b>	Display
<b>6</b>	User interface board
<b>7</b>	Nuts to secure the User interface board on the cover of Control Panel or Repeater
<b>8</b>	Flat cable: for the Display module board connection with User interface board
<b>9</b>	Jack for the connection between display module and User interface board
<b>10</b>	Flat cable: for the User interface board connection with Main board
<b>11</b>	Jumper to Default programming (Future use) (Default  )
<b>12</b>	Anchor screw locations
<b>13</b>	Signalling LEDs Label
<b>14</b>	Identification Keys Label
<b>15</b>	Main Board
<b>16</b>	Switching power supply support
<b>17</b>	Switching power supply screw




**Figure 3** Configuration of the FC500REP Repeater **a)** frontplate (inside view); **b)** backplate.


P.	Description
18	Switching power supply
19	Anchor for 230 V power supply wires
20	Batteries (NOT supplied): <b>FC510, FC520</b> = 2 da 12 V 17 Ah (Accessory item: 2 da 12V 38 Ah -see figure 14-
21	Chased cable conduit entry
22	Thermal probe (accessory item)
23	Jack for the connection between the User interface to Repeater (RS485 interface accessory item)
24	Plastic frame (Spacer for User Interface PCB)

b)

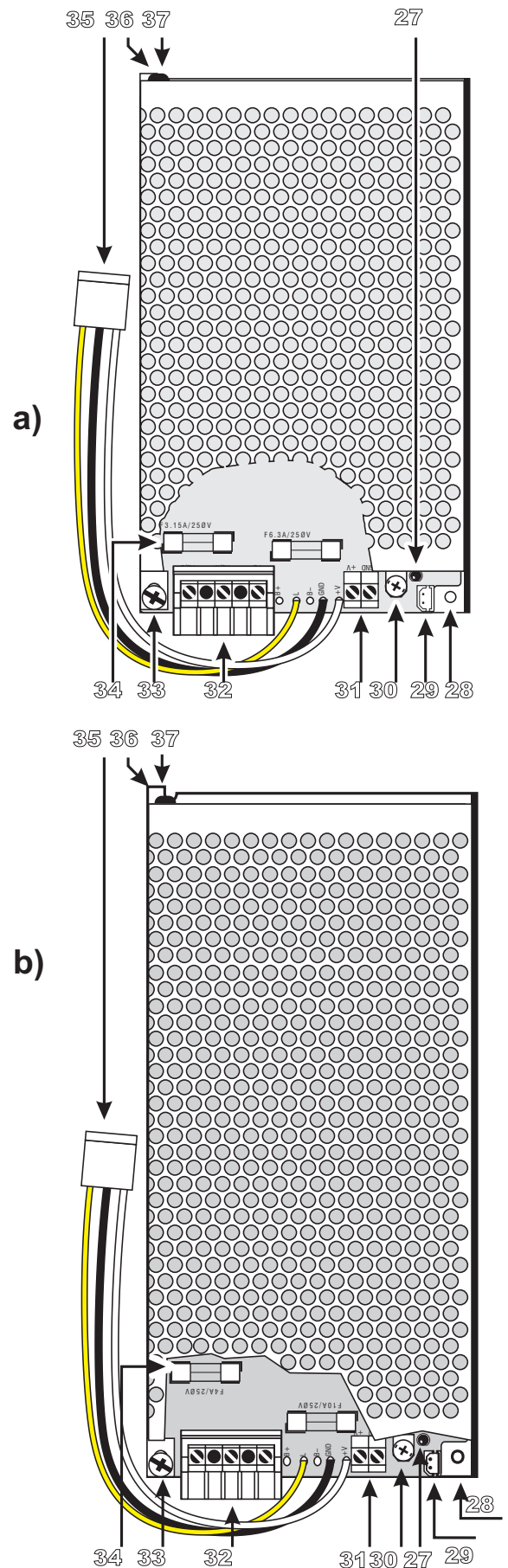


P.	Description
25	Terminal board
26	Terminal board
27	Mains indicator LED (switching power supply)
28	Switching-power-supply anchor hole
29	Switching-power-supply output voltage control input (connected at factory)
30	Fine trimmer for the Switching-power-supply output Voltage
31	Auxiliary power-supply terminals (27.6 V)
32	Mains power terminals (230 V / 50 Hz)
33	Switching-power-supply screws
34	Switching-power-supply fuse — protects against overload: -BAQ60T24 = F 2A 250V (IMQ-SECURITY SYSTEM NOT CERTIFIED) -BAQ140T24 = F 3,15A 250V
35	Cable: connects the Switching power supply to the Main board (connected at factory)
36	Switching-power-supply anchor
37	Switching-power-supply closure rivet
38	Jack for the User interface board
39	Microprocessor
40	RS232 Serial Port
41	Terminal board
42	Terminal board
43	Jack for the thermal probe (Accessory item)
44	Jack for the BAQ140T24 Switching power supply
45	Battery output voltage control panel (connected at factory)
46	RS485 terminal board
47	Jack for Extinguishment Module (Future use)
48	Jack (Future use)
49	Jack (Future use)
50	Jumper for Earth Fault (Leakage to Earth) signalling (Default  ) *(1)
51	Jumper (Future use)

\* NOTE (1)

Before connecting the Fire control panel to PC for the PC programming phase, remove the jumper **50** () of main board.

After the programming phase is finished, replace the jumper otherwise the Earth fault (Leakage to Earth) will not be detected.



**Figure 4 a)** BAQ60T24 Switching-power-supply (Accessory item for FC510 ONLY- IMQ-SECURITY SYSTEM NOT CERTIFIED) **b)** BAQ140T24 Switching-power-supply

P.	Description
52	Jack for the connection between User Interface board and the Main board
53	Buzzer
54	Control Panel Backplate
55	38Ah Batteries Backplate
56	Connecting Threaded tube
57	Nuts on Control Panel Backplate
58	Nuts on 38Ah Batteries Backplate
59	12V 38Ah Batteries (accessory item) (see Figure 14)

## LEDs and KEYS Labels

To insert the LED and Keys Labels (supplied) in the User Interface (see Figure 2, parts 13 and 14) work through the following steps:

- 1) Remove the screws **2** and open the Control panel or Repeater FC500REP (see Figure 3).
- 2) Corresponding the **A** or **B** (in the overlay) insert the relative LED and KEYS Labels (see Figure 1, parts 3 and 4);
- 3) check the right position (Figure 1) and then secure the Control panel or the Repeater FC500REP.

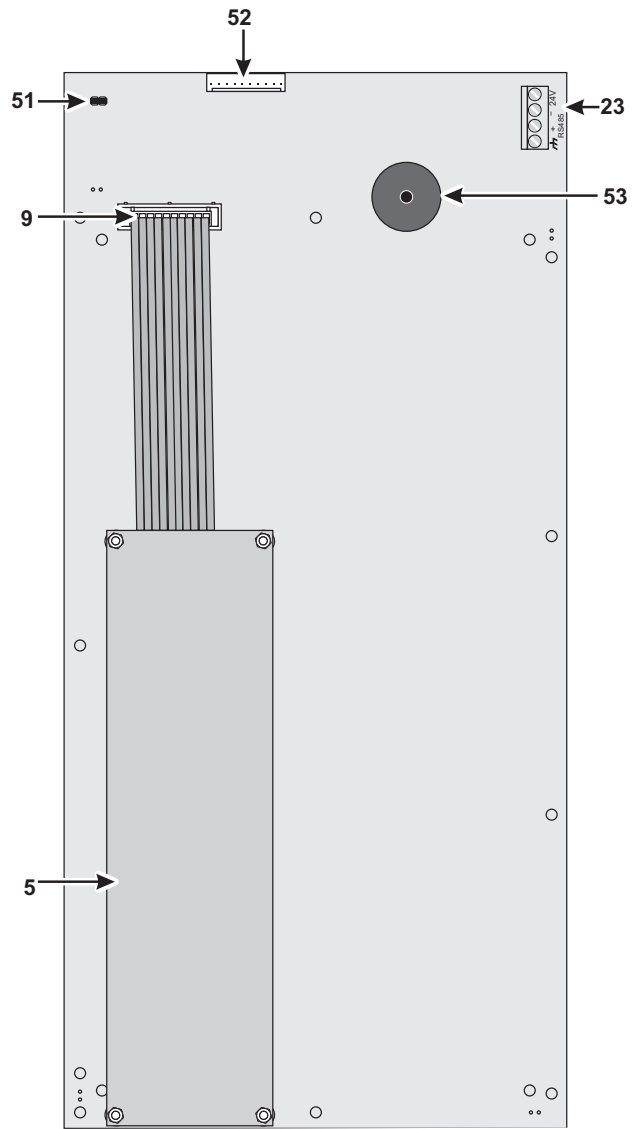


Figure 5 Parts: User interface-LCD board

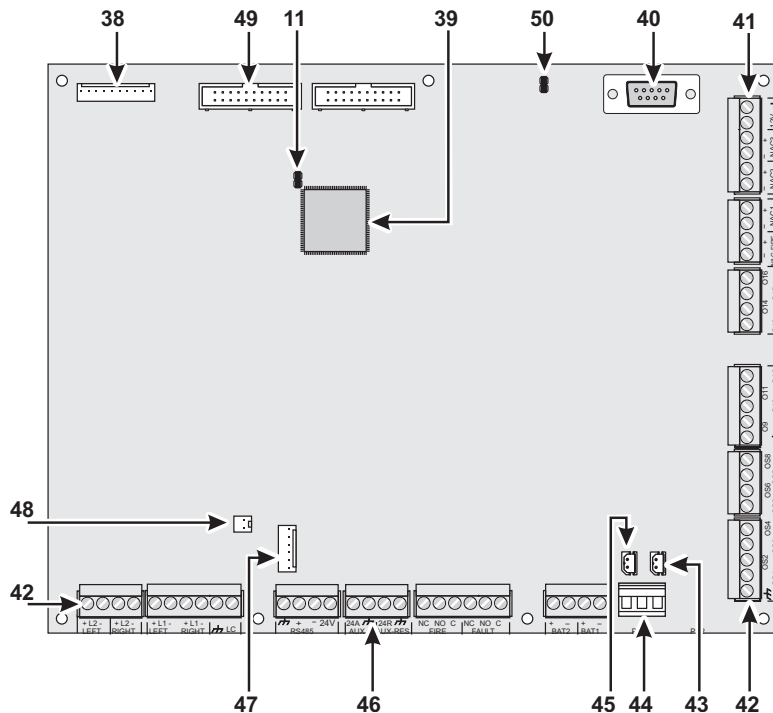


Figure 6 Identification of the parts: a) Main board .

## Description of the Control keys

☞ **Test, Silence Buzzer and Evacuate** Control keys **ONLY** can be activated without password (access level L1), all the others Control keys can be activated with password (access level L2 and L3)

**Lamp/Buzz/Test** See table 4

**Silence** See table 4

**Investigate** See table 4

**Silence Buzzer** See table 4

**Reset** RESET will stop Alarm, Prealarm, Warning and FAULT conditions. Access to this command is limited to authorized personnel only (installer or user code PINs). The system will reprocess any alarm, prealarm, warning or fault signal which is not cleared by RESET operations. Command keys cannot be used when RESET is running.

The repeaters FC500REP can be RESET by the installer or user code PINs.

**Evacuate** See table 4

**F1, F2, F3, F4** See table 4

KEY	DESCRIPTION
<b>Lamp/Buzz Test</b>	<i>This key can be used to test the buzzer and LEDs . If this key is pressed (when the Control panel is functioning as intended), all the LEDs will glow and the buzzer will emit a continuous beep.</i>
<b>Silence</b>	<i>This key can be used to restore the Silenceable outputs to standby status. Silence status will be held until the <b>Silence</b> key is pressed again in <b>Day Mode</b>, or if the Control panel is operating in <b>Night Mode</b>, until the <b>Night mode Silence time</b> expires or until a new Alarm/Trouble condition is detected.</i>
<b>Investigate</b>	<i>This key can be used to refresh the “PreAlarm Time”: if this key is pressed during “<b>PreAlarm</b>”, the remaining <b>PreAlarm</b> time will be increased with the programmed “<b>Recognition delay</b>”.</i>
<b>Silence Buzzer</b>	<i>Key to silence the local buzzer of the control panel: the buzzer will be operating every time a new event will be activated</i>
<b>Reset</b>	<i>This key can be used to reset the Fire detectors and restore all outputs to standby status (Supervised/Silenceable outputs, NON-Supervised/Non-Silenceable outputs and Alarm zone outputs)</i>
<b>Evacuate</b>	<i>key to activate the <b>evacuation</b>: if this key is pressed for over 2 seconds, the system will generate an alarm.</i>
<b>F1, F2, F3, F4</b>	<i>Function keys of the Display; their function will be various according to different screen of display</i>

**Table 4** Description of the keys

**⚠ Installation of this system must be carried out strictly in accordance with the instructions in this section, and in compliance with the local safety regulations in force.**

To install the control panel work through the following steps:

- Choose suitable mounting locations for the Control panel, detectors, fire warning and fire control devices.
- Lay the cables between the Control panel and the system peripherals.
- If necessary, install any accessory modules.
- Before mounting the Control panel to the wall, insert the LED and Keys Labels (supplied) in the Interface User (see pag.17).
- Carry out the necessary connections, leaving the power-supply connection until last.
- Program the Control panel in accordance with the instructions in the “PROGRAMMING” section.
- Test the entire system (Control panel, detectors, fire warning and fire control devices).

---

**👉** *Accessory Modules should be installed before mounting the Control panel to the wall.*

---

## Installing accessory boards

**⚠ Ensure that the Control panel power supply (Mains and Batteries) has been disconnected before installing any accessory Modules.**

---

**🔊** *The Repeater FC500REP has NOT IMQ-SECURITY SYSTEM certification.*

---

## Installing FC500REP Repeaters

Repeaters can be wall mounted, or flush mounted to an **ave® BL08** outlet box (or similar).

Work carefully through the following steps.

1. Lay the connection cables (refer to “Connecting Repeaters”).
2. Remove the screws **2** (see Figure 4) and open the Repeater FC500REP.

3. If you are **flush mounting** the Repeater, go to step **5**. If you are wall mounting the Repeater, drill the anchor screw holes **12**.
4. Pull the wires through the wire entry **21**, then, using the anchor screws, secure the Repeater to the wall.
5. Complete the connections to the terminal board **23** of the RS485 Interface, as described in the “Connecting Repeaters” section.
6. Set the Repeater Address.

## Installing the FC500 Slave control panel

See "Installing the Control panel paragraph".

## Installing the Control panel

Work carefully through the following steps (see the Figures 1, 2 and 3).

1. Remove the screws (**2**) and open the Control panel.
2. Drill the anchor screw holes.

**⚠ Check for water pipes and electrical wiring before drilling.**

3. If necessary, using a hammer or similar tool, remove the surface conduit wire knockouts **1**.

---

**👉** *The cable conduit union with the case must be secured by **HB Flame Class** (or higher) lock nuts.*

---

4. Pull the wires through the chased wire entry **21** then, using the anchor screws, secure the backplate to the wall.

## Description of the Terminals

---

This section describes the Control panel terminals.

### ■ Main Board terminals


**+L1-/LEFT** (+)Loop 1-Positive signal, left side.  
(-)Loop 1-Negative signal (return), left side.

**+L1-/RIGHT** (+)Loop 1-Positive signal, right side.  
(-)Loop 1-Negative signal (return), right side.

**+L2-/LEFT** (+)Loop 2-Positive signal, left side.  
(-)Loop 2-Negative signal (return), left side.

**+L2-/RIGHT** (+)Loop 2-Positive signal, right side.  
(-)Loop 2-Negative signal (return), right side.

---


 Each Loop supports 250 (Analogue detectors, Input modules, Conventional Zone modules, Manual callpoints, Output modules and Sounders). In all the control panel supports up to 500 devices with 2 Loop.

---

**LC Conventional Input Line - Supervised and Bypassable** — This line supports 30 conventional fire devices (Optic Smoke detectors, Heat detectors, Manual callpoints).

Connect terminal **[LC]** to ground terminal [ $\nearrow$ ] using a 3900 ohm resistor (orange-white-red). A 680 ohm resistance (normal value for Fire detectors) parallel to the 3,900 ohm resistor will activate the programmed actions and preset times of the Conventional Line outputs and the Non-supervised output (terminals NC, NO and C).

---

 The Conventional Line supports 30 Conventional detectors. **ATTENTION: DO NOT connect more than 500 detectors and/or manual call points to each main PCB.**

---

**[ $\nearrow$ ]** Negative.

**485 Serial Bus** Terminals for FC500REP repeater panels (maximum 8) and FC500 as Slave panels (maximum 7). Serial bus terminals [+] and [-]; 27.6 V power voltage terminals [ $\nearrow$ ] and [24V].

**AUX Auxiliary power 24 V** Power supply to devices that operate at 24 V (powered by the standby batteries):

- Positive (27.6 V) on terminal [24A];
- Negative on terminal [ $\nearrow$ ].

**AUX-RES Auxiliary power 24 V (1A max).** The system will interrupt power from terminal [24R] during Reset. Power supply to devices that operate at 24 V (powered by the standby batteries):

- Positive (27.6 V) on terminal [24R];
- Negative on terminal [ $\nearrow$ ].


**[NC][NO][C] FIRE** Non-supervised **fire** output. Dry contact relay for non-supervised devices:

- During standby status — terminal **[C]** closes to terminal **[NC]**;
- In the event of fire — terminal **[C]** closes to terminal **[NO]**.

**[NC][NO][C] FAULT** Non-supervised **fault** output. Dry contact relay for non-supervised devices:

- During standby status — terminal **[C]** closes to terminal **[NC]**;
- In the event of fault — terminal **[C]** closes to terminal **[NO]**.

---

 **IMQ-SECURITY SYSTEM** certification applies **ONLY** when, **FAULT** output is not J (EN 54-1) type, therefore this output **MUST NOT UTILIZED** to manage Fault transmission devices.

---

**+BAT2-** Terminals to connect the batteries inside the FC500 control panel (see Figure2).

**+BAT1-** Terminal to connect remote batteries or Power supply.

**PS1** BAQ140T24 power supply first connector.

**PS2** BAQ140T24 power supply second connector.


**OS1...OS8 Programmable, Silenceable, Bypassable, Supervised Outputs.**

These are normally-open terminals (open-collector) which close to ground when the connected event will active. These terminals will remain closed to ground even after the generating event has ended. These outputs can be forced to standby (Not programmable polarity) by resetting the control panel .

- These outputs can be bypassed via the DISABLE menu.

Connect an **EOL** 27.000 ohm resistor between terminals [OS] and [ $\nearrow$ ] of these outputs. This will allow the control panel to detect and signal when the outputs are shorted and/or open.

---

 **NOTE:** The **EOL resistor** must be connected to the last device on the Supervised output. Connect a diode (1N4002 or 1N4007) in series to the devices connected to these outputs.

---

**O9...O16 Programmable, Silenceable, Bypassable NOT Supervised outputs** — These are normally-open terminals (open-collector) which close to ground when the connected event will active. These terminals will remain closed to ground even after the generating event has ended. These outputs can be forced to standby (Not programmable polarity) by resetting the control panel.

These are normally-open terminals (open-collector) which close to ground when the connected event will active. These terminals will remain closed to ground even after the generating event has ended. These outputs can be forced to standby (Not programmable polarity) by resetting the control panel.

**-NAC FIRE+ Type C output (EN54-1). - Silenceable, Bypassable, Supervised** — Terminals for supervised devices activated by positive (24 V):

- During ALARM status — positive (27.6 V) on terminal [+]; negative on terminal [-].
- During STANDBY status — negative on terminal [+]; positive (27.6 V) on terminal [-].
- This output can be bypassed via the DISABLE menu. ALARM status will activate this non-programmable output.

**[12V] [↗] Auxiliary power 12 V**. Power supply to devices that operate at 12V (powered by the standby batteries and protected by self recover termic fuse):

- Positive (13.8 V) on terminal [12V];
- Negative on terminal [↗].

Max current on terminal [12V] must not exceeded 200mA.

**NAC1 NAC2 and NAC3 Supervised/Silenceable/Bypassable Programmable Alarm Outputs.** These Outputs are for the Alarm signalling devices.  
**Operating principles:**

- in Standby status, these Outputs will be INACTIVE (read on for details);  
Output INACTIVE: negative pull-down to 0 V on [+] terminal; positive pull-up to 27.6 V on the [-] terminal.  
Output ACTIVE: positive pull-up to 27.6 V on the [+] terminal; negative pull-down to 0 V on the [-] terminal.
- NAC1, NAC2 and NAC3 will restore to standby when the Control panel Resets.
- NAC1, NAC2 and NAC3 can be Silenced (forced to standby).  
The NAC Outputs will hold standby status for the programmed Silence Time. If Alarm conditions are present when the programmed Silence Time expires, they will re-activate.

**🔊 NAC1, NAC2 and NAC3 accept devices that operate within SELV limits ONLY.**

**🔊 IMQ-SECURITY SYSTEM** certification applies ONLY when, NAC1, NAC2, NAC3, OS1, OS2, OS3, OS4, OS5, OS6, OS7, OS8, O9, O10, O11, O12, O13, O14, O15, O16 and RELAY FIRE outputs are not C, E, J, G (EN 54-1) type, therefore these outputs MUST NOT UTILIZED to manage Fire Alarm devices and/or Fire Alarm Transmission devices and/or Fire Fault Transmission devices and/or Automatic Fire Alarm Systems.

## The System Wiring

**👉 Use shielded cable only for all connections, with one end of the shield connected to the Control panel negative terminal and the other left free.**

**⚠ High Voltage leads (230 V) must be bunched separately from Low Voltage leads (24 V). All leads must be bunched in such a way as to avoid contact with other wiring and components.**

### ■ Connecting Addressable Analogue Devices

The control panel has 2 loops for addressable analogue devices.

Each loop supports 250 addressable analogue fire detectors and an analogue devices (Input modules, Conventional Zone modules, Output modules).

You must assign a DIFFERENT address to each detector on the loop.

You can use 2 or 4 wires for the loop connections.

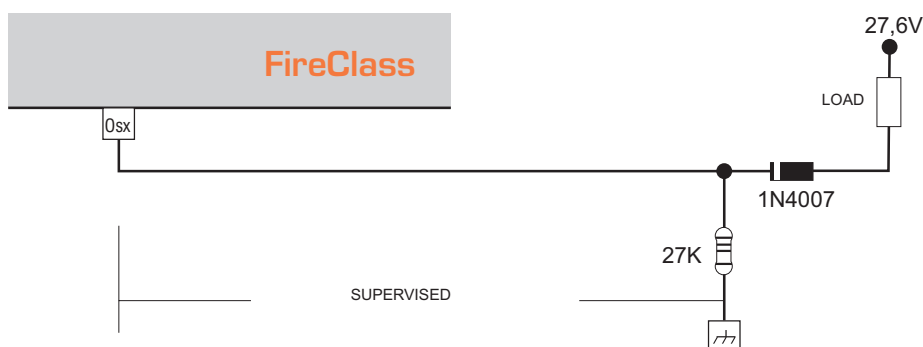
**NOTE:** The loop connection type must be specified during the programming phase.

Figure 8(1) illustrates the 2-wire connection to Loop 1.

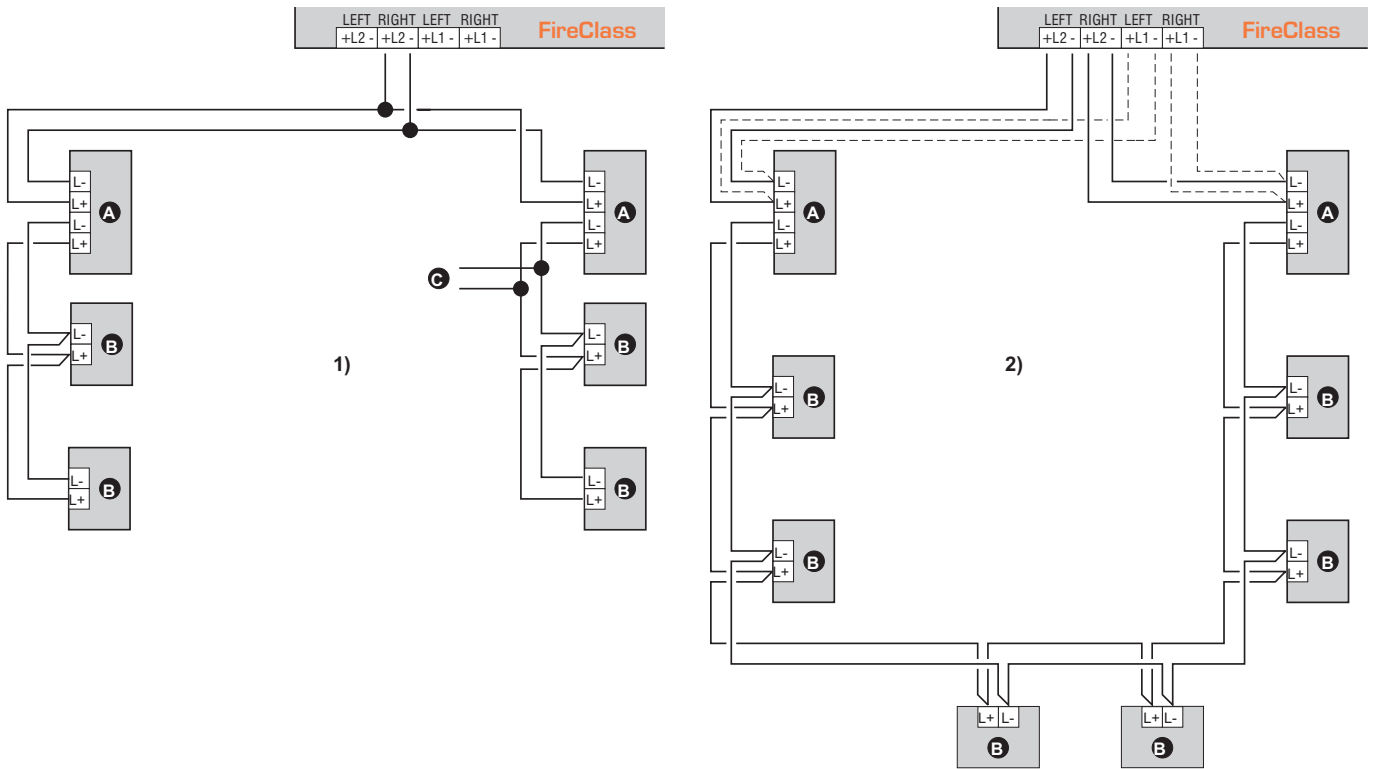
Figure 8(2) illustrates the 4-wire connection to Loop 1.

**👉 The 2 wire connection does not allow more than 32 detectors per loop.**

**👉 The 4 wire connection does not allow T connections (An insulators is necessary for 32 detectors max.)**



**Figure 7** OSx Outputs connecting

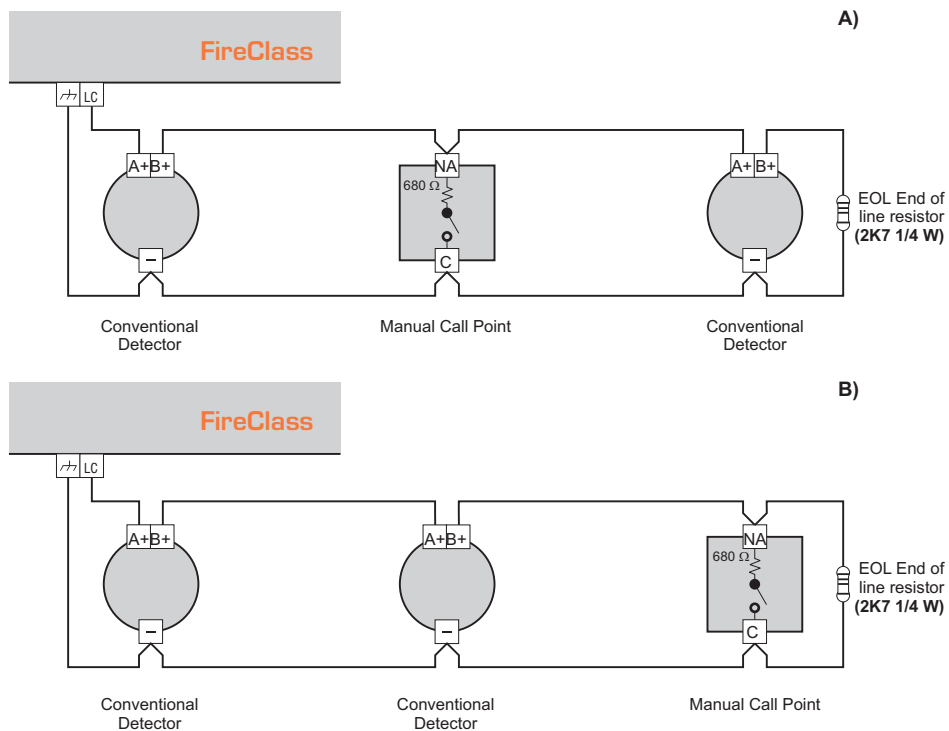


**Figure 8** 1) Wiring diagram of a 2-wire connection - 2) Wiring diagram of a 4-wire connection: a) Insulators; b) Compatible analogue devices (Fire detector, Input modules, Output modules, Conventional Zone modules, Manual callpoints); c) T connection.

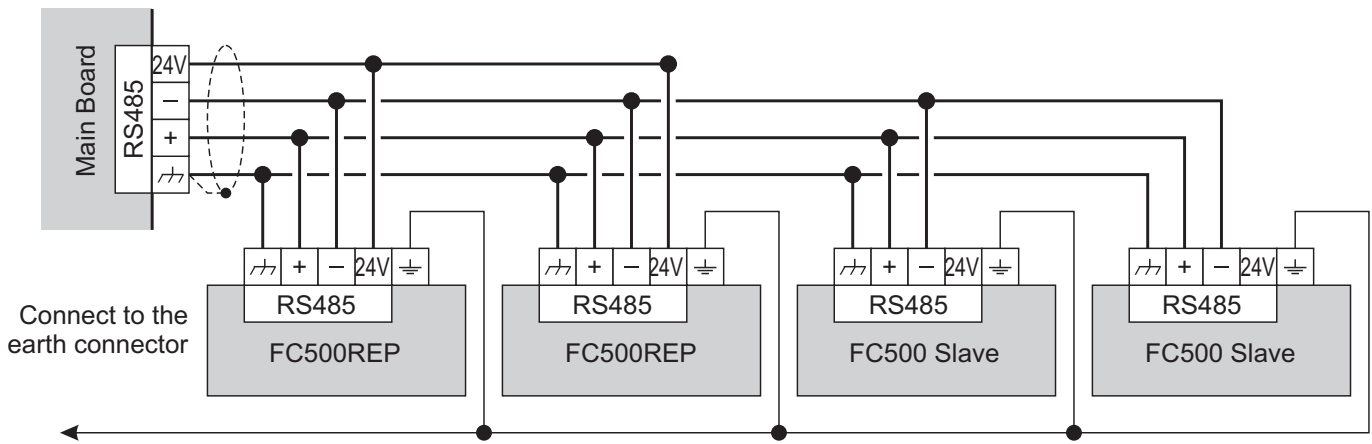
**■ Connecting Conventional Devices**

Connect Conventional devices to terminals [↗] and [LC]. **Fire detectors and Manual call point.**

Connect the Conventional Fire detectors in parallel to terminals [LC] and [↗].



**Figure 9** Wiring diagram of Conventional device connections



**Figure 10** Wiring diagram of two FC500REP Repeaters and two FC500 Slave Control panels connected to the RS485

The resistor (3,900 ohm) connected to these terminals must be moved to the terminals indicated in the instructions of the last device on the Conventional Line (see figure 9a).

#### ■ Connecting Repeater and Slave Control panel

An example of how to connect two FC500REP repeaters and two FC500 SLAVES is shown in Figure 10.

The RS485 port of the FC500 (terminals [↗], [+], [-] and [24V]) accepts up to 8 FC500REP repeaters and up to 7 FC500 SLAVES, so a panel will be configured as a "Master" control panel while the others seven will be configured as "Slave" control panel; the eight Repeaters will be the Repeaters of the "Master" control panel.

👉 Assign an address to FC500REP repeaters ( see the procedure "Programming from the Panel" page 46).

🔊 The Repeater FC500REP has NOT IMQ-SECURITY SYSTEM certification.

Terminals [+ ] and [- ] supply the power (27.6 V) to the repeater panels (see figure 10,11).

When a mains fault occurs, the Repeaters considerably decreases the absorbed power, switching off the LCD display backlighting (the LCD display backlighting

switches on again, for 20 sec. when a key will be pressed). But the absorption of the Repeaters connected to the control panel, will contribute to run down the backup batteries, and so the decrease of the Stand-by supply time of the system.

When one control panel only is in the system all the Repeaters must be supplied by the control panel itself, unless a Power supply Station is in the system.

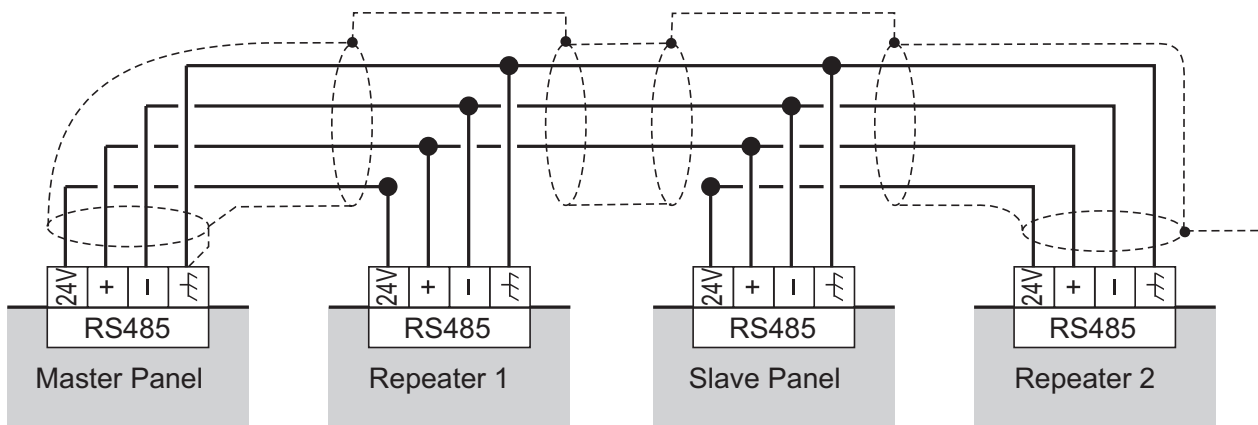
When several Control panels are in the system, the Repeaters supply Load can be shared between these Control panels (see Figure 11).

👉 The control panel [24V] terminals must not be connected between them, because the switching Power supply cannot work in parallel and the entry in protection status (OFF) can be produced with the effect of overloading the switching Power supply still working.

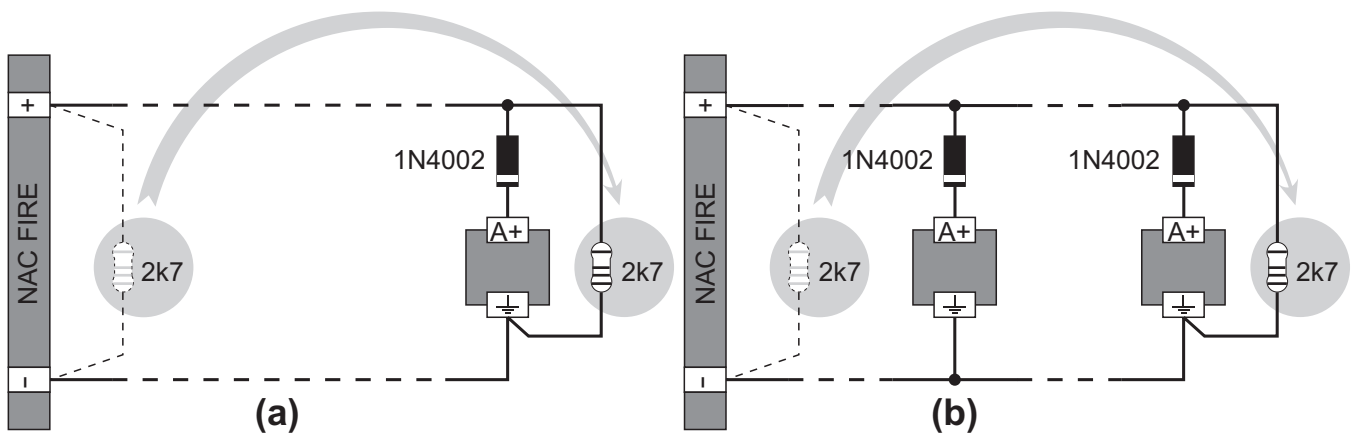
Use shielded cable only, with one end of the shield connected to the "Master" Control panel Negative terminal and the other left free; the continuity, between several segments of connection must be secured (see Figure 11).

#### ■ Connecting Output Devices

The control panel has 8 supervised outputs, 8 NON supervised outputs and 4 Bell outputs (supervised and silenceable) .



**Figure 11** Network connection example: the Repeaters supply load is shared on several Control panel. In this case the "Repeater 1" is supplied by "Master" panel while the "Repeater 2" is supplied by "SLAVE" control panel.



**Figure 12** Wiring diagram of the connection of a single device (a) and several devices (b) to Bell outputs (device activated by positive (27.6 V) on terminal [A+]).

**NOTE:** Output devices can be connected to the loops by means of Output modules.

### ■ Bell Outputs

The Bell outputs are indicated by the letter NAC and their address number.

The NAC1, NAC2 and NAC3 Bell Outputs are Programmable, Supervised, Silenceable, Bypassable.

The terminal marked "-NAC FIRE +" is a Bell output (C type, EN54-1), Supervised, Silenceable, Bypassable but Non-programmable. This output will activate when the Control panel goes into Alarm status.

The Bell outputs can be forced to standby status by means of the SILENCE button. Once an alarm has been acknowledged, you can silence the audible signalling devices and leave the visual signalling devices active until the alarm conditions cease.

For example, a connection similar to the wiring diagram in figure 12 will activate the Flasher, the Bell and the visual and audible signalling device of the Self-powered Siren in the event of an alarm.

Using the **SILENCE** button will stop the horn but not the flasher, which will continue to signal Alarm status until the **RESET** button is pressed.

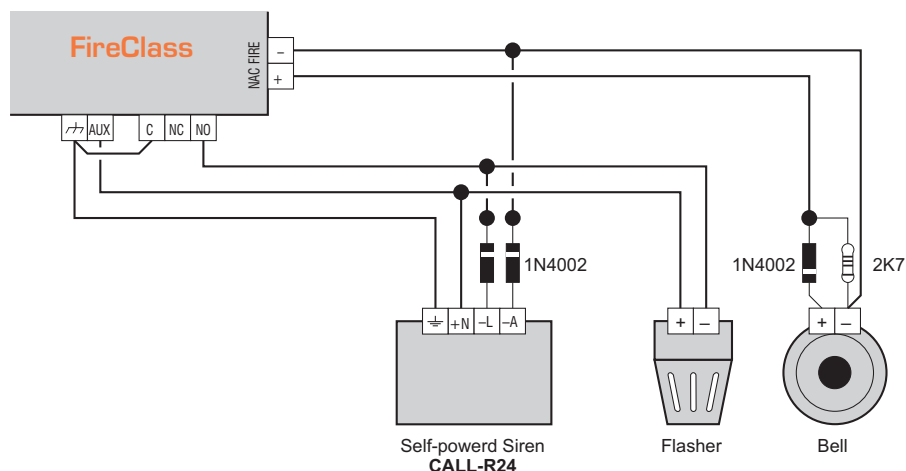
### Connecting a Power Supply

The power circuits of this Control panel comply with the EN54-4 standard.

**!** In order to comply with the Safety regulations in force, the Mains must be equipped with a bipolar isolating device for protection against over voltage and short-circuit to Earth (e.g. automatic isolating switch).

This Control panel is powered from the Mains (230V/50 Hz) through a Switching power supply, located inside the case. The **FC510** and **FC520** Control panel provide housing for two 12 V, 17 Ah maximum batteries; moreover, the **FC510** and **FC520** Control panel can be connected to two 12 V, 38 Ah in an external metal box (see Figure 15) for power during Mains failure.

The non-volatile memory will hold the programmed data at all times.



**Figure 13** Wiring diagram: NON-silenceable and Silenceable Output connections

In the event of Mains failure, the:

- GREEN **Mains** LED will turn OFF
- AMBER **Mains** LED will turn ON

The Control panel will monitor the batteries at all times, (refer to **Static Test** and **Dynamic Test**).

**Static Test** The **Static** Test monitors the battery charge during Mains failure. In the event of **Low battery** status (below 22.8 V), the **Low Battery** LED will turn ON. If this occurs, the Mains power must be restored before the batteries empty, otherwise, the system will shut-down.

**Dynamic Test** The **Dynamic** Test monitors the operating capacity of the batteries. In the event of a Failed Test result (batteries do not meet the Test requirements), the **No Battery** LED will turn ON.

If this occurs, the backup battery must be replaced immediately, otherwise, the system will be unable to function in the event of Mains failure (black-out).

Work carefully through the following steps to connect the Mains Supply.

1. Locate the backup batteries in the housing (see Figure 2, 3) .
2. Using the Jumper (supplied), connect the batteries in series.
3. Observing the battery polarity, connect the battery terminals to terminals BAT1 or BAT2 on Main Board (wires supplied).
4. **FC510-FC520** Use 17 Ah @ 12 V YUASA NP 17-12 FR batteries; or similar with case flame class UL94-V2 (or higher).
5. Connect the **Earth** wire to the [⊕] terminal on the terminal board **32**.
6. Connect the **Neutral** wire to terminal [N], and the **Line** wire to terminal [L] on the terminal board **32**.

---

👉 *The Control panel will reset on power up.*

---

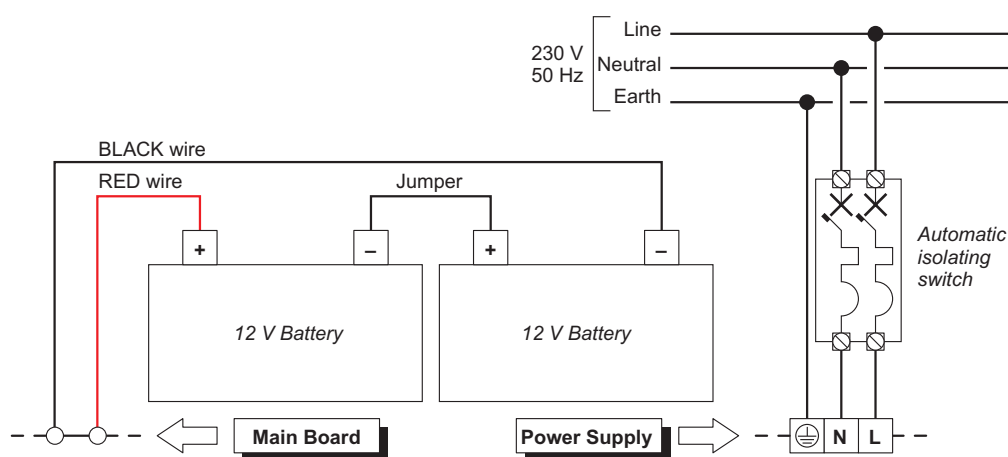
⚠ **DO NOT allow the power cable to cross over other wiring (see Figure 18a). The power cable must be routed as per Figure 18c and held firmly in place by a cable tie (see Figure 18b).**

#### ■ Thermal Probe

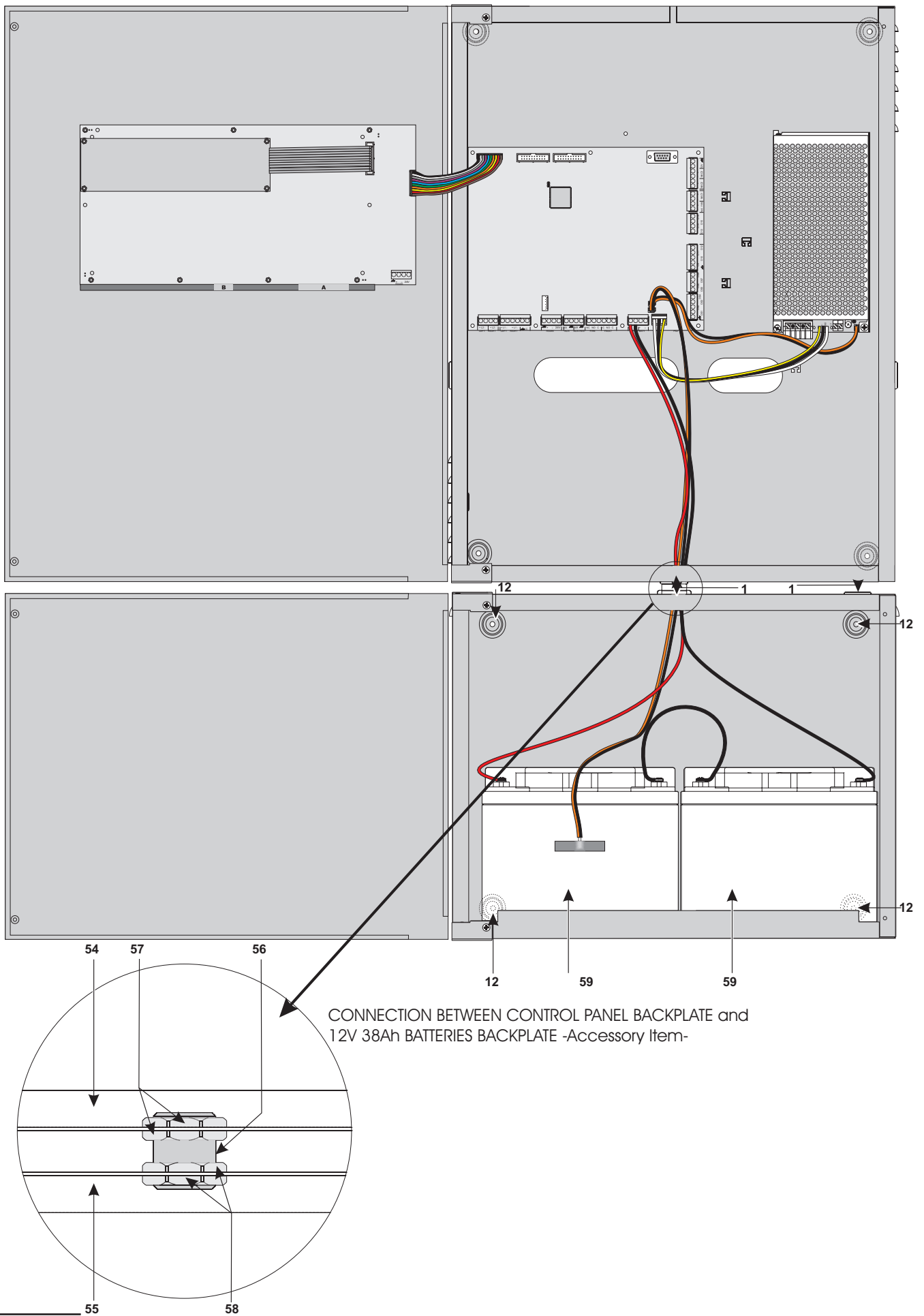
This Control panel supports the **KST** thermal probe. The probe will optimize the battery charging process by regulating the charge voltage in accordance with the battery temperature.

Work carefully through the following instructions (refer to the figure 2):

1. Connect the probe **22** to the connector **43** on the Main board of the Control panel and the wire (supplied) between the connector **45** on Main Board and the connector **29** on the BAQ140T24 switching Power supply.
2. Attach the probe to one of the batteries, in such a way as to obtain optimum heat transfer.
3. Measure the Probe temperature.
4. Using the graph in Figure 16 and/or Table 5, find the value (in accordance with the battery temperature) that the output voltage of the Switching Power Supply will be based on.
5. Using the trimmer **30**, adjust the voltage on the terminal board **32** to the required value.



**Figure 14** Wiring diagram for the power supply



**Figure 15** Control Panel and 38Ah Batteries metal Box connection (accessory item).

## Installing the 38Ah battery metal Box

Work carefully through the following steps (see Figure 15).

1. Remove the screws (2) and open the metal box.

2. Drill the anchor screw holes.

**⚠ Check for water pipes and electrical wiring before drilling.**

3. If necessary, using a hammer or similar tool, remove the surface conduit wire knockouts 1.

4. Secure the metal backplate to the wall

**👉** The cable conduit union with the case must be secured by **HB Flame Class** (or higher) lock nuts.

Pull the wires through the chased wire entry 1 and connect them. See paragraph: Connecting a power supply.

## Maintenance

The following operations must be carried out regularly.

**A** Using a damp cloth (DO NOT USE SOLVENTS OF ANY KIND), remove dust from the Control panel case.

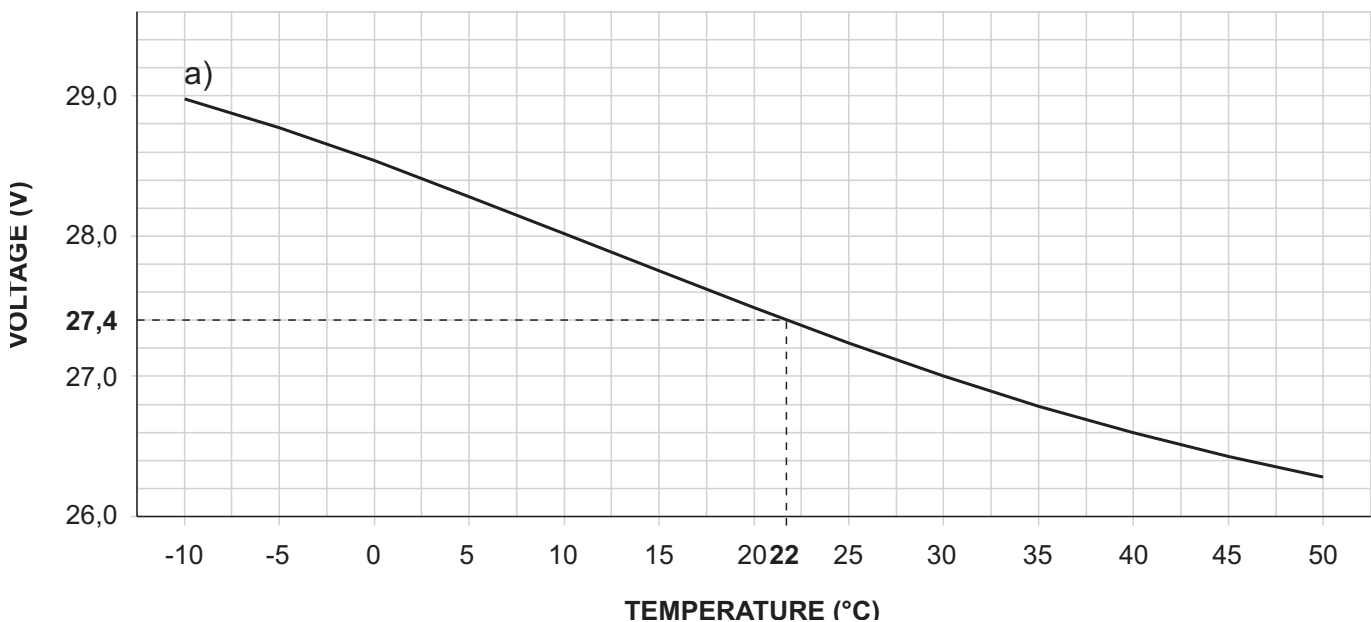
**B** Using the **Lamp/Buzz/Test** key, check that the LEDs and buzzer are functioning properly.

**C** Ensure that the batteries are sufficiently charged and functioning properly. If not, replace them immediately.

**D** Ensure that all cables and connections are intact.

**E** Ensure that there are no unrelated objects inside the Control panel case.

**👉** Points **A** and **B** may be carried out by users. Points **C**, **D** and **E** must be carried out by qualified persons only.



**Figure 16** Switching Power Supply Output Voltage graph. To find the Output Voltage using the graph: — indicate the Probe temperature on the **TEMPERATURE (°C)** axis; draw a line from the temperature value point up to the curve **a)**; draw a line from the intersection point across to the **VOLTAGE (V)** axis; adjust the Output Voltage of the Switching Power Supply to the resultant value. For example, if the Probe temperature is 22 °C, the Output Voltage of the Switching Power Supply must be set at 27.4 V.

TEMPERATURE (°C)	-10	-5	0	5	10	15	20	25	30	35	40	45	50
VOLTAGE (V)	29,0	28,8	28,6	28,2	28,0	27,8	27,4	27,2	27,0	26,8	26,6	26,4	26,2

**Table 5** Switching Power Supply Output Voltage chart. To find the Output Voltage using the chart: — select the nearest value to the Probe temperature on the **TEMPERATURE (°C)** row; read the respective value on the **VOLTAGE (V)** row; adjust the Output Voltage of the Switching Power Supply to the indicated value. For example, if the Probe temperature is 22 °C, the Output Voltage of the Switching Power Supply must be set at 27.4 V.

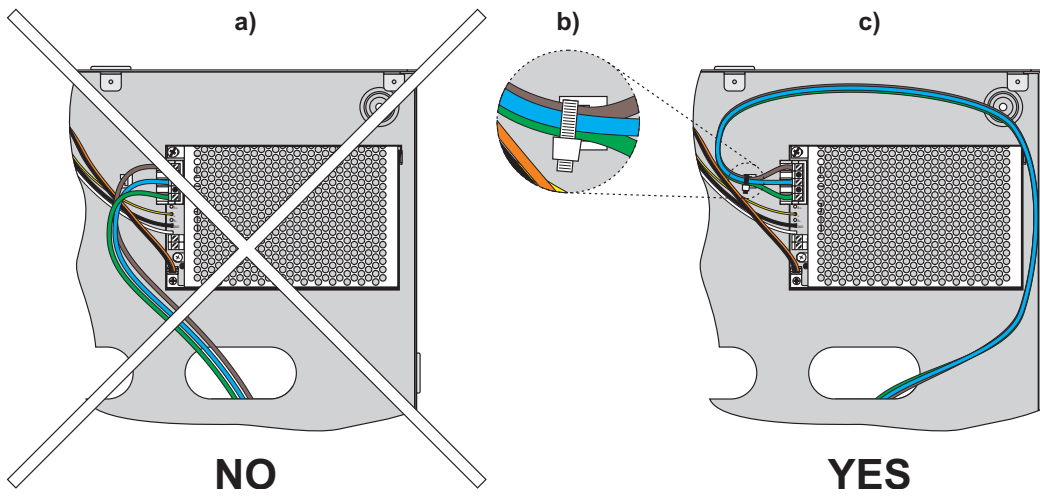


Figure 18

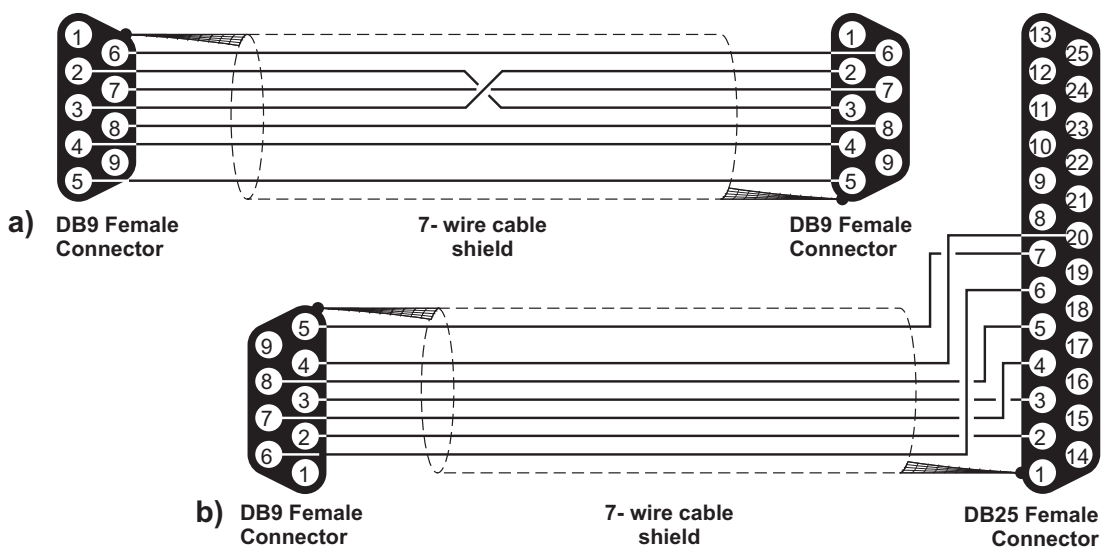


Figure 17 Wiring diagram for the serial link between the Control panel and PC

You can program this system from the Control panel or from a computer, using the **FireClass500** Software Console, inside the Bentel Fire Suite.

This section describes how to program the system from a computer. If you intend programming the system from the Control panel refer to the "PROGRAMMING FROM THE PANEL" section.

## Introduction

The FC500 software console contains:

- **FC500**: the application to manage and program the FC500 series control panels.
- **LangBuilder**: Language application (customizes system terminology) (language used in the software Console and in the display of the Control Panel and Repeater).

## Installation

Work carefully through the following steps to install the **FC500** software applications.

- Run the **Setup.exe** application contained in the **CdRom** "Fire Suite".
- Select a folder for the FC500 software applications.
- Run as Administrator.

## Select language

You can select the language of the FC500 Software, from the **Languages provided**, or use the **LangBuilder** application to customize the application terminology.

To Select the application language:

- Run the **FC500 Software** application;
- Select **Options** from the **Main** window;
- Select **Language** from the drop-down menu to open a window with the language list;
- Select a language from the **Language** list;
- Click-on ✓ OK,  
The selected language will be immediately initialised.

 *At the first start up, FireClass Console software will ask to choose the language.*

## Software window Look

To modify the look of the FC500 software window, click-on Key "Available Skin" in the left bottom of the Main window or click-on right key on the title bar. This option allow you to modify the look of the window in the offer range (see Figure 19).

## Control panel connections

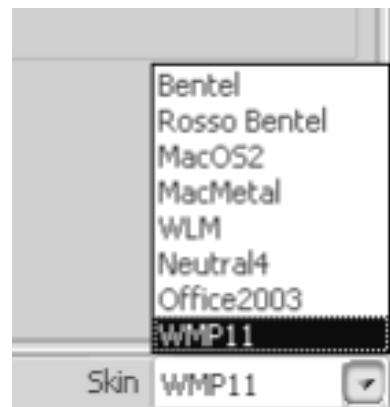
If you are using the Supervisory, Management, Downloading and Log Management functions, the control panel must be connected to your PC in local communication or remote (Future Use) by PSTN line, GPRS or LAN.

To connect the control panel in local:  
(see note page n. 16)

Using a **CVSER/9F9F** cable (accessory item) or similar cable (see figure 16), connect the control panel serial port (refer to "PARTS IDENTIFICATION") to a serial port on your PC.

- Select the PC serial port from the **Option** menu (**Choose serial port**) and then Click-on ✓ OK,. For 25 pin serial ports, use an **ADSER/9M25F** adapter (accessory item) or make a cable as per figure 16b.

If the control panel is **not connected** to your PC when you start the communication, the following warning will be shown: "**Communication error! Check serial link**"  
If the serial port for the local communication is **invalid**, the following warning will be shown: "**Cannot open serial port**".



**Figure 19** To modify the window look (Available skins).

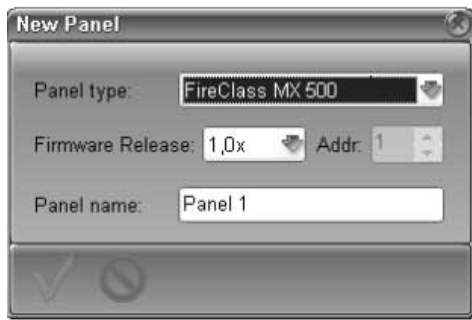


Figure 20 New panel window (Type of control panel)



Figure 22 Firmware Upgrade window

## Main window

The FC500 Software opens on the **Main** window (see fig. 20). The following section describes the **File**, **Communication**, **Options**, **DataBase** and **Help** menus.

### ■ Icons description

Click-on this icon under "Panel 1" the window "New panel" will open, Figure 20. Here, you can choose the type of control panel, the Firmware Release, the control panel name and the possible address if more control panel are present in the system.

Description of the icons under "Panel 1"

- Click-on this icon and then confirm to restore the factory defaults.
- Click-on this icon to download the programming (via serial link) to the connected control panel.
- Click-on this icon to upload all the programming (via serial link) of the connected control panel.
- Click-on this icon to see the firmware version of MainBoard, Loop controller and User Interface.
- Click-on this icon to add a new Loop expansion board.
- Click-on this icon to remove a Loop expansion board.
- Click-on this icon to open the Data customer window.
- Click-on this icon to insert-modify the Installer Password.
- Selected a stored customer, click-on this icon to delete the customer, after confirm: OK.
- Click-on this icon, in a Master control panel, a window in Figure 19 will be shown. In this window, a Slave control panel can be inserted with a name and an address, the same programmed address from the

user interface of Slave control panel (see Programming from the panel).

- Click-on this icon to remove the selected Slave control panel, after a request of confirmation.

### ■ File

The **File** options (**New**, **Open**, **Save**, **Close**, **Export/Import configuration file**, **Exit**) will allow you to manage customer account data.

**New (New customer)** The **New** option creates a New customer and restore the factory default to all programming parameters.

**Open** Click-on "Open", to retrieve customer data from the "Customer List" (see Figure 21). Click-on selected customer and after confirm: ✓ OK.

**Save** If a new customer is programmed or the exiting data customer are modified, click-on "Save" a new customer or the new configuration will be saved.

**Close** Click-on "Close", the selected customer will be closed.

**Exit** Click-on "Exit", the FC500 software will be closed.

**Export configuration file:** Click-on this option, all the data customer will be exported in a single file.

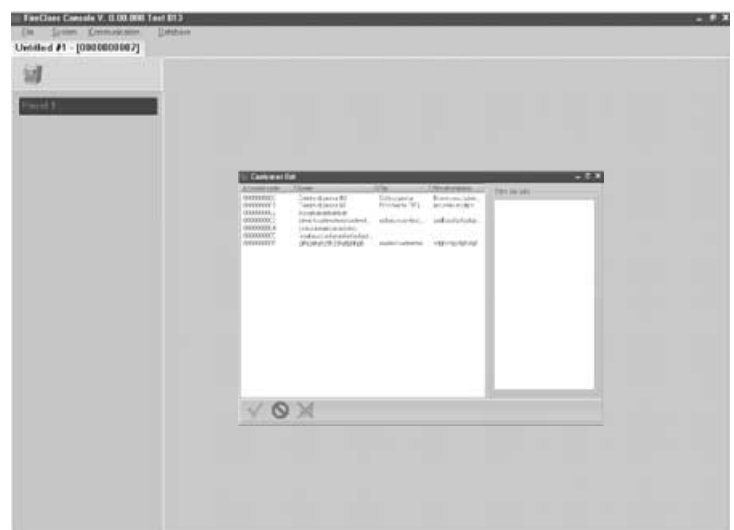


Figure 21 "Open" window.

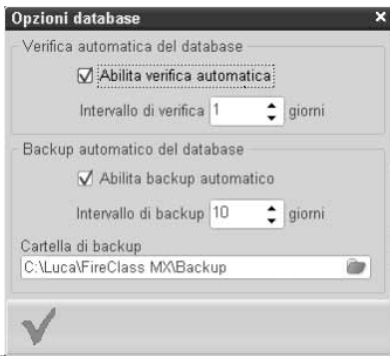


Figure 23 Database Options window.

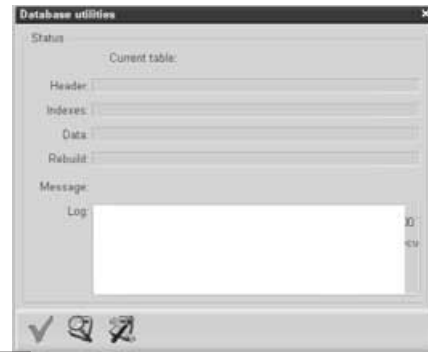


Figure 24 "Maintenance" database window.

**Import configuration file:** Click-on this option, all the data customer will be imported from a single file.

### ■ Communication

In this menu: the option **Firmware Upgrade** only.

**Firmware upgrade** Click-on "Firmware Upgrade": the window (see figure 22) will be shown.

From a source file, this option allow you to do the Firmware Upgrade of all system interface: Mainboard, User interface, Loop controller.

### ■ Options

In this menu you find the options: serial Port and Language. See the previous paragraph: "Select language" and "Control panel connections".

### ■ Database

The Database menu provides the following options: **Maintenance** and database **Options**.

**Maintenance** This option opens the window in figure 24 where you can check the database. If faults will be found, you can do the database rebuilt.

**Options** This option opens the window in figure 23, where you can program the delay between more database checks, and more database backup.

### ■ Help

Click on **Help** option; a technical support file will be opened. This application allows you the learning and the use of FireClass 500 Console software.

## Devices programming

Click-on Control panel name, and than on Loop1 or Loop2, the devices programming window will shown (Figura 24).

Close Loop1 or Loop 2 name, in the round brackets ( ) there is the Loop devices number.

### ■ Description of the icons in the tool bar.

- New Device: select new devices;

- Remove device: remove the installed devices;
- Copy device on clipboard: allow you to copy the devices data and after paste them in another customer.
- New device from clipboard: allow you to copy the devices data from a customer and after paste them in another customer.
- Upload from board: to download the programming (via serial link) to the connected control panel.
- Download to board: to upload all the programming (via serial link) of the connected control panel.
- Device's details: a further window allow you to see the points and the Outputs where the devices is enabled.
- Select: allow you to select all present devices.

*If different devices have common programming parameters, you can use the multiple selection of the devices and assign the same parameters.*

**Select devices** Click-on **Panel 1**, select **Loop 1** or

**Loop 2**, click on "new device" , the window in Figure 25 will shown:

select the programming devices, enter a valid address,

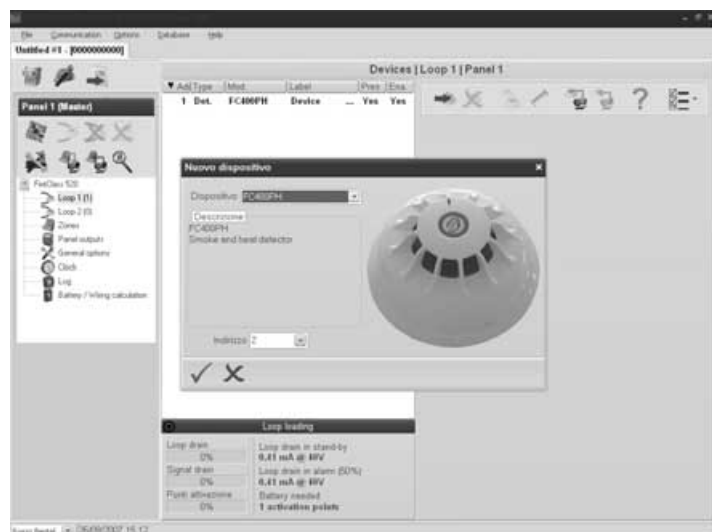


Figure 25 Devices programming window


Detector Class	Typical application Temperature °C	Max. Application Temperature °C	Min.Static Response Temperature °C	Max.Static Response Temperature °C
A1	25	50	54	65
A2	25	50	54	70
B	40	65	69	85
C	55	80	84	100
D	70	95	99	115
E	85	110	114	130
F	100	125	129	145
G	115	140	144	160

**Table 6 Detector classification Temperature** - Detector shall conform to one or more of the following classes: A1, A2, B, C, D, E, F o G . Manufacturers may optionally give additional information concerning the type of response exhibited by the detector, by adding the suffix S or R to the above classes.

Detectors, with a suffix **S** to their class, do not respond below the minimum static response temperature, even at high rates of rise of air temperature.

Detectors, with a suffix **R** to their class, incorporate a rate of rise characteristic, which meets the response time requirements for high rates of rise of air temperature even when starting at air temperature substantially below the typical application temperature (EN54-5:2000).

and after click-on ✓ OK to put the devices in configuration. For others devices, repeat the same procedure.

**Remove devices** Select the device, therefore click-on "Remove device" , and confirm the choose ✓ OK.

**Loop Loading** At the end of "Device programming window", Figure 25, there is a Loop Loading section. Here, the "Loop drain" and the "Signal drain" will be shown . On the right, the "Loop drain in stand by", the "Loop drain in alarm (50%)", and the "battery needed" will be shown.

The percentage shown in the "Loop drain in alarm (50%)" is the programmed value in "Battery calculation" an option of Configuration menu (see dedicated paragraph).

### Parameters detectors programming

Click-on device in configuration, the relative programming window will shown (every device has the dedicated programming window).

For the detectors (see figure 26); in the **Multiple sources section**:

- **Enable:** a tick [✓] indicates if the detector is enable.
- **LED Blinking:** a tick [✓] indicates if the LED detector is enable or disable.
- **Label:** this is for the editable device-label. The system will use the label as the device identifier.
- **Address:** in this field you can modify the address of the detector;

### Options section:

- **assigned zones:** each fire detector, Input module and Manual call Point can be associated with 1 of the available software zones (64 for FC510, 128 for FC520 control panel). If a device

ce goes into ALARM status, all the zones it is connected to (assigned zones) will also go into ALARM status.

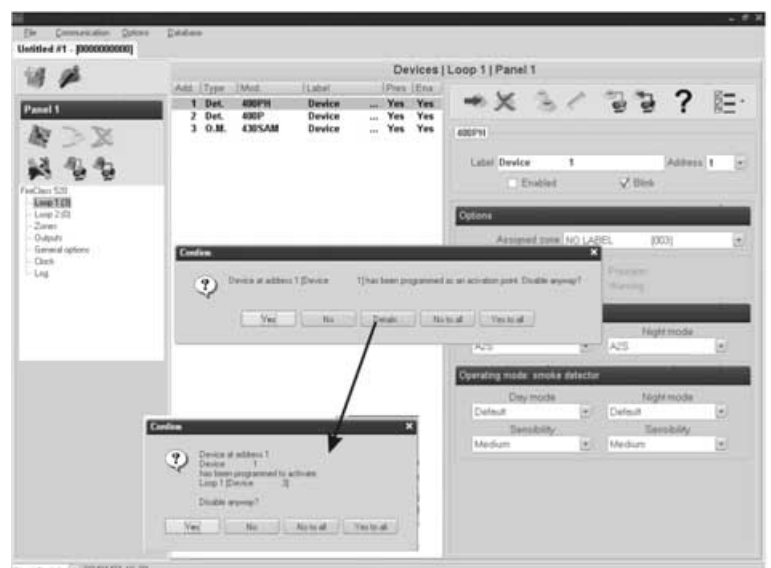
- **Base** In this section it is possible to select the base for the detector (click on available bases).

### Processing section:

**Processing:** this determines the actions the control panel will perform when the device threshold is exceeded.

**Drift Compensation:** Drift compensation effects analogue smoke sensors only.

It will supply a precise analysis about dust accumulation, and therefore, the alarm threshold will be modified accordingly.



**Figure 26** Detector Disablement confirmation window.

**Use zone setting:** the detector uses the parameters of the assigned zone; if this option is disabled, the processing type will be selected.

**Prealarm** - the control panel will activate the ALARM delay;

**Warning** - the control panel will activate a WARNING signal.


#### **Operating mode Heat detector:**

Day mode-Night mode for Temperature detector (see table 6).


**Operating mode Smoke detector:** Day mode-Night mode for Smoke and Heat detectors:

- **Default:** for smoke detectors only (813P) and for Smoke and Heat detectors only (801PH)
- **Enhanced:** (for Smoke and Heat detectors only)
- **Sensitivity:** Sensitivity can be set:  
**Low, Medium and High.**

---

 *Click-on red bar to open or close the relative section of parameters programming*

---

 *If a detector linked to an Output or Input-Output Module, will be disabled (remove a tick [✓] in the proper section), a window will be shown to ask confirmation. Click on Detail to see further data (Figure 26).*

---

#### ■ **Input modules programming**

Click-on an entered **Input Modules**, the relative programming window will be shown as per the following description.

**Input module section:** as per the same Detectors section;

**Assigned zones:** as per the same Detectors section;

**Operating mode section:** select the operating mode style: B, C, D, E.

There are two operating modes:

**A=** 4 wires connection mode (Loop)

**B=** 2 wire connection mode;

and there are 4 operating mode styles: B, C, D, E;

- **B style:** two wire connection mode: the short-circuit condition as an Alarm condition.
- **C style:** two wire connection mode: the short-circuit condition as a Fault condition.
- **D style:** Four wire connection mode (Loop): the short-circuit condition as an Alarm condition (Future use).
- **E style:** Four wire connection mode (Loop): the short-circuit condition as a Fault condition (Future use).

**Processing section:** as per the same Detectors section.

#### ■ **Output modules programming**

Click-on an entered **Output Modules**, the relative programming window will be shown as per the following description.

**Output module section:** as per the same Detectors section;

**Assigned zones:** each Output module can be associated with up to 4 of the 64 available software zones for FC510 control panel, (128 for FC520). An Output module will be activated when the zones where it is enabled will go into ALARM status.

**Base** In this section it is possible to select the base for the Output module, click on available bases (for FC430SAM and FC430SAB only).

**Assigned points:** each Output module can be associated with 3 Input Points. If any one of its Input Points goes into ALARM status, the Output module will be activated. For each Point it is necessary to indicate:

- the loop the device is connected to (**1 or 2**);
- the device address.

**Options section:** this option will allow you to select the conditions that will activate the output module:


- Zone warning, Zone fault, Zone Prealarm, Zone Alarm, Zone Double Knock;
- Point warning, Point fault, Point Prealarm, Point Alarm,
- Panel warning, Panel fault, Panel prealarm, Panel alarm,
- Network warning, Network fault, Network prealarm, Network alarm,

moreover it is possible to program the Output Module as: Silenceable, Pass through and Walk test.

#### ■ **Multiple Input-Output Module - Programming Parameters (FC410MIO)**

Click-on an entered **Multiple Input/Output Module FC410MIO** (3 Input Modules and 4 Output Modules, see the customized Manual), the relative programming window will be shown.

---

 *Click-on red bar to open or close the relative section of parameters programming*

---

The description is as per the same Input/Output Modules section. Compared to this paragraph, there is a further field "Label" where a description of Input/Output Module will be inserted.

#### ■ **Manual Call Point programming parameters**

Click-on a **Manual Call Point (FC420CP)** the relative programming will be shown as per the following description.

**Manual call point section:** come per i Sensori

**assigned zones:** each Manual Call Point can be associated with 1 of the available software zones (64 for FC510, 128 for FC520 control panel).

- **Led blinking on polling:** if this option is enabled, the Manual Call Point LED will blink every Loop scanning.

## Zones programming

The **Zone** option from the pull-down menu will allow you to access the software-zone parameters (see Figure 27).


The software zones parameters will be applied automatically to all the devices associated with the zone concerned.

**First section** (see Figure 27) on the right;

- **Enable:** a tick  indicates if the zone is enable.
- **Label:** this is for the editable device-label (up to 20 characters). The system will use the label as the zone **identifier**.
- **Prealarm Duration:** an input device programmed with Prealarm time will generate ALARM status when the prealarm time elapses. (see parameters programming detector).  
Select the Prealarm time;  
the default prealarm time is 1 minute.  
Enter values of 0.00 through 10.00 minutes with steps of 5 seconds.

**Options section:** many parameters can be programmed in this section.

- **Walk test:** if this option is enabled, the zones in alarm status will activate the programmed Outputs with Walk test, while the control panel will not generate an alarm.
- **Warning:** if this option is enabled the control panel will activate a WARNING signal.
- **Prealarm:** if this option is enabled, the control panel will activate the ALARM delay.
- **Drift Compensation:** see the same option in "Parameters detectors Programming";
- **Double Knock:** if this option is enabled and the zone is in Prealarm status, when an other devices (other address) associated to this zone will be activated, the zone will immediately generate an Alarm status.

 Click on Zone number to see which devices are enabled on that zone. Moreover a double click on associated device to zone, opens a Details Device window.

## Outputs Programming

The **Outputs** option from the pull-down menu will allow you to access the outputs parameters. The relative programming will be shown as per the following description (see Figure 28).

### ■ NAC1, NAC2 and NAC3 Outputs

Supervised/Silenceable/Bypassable Alarm Outputs.

Output ACTIVE: positive pull-up to 27.6 V on the [+] terminal; negative pull-down to 0 V on the [-] terminal.

Click-on a Output, the relative programming window will be shown:

In the **first section:**

- **Enable:** a tick  indicates if the zone is enable.
- **Label:** this is for the editable Output-label. The system will use the label as the Output **identifier**.

**Assigned zones:** each Output can be associated with up to 4 of the available software zones (64 for FC510 128 for FC520 control panel).

**Assigned points:** each Output can be associated with 3 Input Points. If any one of its Input Points goes into ALARM status, the Output will activate. For each Point it is necessary to indicate:

- the loop the output is connected to (**1** or **2**);
- the address.

**Options Section:** these options will allow you to select the conditions that will activate the outputs; example: if "Zone warning" option is enabled, the control panel will activate the output when one of its associated points goes into Warning status.

- Zone Warning, Fault Zone, Prealarm Zone, Alarm Zone, Double knock (see Zones programming), Pass through;
- Point Warning, Point Fault, Point Prealarm, Point Alarm, Silenceable,
- Panel Warning, Network Warning, Panel Fault, Network fault, Panel Prealarm, Network prealarm, Panel Alarm, Network alarm.

### ■ OS1...OS8 Outputs

Positive outputs - Programmable - SUPERVISED — Terminals for supervised devices activated by positive (24 V):

Output active — positive (27.6 V) on terminal [OS]; ground on terminal [M].

See the parameters descriptions as per Uscite NAC1, NAC2, NAC3 Outputs.

### ■ O9...O16 Outputs

These are programmed, NON-SUPERVISED, non-silenceable, bypassable outputs.

These are normally-open terminals (open-collector) which close to ground when the corresponding zones go into alarm status. These terminals will remain closed to ground even after the generating event has ended.

See the parameters descriptions as per NAC1, NAC2, NAC3 Outputs.

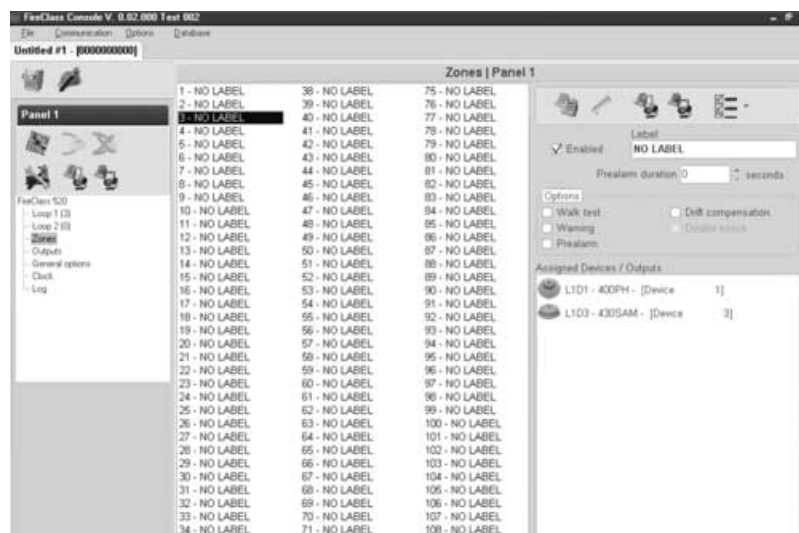


Figure 27 Zones Programming window.

## General Options programming

The Panel parameters can be programmed through the **General Options** from the pull-down menu (see Figure 29).

**Delay section** In this section it is possible to program:

- **Recognition delay:** a **Delay** will be added automatically to the Prealarm remaining delay, when the **Investigate** Key will be pressed.

☞ *The sum of **Recognition delay** and **Prealarm Time** must not exceeded 10 minutes*

**Main Fault delay:** in this field it is possible to program the delay of signalling of Mains failure. The green signalling LED (Main OK) will be OFF, the Amber signalling LED (Main Fault) will be ON, the relativ event will be shown on the display.

**Prealarm duration:** an input device programmed with Prealarm time will generate ALARM status when the prealarm time elapses.

Prealarm status is signalled by: an audible signal emitted by the control panel;

- blinking on the PREALARM LED;
- the message on the display;
- activation of outputs with programmed Prealarms.

**Silence duration:** when the control panel is in **Night Mode** the Silence delay is the maximum silence time of the Outputs.

**Password section:** the **Password** section will allow you to change the **Installer** and **User** codes. Codes with 1 to 5 digits (0 through 9).

Installer code allows to manage the 3 access Levels of control panel: L1(View), L2 (User), L3 (Installer).

The **default installer** code is **00000**: every digit will be hidden by \*(star) symbol.

User code allows to manage 2 access Levels of control panel: L1(View) and L2 (User).

The **default User** code is **11111**: every digit will be hidden by \*(star) symbol.

**Loop section:** in this section select the required Loop configuration: a 2 wire connection or a 4 wire connection.

**Language section:** select the available language the display of Control panel and Repeater will use. It is possible to upload others languages from the software.

**Day-Night mode section:** select the DAY or NIGHT mode, or a tick [✓] on **Automatic** enter the time (hour and minutes) when the day-night mode changes.

**FC500REP:** a tick [✓] enables the Repeater faults signalling.

**Network:** a tick [✓] on **Enable Network** enables the Slave control panel on the Network, and a tick [✓] on **Network Com-**



Figure 29 General Options programming window.

**mands** enables the Control panels that have the same tick [✓] to do the commands (Reset, Silence, Investigate) programmed in other Network control panels.

In the section **Network** (low in the page Figure 29): the options **Linked slaves** and **Linked repeaters** allow you to enable Slave control panels and Repeaters.

**NAC Fire:** a tick [✓] indicates if the NAC FIRE is disabled.

**Conventional zone:** a tick [✓] indicates if Conventional zone is disabled.

☞ *The Slave control panel address can be inserted from the User interface of the same control panel; the Repeater address can be inserted from the panel of the same Repeater (see Programming from the panel).*

## CLOCK

The **Date/Time** option from the **CLOCK** menu is for the control panel clock settings.

Enter the required Time and Date.

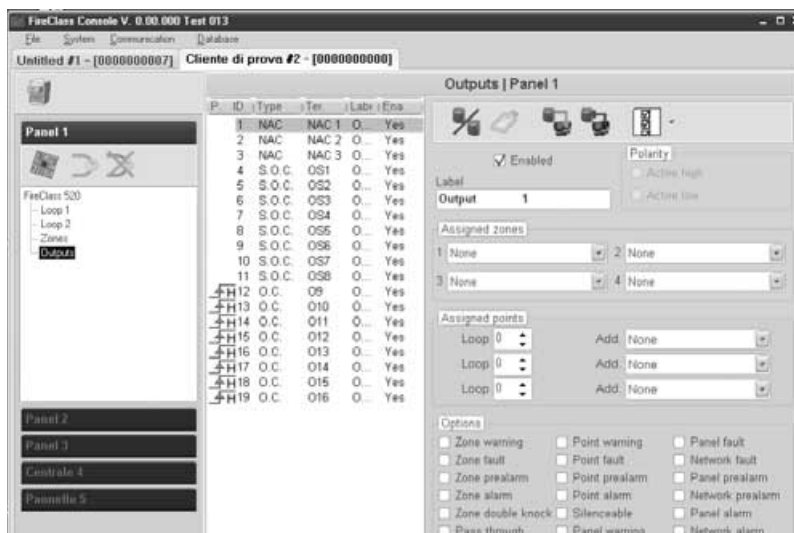


Figure 28 Outputs programming window.

## LOG

This option allows to read the **Log** stores events.

When a Customer will be closed, the system save automatically the present LOG. In this way the LOG is always updated.

Description of the icons in the LOG bar:



Up load from Board: click-on this icon to upload the LOG of the connected control panel.



Export LOG to file: click-on this icon to export the LOG in a .fcl file.



Import LOG from file: click-on this icon to import the LOG from a .fcl file.



Apply filter: click-on this icon to select the LOG filter (if necessary):

- No filter
- Restore
- Alarm
- Prealarm
- Warning
- Fault
- Generic
- Walk test



Filter: click-on this icon to select others LOG filter (if necessary):

- Filter by panel
- Filter by Loop
- Filter by device
- Filter by zone.

The following data will be stored in the LOG:

the Event's Number, the Date, the Time, the Class (Fault, Alarm, Warning, Generic and Walk test), the Event's description, the Control panel number, the Loop, the Device type, the Status, the Threshold and the Zone.

## Battery Calculation

The Battery calculation window allows you to see (Figure 31):

- the FireClass500 Loads
- the Loop1, Loop 2 devices loads in the condition of **Normal Load** and **Alarm Loads** (percentage of devices in alarm status), when the Mains faults.

Below this window, in the option "Others Load", if needed, the Loads on Auxliary terminals will be inserted. Automatically the **Total Load** and the **Battery needed** will be shown.

Fixed the **Stand-by hours**, **Alarm minutes** and **Alarm percentage** values the calculation will be done.

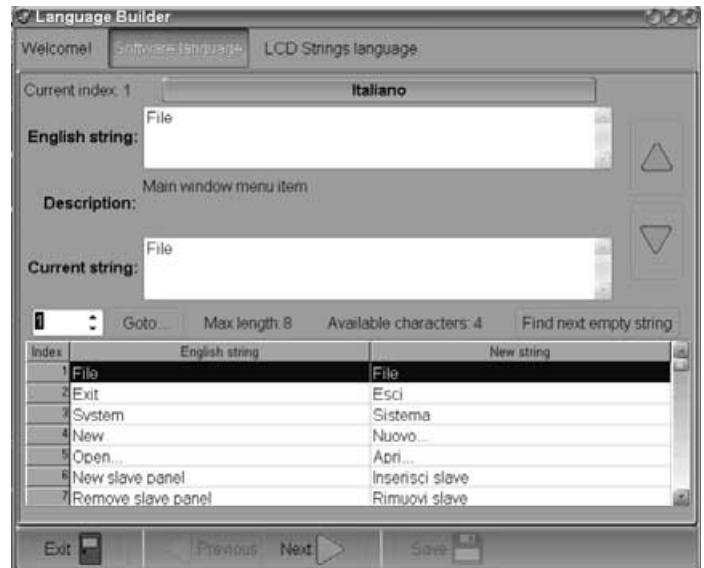


Figure 30 Create/modify language window

### Battery calculation Parameters:

- Stand-by hours (From 1 to 144 h)
- Alarm minutes (From 1 to 240 h)
- Alarm percentage

**Battery Type:** this is the battery (Ah) arising from calculation.

### Battery calculation constraints:

- Lock stand-by hours
- Lock battery type.

**Lock stand-by hours:** "Battery Type" value (Ah) will be calculate, fixed **Stand-by hours**, **Alarm minutes** and **Alarm percentage** ;

**Lock battery type:** "Stand-by hours" value will be calculate, fixed **Battery Type** (Ah), **Alarm minutes** and **Alarm percentage**.

*The software calculation is a rough calculation and cannot substitute the Installer and/or Qualified person calculation.*

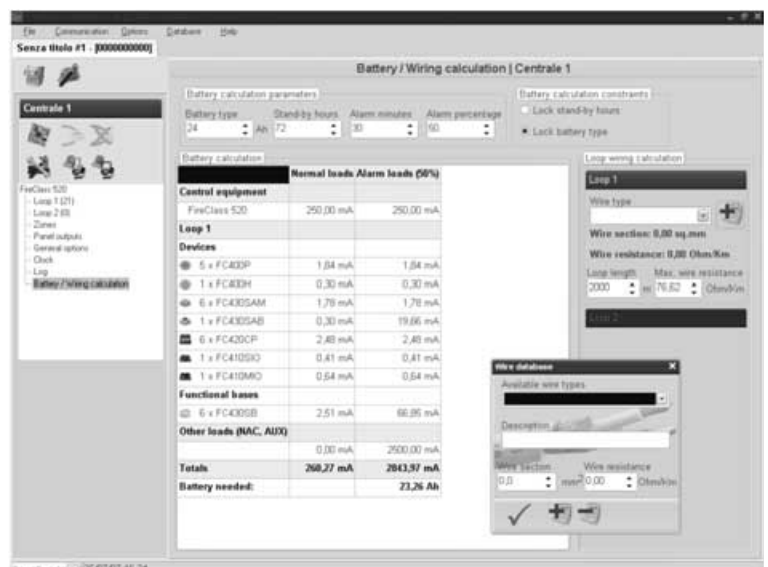



Figure 31 Battery calculation window

## Loop Wiring calculation

In the same Battery Calculation window (see Figure 31), on the right, FireClass500 Console allows you the **Loop Wiring Calculation**.

After the Loop devices have been programmed, clicking on Loop1 or Loop 2 field (Installation Loop), the **Loop Wiring Calculation** window will open. Insert the wire type in the **Max wire Resistance** field (value in Ohm/Km); automatically, the max Loop length will be shown in the **Loop Length** field (value in m.) .


Vice versa, inserted the **Loop Length**, automatically, the **Max wire Resistance** (Wire type) will be shown.

 Clicking on this Icon the **Wire database** will be open. In this database it is possible to insert many type of wires and so these type of wires will be used in the Loop wire calculation.

## LangBuilder

The **LangBuilder** application will allow you to customize a language:

- the terminology used in the Fire Software suite applications is called the **Software strings**;
- the Templates used on the FC500 control panel display, and Repeater panel display is called **LCD pages**;
- the terminology used on the FC500 control panel display, and Repeater panel display is called **LCD strings1** and **LCD strings2**.

 The source language of the **LangBuilder** application is English.

### ■ Create/Modify language

To create/modify language work carefully through the following steps:

1- In the LangBuilder main window (see Figure 33) insert the name of new language to create in the field "**Language name**", than press the "**Next**" key.

2- In the following window (see Figure 30), insert the translations in the "**English string**" field into "**Current string**" field. Under this field the description of the term to translate is shown. The new translated word will be inserted in the "**New string**" field. You can use 28 characters for every new translation.

3-Use UP or DOWN arrows to select the terms to translate. You can also use the **Goto** field: select



Figure 33 LangBuilder main window

the number corresponding to the word to translate.

4-After the new translated words (new language) have been inserted, press the "**LCD Strings Language**" or the "**Next**" key to translate the LCD strings. The window in figure 32 will be shown.

5-Insert the new translated Strings in the "**Current LCD string**" field.

It is possible to modify the LCD part white coloured ONLY, while that one pink coloured cannot be modified.

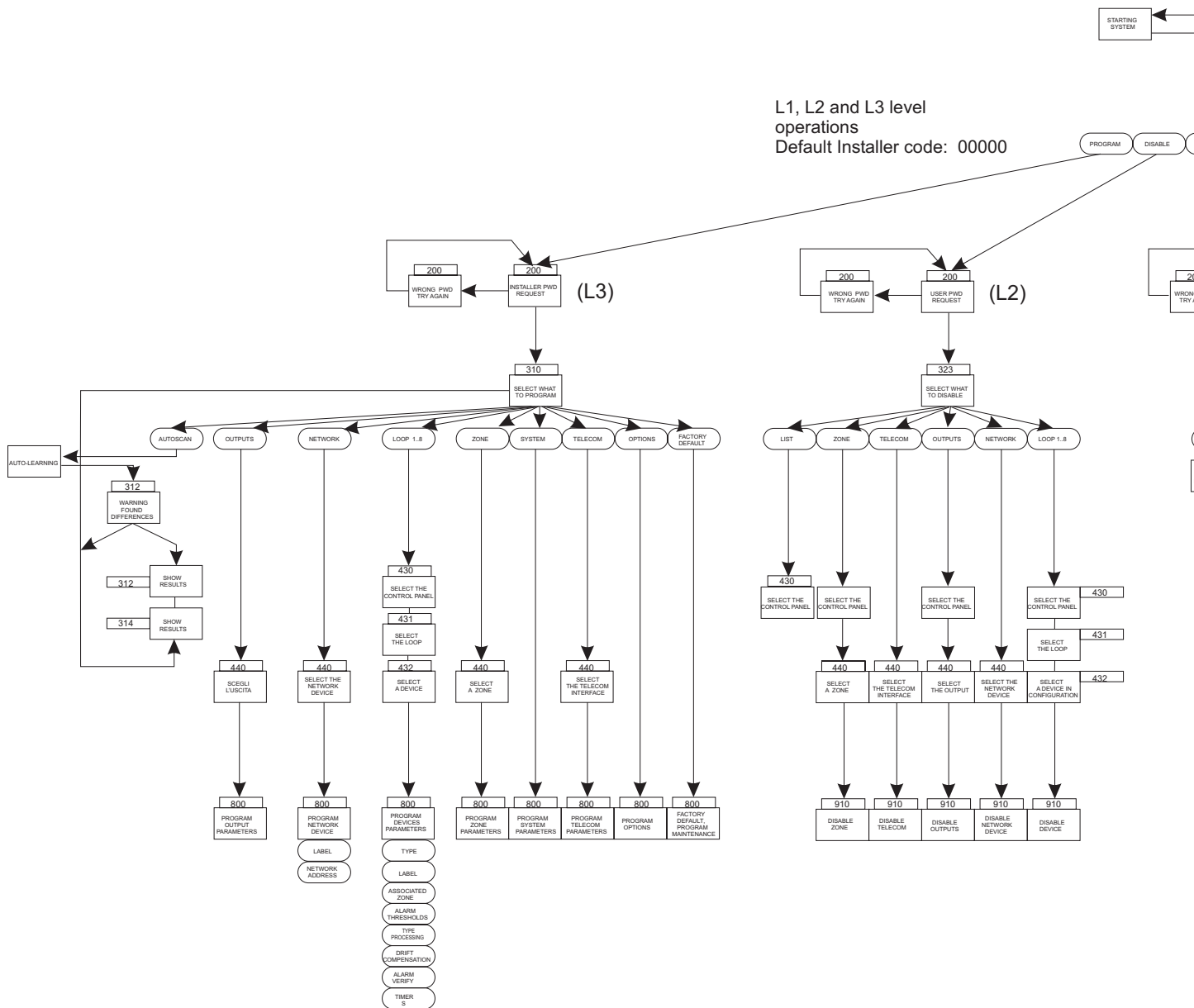
In this way you can obtain all the "**LCD pages**", than press the "**Next**" key.

6- See figure 32, in this windows you can translate the "**LCD Strings**".

7-At the end, press "Save" key to save the new language; confirm before continuing.



Figure 32 LCD strings window



**Figure 34** Diagram of all possible operations from the panel, L1, L2 and L3 Levels (some operation is not available).



# PROGRAMMING FROM THE PANEL

Read through the following section carefully, in order to get an overall view of how to use the User interface Programming (Main panel) of control panel.

For details regarding the parameters of each phase, refer to the respective paragraph in the "PROGRAMMING FROM A PC" chapter.

## Using the system

The FC500 system can be managed from the User interface (main panel) and/or through the FireClass500 Console application (the computer must be connected locally via RS232 serial port). The User interface (main panel) allows access to different Level authorized.







There are three different access levels, as follows.


**L1= First Level:** this level allows the Reading Parameters ONLY:  
LOOP, DEVICES, LOG.

**L2= Second Level or USER Level:** access to this level requires entry of the USER PIN (Access Level 2). This level allows all the operations of the First Level, moreover allows to **MODIFY**:  
THE USER PASSWORD, CLEAR LOGGER; or allows: to **DISABLE** the control panel peripherals and delete (clear) the Log.

**L3= Third Level or INSTALLER Level:** access to this level requires entry of the INSTALLER PIN (Access Level 3). This level allows all the operations of the First and Second Level, moreover allows to program the security system; the **Programming** phase allows the installer to program the control panel and peripheral devices (detectors, modules, repeater and slave panels), in details:  
AUTO, NETWORK, DEFAULT, L3 PWD;  
the following options must be defined: OUTPUTS, LOOP1..8, ZONES, SYSTEM, TELECOM INTERFACE, OPTIONS.



## ■ Operating the system



To manage the system from the User interface (Main panel) is used the Alphanumeric keypad, the Cursor keys, the ESC Key , the ENTER key  and the Functions Keys F1 , F2 , F3  and F4 .

 *In detail the use of Alphanumeric keypad, the Cursor keys, the ESC Key, the ENTER key and the Functions Keys F1, F2, F3 and F4 is shown in every page of PROGRAMMING/DISABLE/MODIFY/READING PARAMETERS.*


**Editing a text** Use the Alphanumeric keypad to create labels and enter data and codes.

Use **LEFT**  and **RIGHT**  keys to scroll along the line, then press the alphanumeric key to insert in the selected position.

Use the **UP**  key for upper-case letters and the **DOWN**  key for lower-case letters.

Once the text has been completed, press the ENTER  key to confirm and step forward, or position the cursor on the first letter of the text then press the  key to step back

The Zero key allows to insert some punctuation marks, (full stop, comma and hyphen) and the blank (Future Use).

 *In the following pages are shown all possible operations managed at **Level 3 (Installer Level)**. The operation managed at **Level L1 and L2 (User Level)** are shown in the User Manual.*

## Main Page - Accessing the system

After this Control panel has been installed and powered from the Mains (230V/50 Hz), the main page of the display shows as per Figure 35.

In this phase:

**Alphanumeric keypad** No function is related to Alphanumeric keypad.

**Cursor keys** The **UP** Key: increase the brightness of LCD display;  
the **Down** Key: decrease the brightness of LCD display;  
the **Right** Key: increase the contrast of LCD display;  
the **Left** Key: decrease the contrast of LCD display;

**ESC Key** No function is related to ESC key.

**ENTER Key** No function is related to ENTER key.

**Function Keys** Use **F1** Key to select the **Programming** or **Disable** phase;

Use **F2** Key to show the List Disabled devices or to select the **Analyze** phase;

Use **F3** Key to select the **Modify** phase or to show the events in the LOG;

Use **F4** Key to select the related functions to F1, F2, F3 Keys.

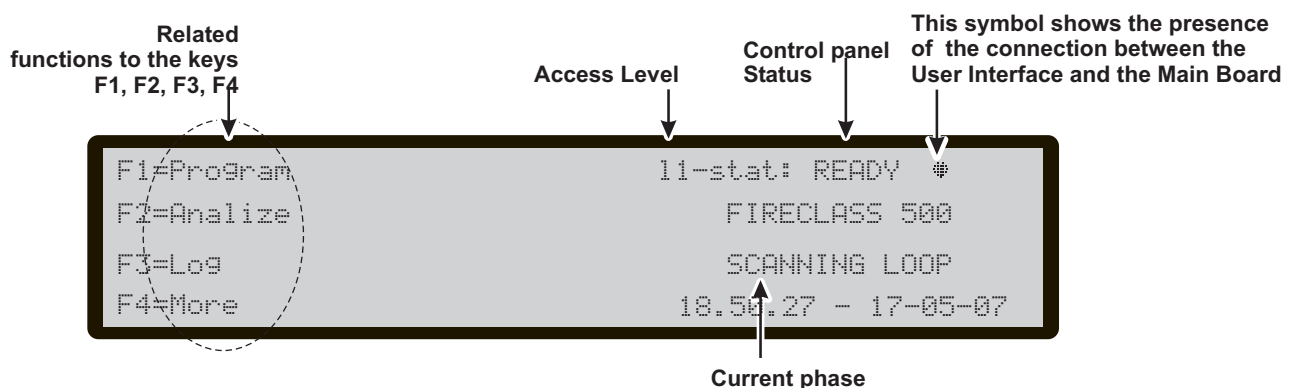


Figure 35 The Main Page of Display

## Insert password

After the **F1 Key** is pressed the Figure 36 will shown; in this phase:

the **default** installer code is **00000**: every digit will be hidden by \*(star) symbol.

**Alphanumeric keypad** Use the Alphanumeric keypad to insert the password of **5 digit**.

**Cursor keys** No function is related to **UP** key.  
No function is related to **Down** key;  
No function is related to **Right** key;  
No function is related to **Left** key.

**ESC Key** Use the **ESC** key to cancel the input of password and to step back to previous page.

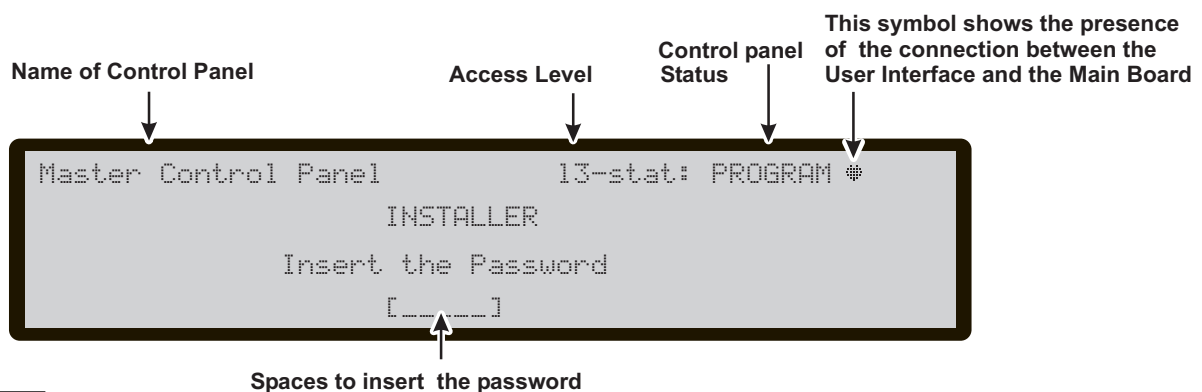
**ENTER key** Use the **ENTER** key to confirm the password.

**Function key** No function is related to **F1** key.

No function is related to **F2** key.

Use the **F3** key to cancel the digits of password, if mistaken; insert the new digits;

No function is related to **F 4** key.



**Figure 36** *Insert password (Installer code).*

## Programming Page

From Main page, use the **F1** Key to select the Programming phase. Insert the password (installer code) and then the page is shown in Figure 37 :

**in this phase:**

**Alphanumeric keypad** Use the Alphanumeric keypad to select the different programming functions:

**1= Auto:** start the auto-learning of the loop devices and the RS485 network devices automatically;

**0= L3 PWD:** start the page to insert the password of L3 level (Installer code) (see **Insert-Modify password** page);

**5= Network:** start the programming page of the RS485 network devices

 *The following options must be defined.*

**2= FC Dev:** start the selection and programming page of the loop devices;

**3= SW Zones:** start the programming page of the software zones;

**4=Outputs:** start the programming page of the Outputs;

**6= Telecom:** start the programming page of the telecommunication devices;

**7=Options:** start the programming page of the options;

**8=System:** start the programming page of the system parameters;

**Cursor keys** No function is related to **UP** key.

No function is related to **Down** key;

No function is related to **Right** key;

No function is related to **Left** key.

**ESC Key** Use **ESC** key to cancel the operation and to step back to previous page.

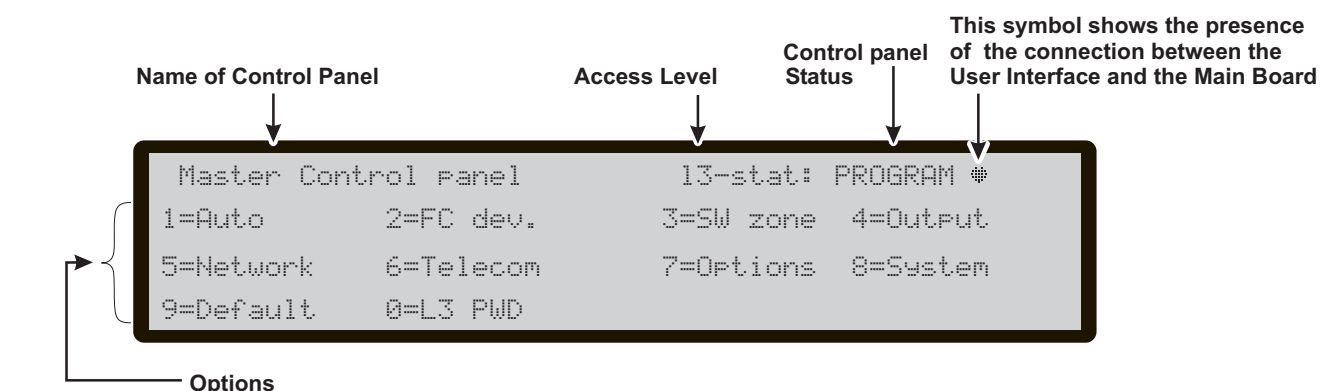
**ENTER Key** No function is related to **ENTER** key

**Function Key** No function is related to **F1** key;

No function is related to **F2** key;

No function is related to **F3** key;


No function is related to **F4** key.



**Figure 37** Main programming page

## 1 KEY- Auto Enrolling (Autolearning)

The **Auto** option from the **PROGRAMMING** menu will allow you to enrol the loop devices and the RS485 network devices automatically.

 *Autolearning (enrolling) can be done during the installation phase and after changes of the loop and network configurations.*

Use the **1 Key** to select **Auto** option, the display will show the Figure 38:

in this phase:

**Alphanumeric keypad** No function is related to Alphanumeric keypad.

**Cursor Keys** No function is related to **UP** Key;  
No function is related to **Down** Key;  
No function is related to **Right** Key;  
No function is related to **Left** Key .

**ESC Key** Use **ESC** key to cancel the operation and to step back to previous page.

**ENTER key** Use **ENTER** key to view the page of the Loop details.

**Function Keys** No function is related to **F1** key;  
No function is related to **F2** key;  
No function is related to **F3** key;  
No function is related to **F4** Key.

### Warning Enrolling (Autolearning)

When there are some differences between the present configuration and that of the Enrolling (Autolearning) results, the display will show the Figure 38b:

in this phase:

**Alphanumeric keypad** No function is related to Alphanumeric keypad.


**Cursor Keys** No function is related to **UP** Key;  
No function is related to **Down** Key;  
No function is related to **Right** Key;  
No function is related to **Left** Key.

**ESC Key** Use **ESC** key to cancel the operation and to step back to previous page.

**ENTER Key** Use **ENTER** Key to confirm the results of Enrolling (Autolearning).

**Function Key** No function is related to **F1** Key;  
No function is related to **F2** key;  
No function is related to **F3** key;  
No function is related to **F4** Key.

In both cases: Auto OK or NOT, the Loop details will shown (see Figure 38c).

 *Attention: when the Enrolling is done, the devices programming data (except their assigned names) will restore to the manufacturers settings (Default) ; therefore a previous configuration will be lost.*

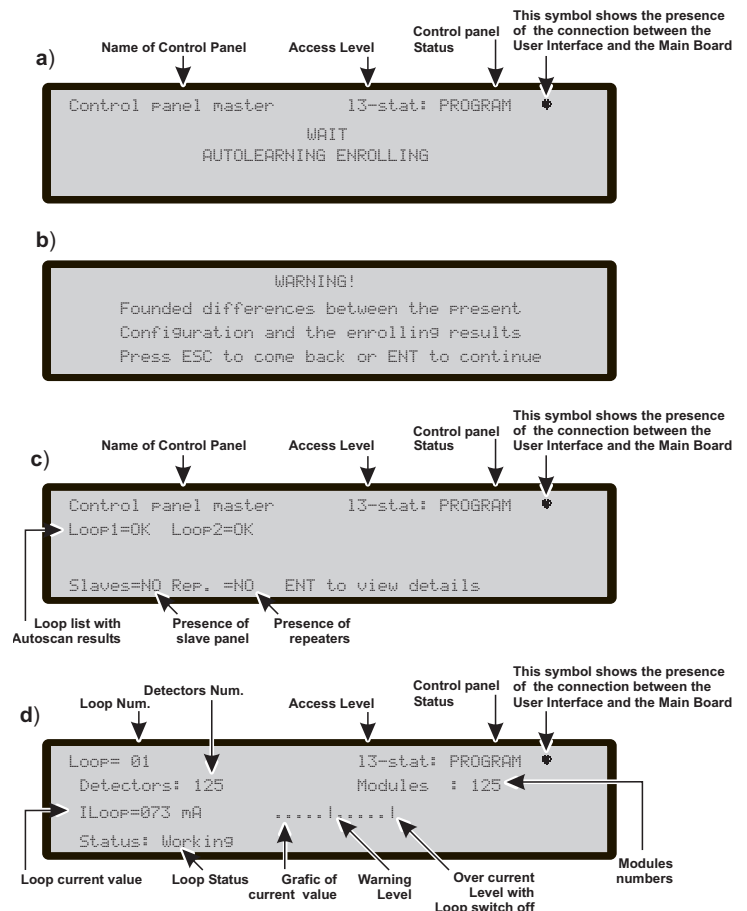


Figure 38 Auto (Enrolling) results pages

## 0 KEY - insert-Modify password

In this phase (see figure 39):

Installer Code at Default is 00000; every digit will be masked by \* symbol.

**Alphanumeric keypad** Use the Alphanumeric keypad to insert the password of **5 digit**.

**Cursor keys** No function is related to **UP** key.  
No function is related to **Down** key;  
No function is related to **Right** key;  
No function is related to **Left** key.

**ESC Key** Use the **ESC** key to cancel the input of password and to step back to previous page.

**ENTER key** Use the **ENTER** key to confirm the password.

**Function key** No function is related to **F1** key.

No function is related to **F2** key.

Use the **F3** key to cancel the digits of password, if mistaken; insert the new digits;

No function is related to **F4**.

## 9 KEY- Restore Default

The Restore Default option from the PROGRAMMING menu will allow you to restore default setting.

Use the **9 Key** to select **Restore Default**, the display will show the Figure 40:

in this phase:

**Alphanumeric keypad** No function is related to Alphanumeric keypad.

**Cursor Keys** No function is related to **UP** Key;  
No function is related to **Down** Key;  
No function is related to **Right** Key;  
No function is related to **Left** Key .

**ESC Key** No function is related **ESC** key.

**ENTER key** No function is related **ENTER** Key.

**Function Keys** No function is related to **F1** key;  
No function is related to **F2** key;  
No function is related to **F3** key;  
No function is related to **F4** Key.

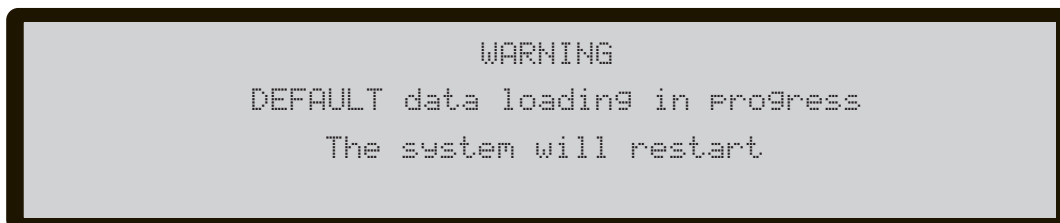


Figure 40 Restore default page

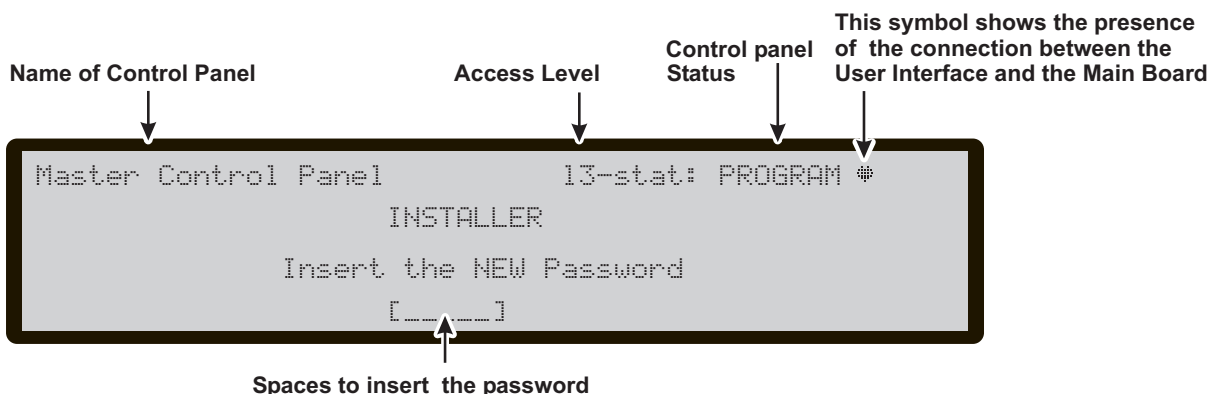



Figure 39 Insert-Modify password (Installer code).


## 5 Key- Network

At default, every FC500 Control panel is a Master Control Panel disabled in the Network.

 If a control panel is already configured as "Master", **verify**, via PC, if it is enabled in the Network.  
If a control panel is already configured as "Slave", in the new installation, insert the Slave address from the user interface of the Control panel itself.  
In the Network **ONLY** one Master control panel must be present.

When all the Control panels and the Repeaters are connected in the Network, the system can be supplied. Now it is necessary to configure the Network, so work through the following steps:

- 1- use the 5 Key to select **Network**, from Programming page (Figure 37) in the User interface of the control panel to be configured;
- 2- the Display of Figure 41 will be shown;
- 3- use the cursor keys to select the type of control panel assigned as "Slave" (address);
- 4- use the Enter key to confirm.

 Every "Slave" control panel inserted in the Network must have a different address.

**Alphanumeric keypad** No function is related to Alphanumeric keypad;

**Cursor Keys** No function is related to **UP** Key;  
No function is related to **Down** Key;  
Use the **DX** key to move on the Right to select the type of the control panel.  
Use the **SX** key to move on the Left to select the type of the control panel.

**ESC Key** Use **ESC** key to cancel the operation and to step back to previous page.

**ENTER Key** Use the ENTER Key to confirm the address.

**Function Keys** No function is related to **F1** key;  
No function is related to **F2** key;  
No function is related to **F3** key;  
No function is related to **F4** Key.



**Figure 41** Display to enable (address) the FC500 Slave Control Panel.

## FC500REP Repeater Address from the Repeater panel ONLY

After the FC500 control panel has been connected, at the first start-up the FC500REP will verify the presence of the address and its conformity. If the address is correct, the Repeater will start to work; on the contrary the display will ask to insert a new address; the display of Figure 42 will be shown; in this phase:


**Alphanumeric keypad** Use the alphanumeric keypad to insert the address of 1 digit.

**Cursor Keys** No function is related to **UP** Key;  
No function is related to **Down** Key;  
No function is related to **Right** Key;  
No function is related to **Left** Key.

**ESC Key** Use **ESC** key to cancel the operation and to step back to previous page.

**Tasto ENTER** Use the ENTER Key to confirm the address.

**Function Keys** No function is related to **F1** key;  
No function is related to **F2** key;  
No function is related to **F3** key;  
No function is related to **F4** Key.

 *If for any reason the address of a repeater is changed by mistake, the system will show the message of the Figure 43, in this case the address of the repeater will be changed using the ESC key.*

## NETWORK Configuration

Two ways are available to enrol the Network:

**first:**

1- the Master Control panel can do the Enrolling (autolearning) after one or more Slave Control panels and one or more Repeaters have been enabled in the network (see previous paragraphs);

1a- use the 1 Key to enroll (see page 44);

1b- use the "Upload from board" key (Software FireClass500 console) in the Master control panel;

**second:**

2- Use the Software (FireClass500 console) to insert one or more Slave Control panels (from Master control panel);

2a- Use the "General Options" section (FireClass500 console) in every Slave control panels to enable the Slave panel in the network;

2b- Use the "General Options" section (FireClass500 console) in the Master control Panel to enable the Slave Control panels, the Repeaters and the Master control panel itself in the network .

2c- Use the " Download to board" key.

After the "Auto" Enrolling the system configure the Network devices (Slave control panels and Repeaters) and besides the Loop devices.

At the end of the "Auto" Enrolling, the "Master" control panel can manage the "Slave" control panels and the Repeaters.



Figure 43 Display "the repeater link is down"

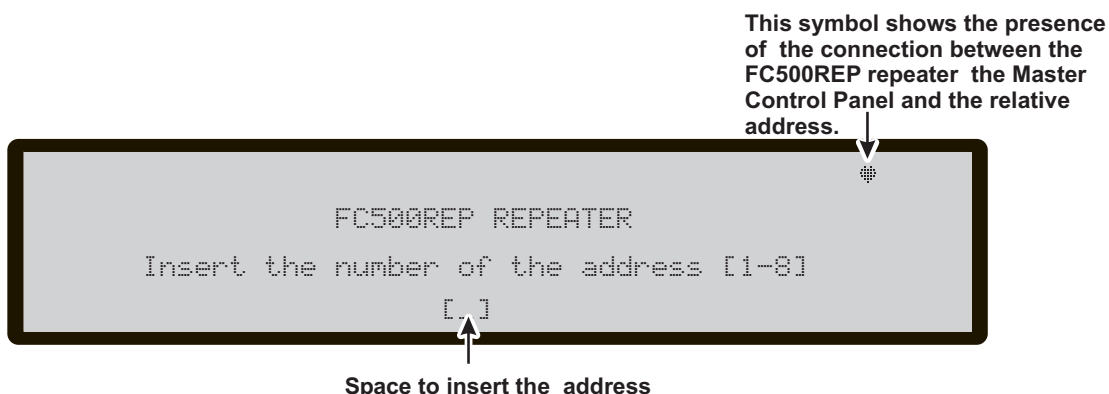


Figure 42 Display to insert a new FC500REP address.

# QUICK START-UP PROCEDURE

This procedure allows the quick start-up of the FC510/520 fire detection system.

When the loops are wired, electrically verified and all the devices have been programmed with their related address and installed to the loop, it is possible to connect the loops terminals to the panel.

---

☞ *Before powering-on the Fire control panel, ensure that the Earth Line has been connected.*

---

## PROCEDURE:

1. Power-on the panel
2. Insert the data and time, if requested (this step is important to guarantee the Log file consistency).

At this point the panel will start the first system initialization verifying the loops integrity, warming up the smoke sensor circuitry, looking for not address programmed devices over the loops and searching devices with the same address.

---

☞ *NOTE: The panel in this phase is configured to manage closed loops (4 wires loop), if it is connected to a spur (2 wires loop) will be generate broken loop faults.*

---

At the end of this first initialization phase will be activated on the user interface the main page with the capability to accede to the command and control functions

3. Select the function Program pressing the key F1
4. Insert the installer password (default=00000) every digit will be masked by \* symbol.
5. Choose the option Auto pressing the key 1

The panel will start the enrolling procedure. At the end of this phase will be presented the result of the enrolling in terms of loop with devices connected (OK) or not (KO) and it will be possible view the details for each active loop (number of detectors, number of modules, current drawn), pressing the key [ESC] it is possible to reach again the main page.

---

☞ *If the enrolling result differ from the previously stored loop configuration a warning message will be displayed and it is possible to reject the present enrolling result, maintaining the previous configuration, or accept them. Suddenly after the enrolling phase the panel starts the loops initialization phase.*

---

At the end of this phase, which duration is related to the number and type of the devices connected over the loops, the panel it is able to act according the directive of the EN54-2 standard.

---

☞ *The enrolling function will not be activated if there are present loop related faults.*

---

The functional parameters of the panel and devices at the end of the enrolling procedure are listed below

## ■ Detectors

**FC400H:** **A2S** mode

**FC400P:** **standard** mode, medium sensitivity

**FC400PH:** (temp. = **A2S**) + (Smoke = **standard** mode, medium sensitivity).

---

☞ *All detectors activation will generate panel ALARM*

---

## ■ Modules

**FC410MIM:** input style=**C,NO**

**FC410SIO:** input style=**C,NO**,

output NOT active

**FC410MIO:** inputs style=**C,NO**

outputs NOT active

**FC420CP:** Call-point fully active

**FC430SAB:** NOT active

**FC430SAM:** NOT active

---

☞ *All modules activation will generate panel ALARM*

---

■ **Zones**

No zone active

■ **Panel outputs**

“**NAC FIRE**” (output EN54-2 type C) active on alarm event

“**FIRE**” (dry contact) active on alarm event

“**FAULT**” (dry contact) active on fault event

■ **Conventional zone**

Active,  
pre-alarm on detector activation (680 Ω load),

alarm on call-point activation (270 Ω load),

■ **Panel general option**

Pre-alarm time: 60s

Investigation time: 300s

Silence time: 30s

Mains fault delay: 1min

Day mode

Loop configuration: 4 wires

This quick guide is for installers with knowledge of the control panels, and fire control panels in general. This chapter holds all the necessary installation details.

## Technical features

Some of the technical features, regarding the terminals on the Main, are described in the following paragraph.

Control Panel	FC510	FC520
Main voltage	230 V~ 50 Hz -15/+10%	
Aux. Outputs Nominal Voltage	27,6 V	
Aux. Outputs Min. and Max. Voltage	19,0 ÷ 27,6 V	
Max. current draw	1,6 A	
Power	35 W	
Maximum available current (1)	4,2 A with 17Ah batteries 3,2 A with 38Ah batteries	
Control Panel max. current draw at 27.6V	0,3 A	
Ripple	1 %	
Suitable batteries: make model	2 * 12 V/17 Ah YUASA NP 17-12 FR or equivalent with case flame class UL94-V2 or higher	
Temperature range	-5 ÷ +40 °C	
Dimensions (W*H*D)	445*578*110 mm	
Weight	9 Kg (without batteries)	

**Table 7** Technical features

The following table shows the technical features of the Repeater FC500REP.

 The Repeater FC500REP has NOT IMQ-SECURITY SYSTEM certification.

REPEATER	FC500REP
Main voltage	27,6 V
Maximum current	180 mA
Temperature range	-5 ÷ +40°
Dimensions (W*H*D)	390x215x50 mm
Weight	2,05 Kg

## Description of the terminals

The terminals of the Main board and Switching power supply, are described briefly in the a Table 8: the standby (normal) status is the first, followed by the alarm status. Moreover, the Voltage present during the different operating conditions is indicated for each terminal, as well as the maximum current (in amps) that can circulate.

In the following table the current values of every functions of control panel.

Available Current	5,5A	5,5A
Battery capacity	17Ah	38Ah
Battery charge	1A	2A
NACs Outputs	2A	1A
Auxiliary Outputs (24AUX, 24RES)	0,5A	0,5A
LOOPS (2)	0,8A	0,8A
12V Output	0,15A	0,15A
Conventional Zone	0,06A	0,06A

TERM.	DESCRIPTION	v(V)	i(A)
<b>MAIN BOARDS</b>			
+L1-LEFT	(+)Loop 1-Positive signal, left side. (-)Loop 1-Negative signal (return), left side	—	—
+L1-RIGHT	(+)Loop 1-Positive signal, right side. (-)Loop 1-Negative signal (return), right side	—	—
+L2-LEFT	(+)Loop 2-Positive signal, left side. (-)Loop 2-Negative signal (return), left side.	—	—
+L2-RIGHT	(+)Loop 2-Positive signal, right side. (-)Loop 2-Negative signal (return), right side.	—	—
[LC]	CONVENTIONAL LINE: balanced line with 3900 ohm → control panel in standby unbalanced line → Conventional Zone activated line in short-circuit or open → fault on the Conventional Zone	—	—
[↕]	Ground	0	—
+485-	SERIAL BUS. Terminals to connect the FC500REP and SLAVE control Panel	—	—
[↕] [24V]	24 V POWER Output for the FC500REP and SLAVE control Panel: Positive pull-up to 27.6 V on [24V] terminal Negative pull-down to 0 V on [↕] terminal	27,6 0	1(1) —
[AUX]	24 V AUXILIARY POWER SUPPLY: negative present on terminal [↕]; positive present on terminal [24A].	0 27,6	1(1)
[AUX-RES]	24 V AUXILIARY POWER SUPPLY: negative present on terminal [↕]; positive present on terminal [24A].	0 27,6	1(1)
[NC] [NO] [C] FIRE	FIRE ALARM OUTPUT - Non-Supervised: standby → [C] connected to [NC] with [NO] open; in the event of ALARM → [C] connected to [NO] with [NC] open	—	—
[NC] [NO] [C] FAULT	FAULT ALARM OUTPUT - Non-Supervised: standby → [C] connected to [NC] with [NO] open in the event of fault → [C] connected to [NO] with [NC] open	—	—
+BAT2-	BATTERY CONTROL PANEL POWER SUPPLY	27,6	
+BAT1-	BATTERY CONTROL PANEL POWER SUPPLY	27,6	
[OS1]... [OS8]	Programmable Outputs(Open collector)- Silenceable-Bypassable-Supervised (The polarity is not programmable)	27,6	
[O9]... [O16]	Programmable Outputs(Open collector)- Silenceable-Bypassable-NOT Supervised (The polarity is not programmable)	0	1
-NAC FIRE+	Type C output (EN54-1) - Silenceable, Bypassable, Supervised Terminals for supervised devices activated by positive (24 V): During ALARM status — positive (27.6 V) on terminal [+]; negative on terminal [-].	27,6	
[NAC1] [NAC2] [NAC3]	Programmable—Supervised—Silenceable—Bypassable <b>ALARM Outputs:</b> Panel in Standby → negative on [+] terminal; positive 27.6V on [-] terminal Panel in Alarm → positive 27.6V on [+] terminal; negative 0 V on [-] terminal	—	(2)
[12V]	12 V AUXILIARY POWER SUPPLY: on [12V] terminal → positive on [↕] terminal → negative	13,8 0	—

**Table 8** Terminals description

**(1)** For the power supply of the external devices.

**(2)** Connect a 3900 ohm resistor between the [+] and [-] terminals of the NAC1, NAC2 and NAC3 Outputs, if not used.



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ISTISBLEFC520 0.0 091007 V10