FC503 and FC506 Addressable Fire Control Panels Installation Guide

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FC503 and FC506 addressable fire control panels

Figure 1: FC503, FC506 panel

To program the fire control panel, use the Software FireClass FC500 (FC501_FC503_FC506) Console release 01.00.01 or higher. Use control panel FW version 1.01 or higher.

Johnson Controls assumes no responsibility for damage to products resulting from improper application or misuse.

Installation of this control panel must take place strictly in accordance with the instructions in this manual and in compliance with the local laws and bylaws in force.

The FC503 and FC506 fire control panels comply with the essential requirements of standards EN54-2, EN54-4 and EN54-21.

Box contents

The control panel is contained in a box. See the contents of the box in the list below:

- A sheet metal cabinet and plastic door with an assembled motherboard and power supply switching.
- The Quick Start Guide.
- A transparent plastic bag containing a USB consisting of the installation manual, user manual, the PC Programming manual, two 3.9 kOhm resistors, a 320 mm red and a black cable with a faston terminal to connect batteries with the main board, and a 320 mm black cable with two faston terminals to connect batteries.

Proceed carefully to unpack the contents and dispose recyclable materials in accordance with local laws.

Recycling information

The manufacturer advises that customers dispose of any used equipment such as panels, detectors, sirens, and other devices in an environmentally friendly manner. Potential eco-friendly methods include reusing parts or whole products and recycling of products, components, and materials.

Waste Electrical and Electronic Equipment (WEEE) Directive

In the European Union, you must dispose of this product separately to household waste at an appropriate facility to enable recovery and recycling.

ⓘ **Note:** The FC503 and FC506 fire control panels support several addressable devices such as detectors, modules, and manual call points. This manual includes the instructions for the programming of the fire control panels. For further information on these devices and their accessories, visit http://www.fireclass.com and log into the Reserved Area, under Installation Manuals.

The manufacturer reserves the right to change the technical specifications of these products without prior notice.

Keywords and symbols

In this manual, symbols used in the margin indicate warnings. These symbols are explained in Table 1.

Table 1: Keywords and symbols

Keyword	Symbol	Explanation
DANGER		**WARNING** Imminent danger.Death or severe injury when disregarded.
WARNING		**WARNING** Potentially dangerous situation. Death or severe injury possible when disregarded.
CAUTION		**WARNING** Potentially dangerous situation. Minor injury possible when disregarded.

Introduction

FC503 and FC506 fire control panel

The FC503 and FC506 fire control panels follow Johnson Controls' highest standards of quality and performance. Find further details about the FC503 and FC506 fire control panels below:

FC503

FC503 is an analogue addressable fire control panel with one main loop (three sub loops), that can support up to **250 addressable devices and 128 zones.** BAQ140T24 switching power supply powers FC503 at 5.5A @ 27.6 ±1 %V. Suitable batteries include two *12 V/ 17Ah or two *12 V/ 38Ah. The user interface has LEDs and icons.

FC506

FC506 is an analogue addressable fire control panel with two main loops (six sub loops). The panel can support up to **500 addressable devices and a maximum of 250 devices in a single main loop, and 256 zones.** BAQ140T24 switching power supply powers FC506 at 5.5A @ 27.6 ±1 %V. Suitable batteries include two * 12 V/ 17 Ah or two * 12 V/ 38 Ah. The user interface has LEDs and icons.

Note: In this manual, the term FC503 describes the characteristics common to both FC503 and FC506. Notes added describe the characteristics specific to the FC506 panel.

Note: The components of these control panels operate correctly when external ambient conditions comply with the requirements of class EN60721-3-3:1995.

The FC503 control panel has a 4-line, 40 characters per line LCD module with a backlight, which provides written information regarding the system status and for programming the control panel.

Accessory items

FC500

Use this repeater panel to connect to FC500 control panels with four wires. The repeater panel provides all the visible and audible warnings generated by the control panel. The repeater panel also allows end users to manage the system remotely up to 1000 m with double twist unshielded cable. The FC503 or FC506 control panel supports up to eight fully functional FC500 repeater panels.

FC503/FC506 client

The FC503 and FC506 master control panel supports up to seven FC503 or FC506 client control panels. These client control panels expand the FC503 and FC506 system in a modular way.

FC500IP

FC500IP is a module that connects the control panel to a LAN. See Installing the FC500IP board.

FireClass FC500 (FC501_FC503_FC506) Console

This is a user-friendly software application. It uses Microsoft Windows 7 and higher. The console offers easy ways to program the control panel and also provides event log functions.

FireClass Console Multi Account Engine (FCMAE)

FCMAE allows you to monitor multiple Fireclass systems across the world from a single work station. It manages up to 32 FC500 series panels (FC501, FC503, FC506) plus legacy panels (FC510 and FC520) connected by Ethernet through the FC500IP3 module. The FCMAE shows the real time status and alerts the operator if an event occurs in one of the monitored systems.

Connected Services Gateway

The Connected Services Gateway (CSG) is a comprehensive interface card that supports central station communication and enables SafeLINC cloud services.

You can connect the gateway to the SafeLINC cloud platform by Internet or through a cellular connection. To connect directly to the panel use the serial interface of the gateway card.

Description

Inputs

FC503: The one main loop (three sub loops) manages up to 250 devices.

FC506: The two main loops (six sub loops) manage up to 500 devices (250 devices per main loop).

Outputs

This section describes how the control panel outputs operate.

Supervised outputs

With this output, the control panel can detect and signal short circuits and power supply interruptions.

Bypassable disabled outputs

You can disable this type of output by using a specific key.

Silenceable outputs

To stop this type of output, you can use the Silence/Resound Sounders key. You can silence the outputs for an indefinite period during Day Mode or for a programmed silence time during Night Mode.

Operating features

You can program the FC503 control panel to provide WARNING or Delay to Alarm status before ALARM status.

The WARNING display signals the WARNING status. If a detector exceeds its warning threshold, the control panel generates a warning. The input module also generates a warning state; a useful feature for implementing the Systems Supervision capability.

Warning status signals:

- Control panel buzzer; 2 seconds of sound at 440 Hz and then a 2 second pause.
- A WARNING message on the LCD display
- The WARNING output points if a user enables the Delay to Alarm option.

Delay to Alarm

If a zone generates an alarm during Day Mode, the control panel starts the Delay to Alarm Time. The Delay to Alarm status signals are:

- Control panel buzzer; 0.5 seconds of sound at 880 Hz and then a 0.5 second pause.
- Blinking on the **Delay to Alarm** LED for the first eight zones only.
- Message ALARM+DLYTIME on the LCD display.
- Activation of the respective outputs, if the user enables the Delay to Alarm option.

Note: If the control panel detects alarm conditions during Night Mode or from a callpoint, the control panel generates an instant alarm.

Take the following actions during the Delay to Alarm status; see Access to signaling and commands.

- **Access Level L1:** to activate an Evacuation Alarm, press and hold the **Evacuate** Key.
- **Access Level L2:** to stop the Silence disable outputs and interrupt the Delay to Alarm Time, press the **Silence** key.

Note: For the Netherlands, EVAC functionality only works at access level 2 or 3.

When the Silence LED is on during Silence status, press the **Silence** key to release the Silenceable outputs, or press the **Reset** key to restore standby status.

If the control panel operates in Night Mode, the control panel exits from Silence status automatically when the programmed Silence time expires.

Alarm

When the Delay to Alarm time expires, the control panel generates an alarm. The Alarm status signals are:

- Control panel buzzer; 0.2 seconds of sound at 3300 Hz and then 0.2 seconds of pause.
- Alarm LED is on.
- An alarm message on the LCD display.
- Activation of the Fire and SC1 outputs.
- Activation of other outputs including SC2, OC1, or OC2 if programmed.

During the Alarm status, the following can occur:

- At Access Level L2 you can stop the Silenceable outputs by pressing the **Silence** key.
- At Access Level L2 you can press the **Reset** key and Silence Buzzer.

Note: Refer to Access to signaling and commands for further information.

During the Silence status when the Silence LED is on, use the **Silence** key to release the Silenceable outputs. The **Reset** key restores the standby status.

When the programmed Night Mode Silence time expires, the control panels exits Silence status.

Day and night mode

The control panel can operate in Day or Night Mode. See the relevant section in the Programming from the Panel chapter.

If you silence the system in Day Mode, the Silence status remains until you unmute the system, provided that no other alarm incidents occur. If you silence the system during Night Mode, the Silence status remains until the Night Mode Silence time expires.

At default, the system is set to Day Mode. During Day Mode, silenced alarms are not unmuted automatically.

Fault

This control panel can detect and signal the faults shown in Table 2. Fault conditions signals are:

- Control panel buzzer; 1 second of sound at 660 Hz and a 1 second pause.
- The Fault LED and relative Fault LED is on.
- A Fault message on the LCD display.
- Activation of the Fault output.
- Activation of other outputs including SC2, OC1 or OC2 if programmed.

The Fault output and any additional programmed fault outputs automatically return to standby status when the fault conditions clear.

Under certain circumstances, fault conditions may clear spontaneously. If this occurs, the memory stores the event until you reset the control panel. Blinking on the Fault LED indicates stored fault events.

Silence

This control panel provides a **Silence** key that can restore the Silenceable outputs to Standby status.

When the Silence LED is on, this indicates the Silence status.

The Silence status remains until one of the following occurs:

- You press the Silence key again
- The programmed Night Mode Silence time expires when the control panel operates in Night Mode.
- A new alarm condition is detected.

Table 2: Description of faults

Message	Problem
Mains fault	The control panel is not powered from the mains
Battery	The control panel's batteries charger is not working correctly
Low battery	The control panel batteries are empty
Earth	Leakage to earth
24A Output	Shorted 24A Output
24R Output	Shorted 24R Output
Firmware main contr.	Checksum fault
	Loop device without address
Loop return open	Loop negative signal open
Loop signal open	Loop positive signal open
Loop local short	Local short on loop controller
Loop right short	Right side loop short
Loop left short	Left side loop short
Non answer	Loop device does not answer

Table 2: Description of faults

Message	Problem
Dirty level	Smoke detector only; the dirty threshold has been exceeded
Short circuit	Short circuit on input module
Open circuit	Open circuit on input module
Power supply	Main fault
Wrong value	A loop device has an incorrect value
Stuck output	An output module relay is not switched
Same address	Several loop devices have the same address
Wrong Type	Different loop device from that programmed in the panel
IP Communicator	Communication lost with IP controller
IP receiver	Communication lost with IP receiver
PSTN communicator	The communication with PSTN controller is lost
Telephone line	Telephone line fault
LOG Full	LOG fault
PSTN Action not Ack.	A PSTN action not acknowledged
SC X short	SC x= (1 or 2) short circuit
SC X open	SC x (1 or 2) open terminal
Prog.data main cont	Data programming checksum fault
Prog.data tel.board	Aux Controller data programming checksum fault
Loop Communication	Communication loop fault controller
Display communication	Communication fault on display controller
LOOP x NOISY	The devices on the loop x (1, 2, or 3) can not communicate correctly with the panel or multiple devices on the loop are not addressed. Check the quality of wiring. Also, perform Auto-Addressing to ensure that all the devices in the loop are addressed.
REPEATER COMMUNIC.	A repeater on the RS485 does not respond
PRINTER x FAULT	(x from 1 to 4)
PRINTER x ABSENT	(x from 1 to 4)
DEFAULT DATA	The fire panel resets to default data

Table 2: Description of faults

Message	Problem
Unusable Base	The detector on the sounder base is missing or it is incorrectly fitted
GATEWAY COMMUNICATOR	The gateway card to panel communciation is lost
GATEWAY COMMUNICAT.	CSG is installed but not communicating with the panel
PRIMARY PATH	CSG primary path is down
SECONDARY PATH	CSG secondary path is down
FIRE SIGNAL FAULT	CSG both paths are down
FIRE SIGNAL NOT ACK	Fire signal is not acknowledged from the central station. This fault is latched.
NOT POLLED	The panel PCBA is faulty or the loop wiring is faulty
LOOP INTERFACE	The loop wiring is faulty

To resolve the 24 A output fault, you must reset the gateway.

Any time the panel is configured through the FireClass Console, a PC PROGRAMMING event is transmitted to SafeLINC

Note: You need access level L2 or L3 permissions to mute the silenceable outputs manually.

Disabled

This control panel can disable the devices on the loop, SC2 output, OC1 and OC2 outputs, the software zones, the RS485 network devices such as the repeater and the client panel.

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

When the Disabled LED is on, this indicates the Disabled status.

Note: The Disable facility is available at access level L2 or L3.

Reset

Resetting the control panel restores the outputs to standby status, clears the memory, and disconnects the power supply to terminal 24R for 2 seconds.

Note: You need access level L2 or L3 permissions to reset the panel.

Interface

Visual signaling

The system status signals on the control panel LEDs are as follows:

- Green indicates that the power is ON.
- Amber indicates specific operating modes, for example Day or Night Mode, and Fault conditions.
- RED indicates alarm conditions.

Memory

The control panel indicates Fault events with a blinking FAULT LED until the system resets, even if the event clears before the reset.

Audible Signaling

The buzzer signals the control panel status as shown in Table 3.

Note: When the control panel mutes an alarm and detects a new fault, the control panel resounds the previous silenced alarm.

Table 3: Audible Signaling

Status	Sound	Pause	Frequency
SYSTEM FAULT (Main processor fail)	2.5 s	2.8 s	1300 Hz
SYSTEM FAULT (Programming data corrupted)	1 s	1 s	660 Hz
Warning	2 s	2 s	440 Hz
Delay to Alarm	0.5 s	0.5 s	880 Hz
Alarm	0.2 s	0.2 s	3300 Hz
Fault	1 s	1 s	660 Hz

LAMP TEST:

This key allows you to test the control panel buzzer and the LEDs.

Access to signaling and commands

There are four access levels, in compliance with Fire Safety Regulations.

Access Level L1 Viewing:

All users can view the control panel status without a password.

Access Level L2 Operating the system (PIN code entered):

Password code users can operate the system at user level.

Access Level L3 Programming and Opening the Control Panel (Password Code entered):

This level of access is for installers. Therefore, only qualified, authorised users are allowed to open the control panel door. This requires removal of the cover screws, for maintenance or to replace a battery.

Access Level L4 Repairing or replacing the PCB:

Only the manufacturer can repair or replace the PCB. This requires removal of the cover screws.

Users and installers features

The panel can recognize and manage up to eight different users and two different installers. At each login of any user or installer, the panel logs the login event and the user or installer's ID. The panel also logs the return to access level

L1 to indicate the end of the user or installer's session. The default passwords for the eight users are as follows:

USER 1	11111
USER 2	22222
USER 3	33333
USER 4	44444
USER 5	55555
USER 6	66666
USER 7	77777
USER 8	88888

The default passwords for the two installers are as follows:
INSTALLER 1 00000
INSTALLER 2 99999
By default, only USER 1 works with its default password. The other users are unavailable and disabled. USER 1 may be enabled and available.
By default, only INSTALLER 1 works with its default password. The other installers are unavailable and disabled. INSTALLER 1 may be enabled and available.
Only INSTALLER 1, using the FireClass FC500 (FC501_FC503_FC506) Console or panel user interface, can modify the availability and enable the status of USERs 2 to 8 and INSTALLER 2.
INSTALLER 1, using the FireClass FC500 (FC501_FC503_FC506) Console or panel user interface, can modify the password for USERs 1 to 8 and INSTALLER 2.
Each installer or each user can modify their own password.
When INSTALLER 1 enters the first password through the user interface to a user or installer, the system declares the password "available" and enables access.
If INSTALLER 1 forgets their password, they can enter a new password using the following procedure:

1. Remove the two screws at access level L4, open the fire panel, and remove the jumper J5 of the main board.
2. Access the installer menu screen.
3. Access the programming screen of the installer password and enter the new password.
4. The system stores the new password as the current password for INSTALLER 1. The user interface returns to the MAIN screen, indicating local programming, followed by a panel reset.
5. Replace the J5 jumper to restore the normal program menu screen functionality.

Power supply and batteries

The power supply system of the FC503 and FC506 control panels complies with EN54-4. All models are powered by the mains. The FC503 and FC506 have switching power supply that supplies up to 5.5 A at 27.6V. Both models can house two 12V, 17Ah batteries that when connected in series, supply 24V to the control panel and peripherals in the event of a power cut.
If necessary, whether for the full configured loop or for particular system requirements, a user or installer can connect the FC503 and FC506 control panels to two 12V, 38 Ah batteries in an external metal box. See Figure 19.
The battery must be a VRLA (valve regulated lead acid) type and it must comply with all applicable standards indicated in paragraph M.2.1 of standard EN 62368-1:2014 “Requirements (safety of batteries and their elements)”; In this case, the battery must comply with the standards: IEC 60896-21:2004 and IEC 60896-22:2004. The battery must have an enclosure with flammability class UL94V-1 or better. A skilled professional must install and replace the battery.
The control panel can detect, signal, and store in memory the following power faults:

- Shorted 24A or 24R outputs
- Low battery
- Battery fault
- Battery disconnected
- Battery trouble LED
- Ground fault Earth LED
- Mains failure Power Supply Fault LED

The Battery fault may be signaled with a delay up to 1 minute; see Table 5. The Mains (Amber) fault is signaled when the programmed delay expires.

Description of the FC500 repeater signaling

FC500 repeater control keys

Test, Silence Buzzer and **Evacuate** control keys can be activated without a password at access level 1. All other control keys need to be activated with a password at access level 2 and 3. See Table 4.

ⓘ **Note:** For the Netherlands, EVAC functionality only works at access level 2 or 3.

FC500 repeater LED description

Table 5 provides a description of the FC500 repeater LEDs.

Description of the control keys (panel)

Silence

Use the **SILENCE** key to restore the Silenceable outputs to standby status. If the control panel operates in Night Mode, Silence remains until the programmed Night Mode Silence time expires; if in Day Mode, Silence remains until you press the **SILENCE** key again. In both modes, Silence status cancels when the system detects a new alarm condition.

Reset

You can only enable the **Reset** key at access level L2 with a PIN as the fire panel returns to standby status after the Alarm, Delay to Alarm, Warning and Fault conditions stop. At the end of the Reset time, the system reprocesses any Alarm,

Delay to Alarm, Warning or Fault signal that Reset operations did not clear.

When Reset is running, the command keys are inoperative.

Any FC500 repeater connected to the panel can perform a reset of the fire panel. It is necessary to use a PIN to access level L2 or higher.

For the Evacuate, Lamp or Buzzer Test, Investigate, Silence Buzzer keys, see Table 4.

Table 4: Description of the control panel and repeater keys

Key		Description
	SILENCE/ RESOUND SOUNDERS	Restores the Silenceable outputs and the loop devices to standby status. **Note:** The silence status remains until you press the SILENCE key again in day mode; or until the night mode silence time expires in night mode; or until the system detects a new alarm condition.
	RESET	Resets the fire detectors and restores all outputs to standby status
	INVESTIGATION DELAY	Refreshes the delay to alarm time **Note:** If you press this key during delay to alarm, the remaining delay to alarm time increases with the programmed investigation delay.
	EVAC	Activates the evacuation **Note:** If you press this key, the system generates an alarm.
	SILENCE BUZZER	Silences the local buzzer on the control panel **Note:** The buzzer operates every time a new event is activated.
	LAMP TEST	Tests the buzzer and the LEDs **Note:** If you press this key when the control panel is functioning as intended, all LEDs will be on and the buzzer emits a continuous beep.
	HELP	Explains the information on the LCD display in the different screens **Note:** An embedded help feature is present on the panel LCD display. The HELP key is disabled on the repeater.
	**System fault acknowledgement switch**	In the case of system fault LED latches, press this switch to identify unintended panel operations. Then, you must press the reset button so the panel returns to its default state. **Note:** To access this switch, the installer or user must open the front cover of the panel. The switch is on the left bottom side of the main PCB. This key is not available on the repeater. A System fault LED latch occurs in one of the following conditions: • The system resets itself (watchdog reset) when any internal logical fault occurs. • The system is powered ON after a complete panel shut down.

The status LED

Table 5 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.

Table 5: Description of the status LEDs.

LED		Description
	**FIRE (Red)**	**ON** indicates the alarm status. In the event of an alarm, the control panel activates the unbypassed alarm outputs. ⓘ **Note:** For the Netherlands, if the panel is in an EVAC state, the LED remains OFF.
	**GENERAL FAULT (Amber)**	**ON** indicates the presence of a fault. The following LEDs or the screen display indicates the type of fault. OFF indicates no fault.
	**SYSTEM FAULT (Amber)**	**ON** ** indicates a blocked control panel and *** indicates the control panel restart. **IMPORTANT**: Maintenance required. **Blinking** *** indicates that the data panel programming is corrupted. ⓘ **Note:** When the control panel is switched on for the first time, this LED blinks until a reset has been performed. ⓘ **Note:** ** indicates the buzzer system fault pattern; *** indicates the buzzer fault pattern. ⓘ **Note:** The System fault LED latches if one of the below conditions occurs: • The system resets itself (watchdog reset) when any internal logical fault occurs. • System is powered ON after a complete panel shut down.
	**FIRE SIGNAL FAULT (Amber)**	**ON** indicates that the communicator is disabled. **Blinking** indicates that the communicator is faulty.
	**POWER SUPPLY FAULT (Amber)**	**ON** indicates a mains failure (230 V). **Blinking** indicates a Switching Power supply fault. During this condition, the control panel is powered by the batteries.
	**EARTH FAULT (Amber)**	**ON** indicates a voltage leakage to Earth. ➤ **Important:** Check wiring insulation.
	**BATTERY TROUBLE (Amber)**	**ON** indicates that the batteries are empty or faulty. If this condition persists, the batteries are unable to function as intended in the event of a power cut. ➤ **Important:** New batteries are required.
	**POWER ON (Green)**	**ON** indicates that the panel is supplied with power. **OFF** indicates a mains failure whereby both mains and battery power is lost (the battery disconnect threshold is 19.2 V). Power must be restored before the batteries reach the disconnect threshold.
	**MORE INFO (Amber)**	**ON** indicates that there is hidden information with lower priority. **View List** shows the hidden information. **OFF** indicates no hidden information is available.
	**SOUNDERS SILENCED (Amber)**	**ON** indicates that the silenceable outputs and loop device have been forced into standby by means of the **SILENCE/ RESOUND SOUNDERS** key. In day mode, the silence status remains until the **SILENCE/RESOUND SOUNDER** key is pressed again. In night mode, the silence status remains until the night mode silence time expires or until the system detects a new alarm or a new trouble condition.
	**FIRE SIGNAL ON (Red)**	**ON** indicates that the transmission was successful. **Blinking** indicates that the transmission is in progress. On the control panel screen, the connection type, such as PSTN, GSM, or LAN network, is displayed.

Table 5: Description of the status LEDs.

LED		Description
	**SOUNDERS FAULTS/DIS (Amber)**	**ON** indicates that the output is disabled or outputs configured to "act as SC1" are disabled. **Blinking** indicates that the SC1 is in fault or outputs configured to "act as SC1" are in fault. **OFF** indicates that all the main sounder outputs (EN54-1, TYPE "C" outputs) function properly.
	**DISABLED (Amber)**	**ON** indicates the disabled status of any bypassable entity.
	**TEST (Amber)**	**ON** indicates the test conditions on at least one zone.
	**DAY MODE (Amber)**	**ON** indicates that the control panel is operating in day mode. **OFF** indicates that the control panel is operating in night mode.
1-8	**SOFTWARE ZONES (Red)**	**ON** indicates that the corresponding software zones are in Alarm status *. ⓘ **Note:** * indicates that the zone outside the 1- 8 range does not have a related LED, its alarm status is displayed only by the LCD. **Blinking** indicates that the corresponding software zones are in Delay to Alarm status.
	CONTROLS ON (Amber)	**ON** indicates that the control panel is at least at level 2 so the **SILENCE/ RESOUND SOUNDERS, RESET** and **INVESTIGATION DELAY** keys are enabled.

Note: * the zone outside the 1 to 8 range does not have a related LED, its alarm status is displayed only by the LCD, ** buzzer SYSTEM FAULT pattern, *** buzzer FAULT pattern.

Parts identification

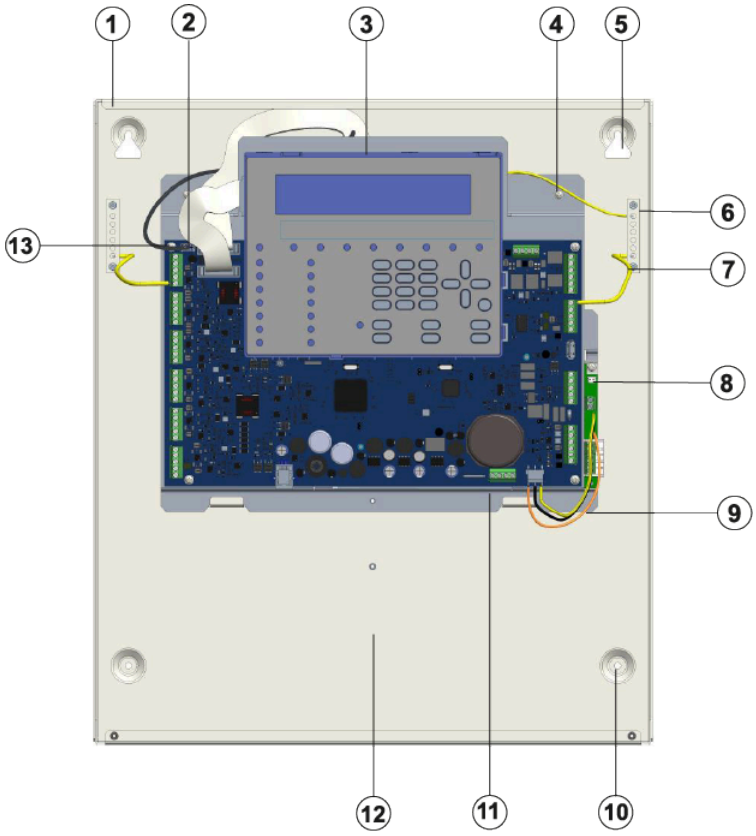
Figure 2: FC503 and FC506 Parts: external view

Callout	Description
1	FC503 or FC506 cover
2	Screws (two) to close the cover on the panel
3	Knockout for connection FC503, FC506 panel with FC500BX battery cabinet (accessory item)
4	Display
5	Knockouts for cables ducted externally (eighteen)

Description of parts

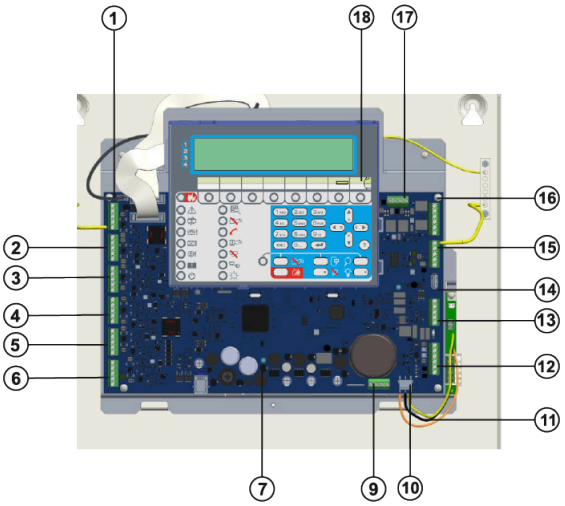
This section describes the components of the FC503 and FC506 control panels.

Figure 3: FC503 and FC506 Parts: Internal view



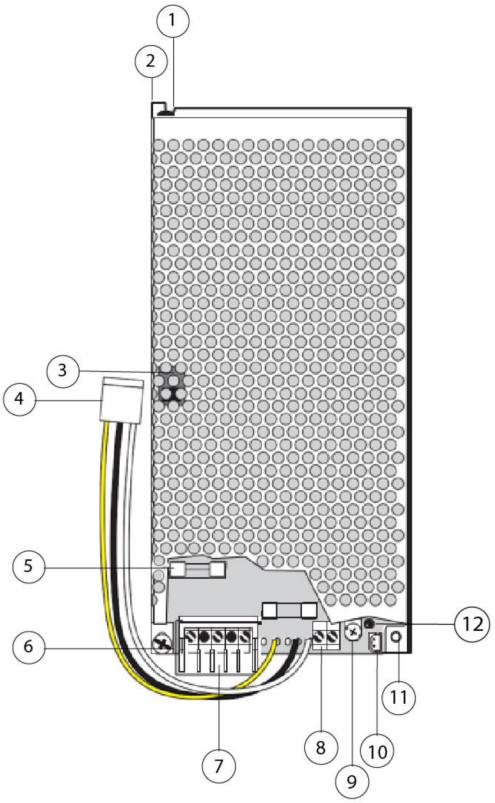
Callout	Description
1	Hooks to secure the cover on the panel (two)
2	Serial port RS 232 (PC link)
3	Main Module (See Figure 4)
4	Screws to secure chassis (2)
5	Panel anchor screw locations (Top) (two)
6	Terminals (two) for the earth connection wires
7	Earthing Cables (two)
8	Switching power supply (See Figure 5)
9	Power cable for main module
10	Panel anchor screw locations (Bottom) (two)
11	Metal chassis
12	Location for 2 batteries 12V, 17Ah
13	Screws to secure main board (four)

Figure 4: Main module parts



Callout	Description
1	Loop 1 (sub loop 1)
2	Loop 2 (sub loop 2)
3	Loop 3 (sub loop 3)
4	Loop 4 (sub loop 4)
5	Loop 5 (sub loop 5)
6	Loop 6 (sub loop 6)
7	Jumper J5 to reset the INSTALLER PIN no.1 to the factory default (00000)
8	Buzzer (not visible)
9	Battery connection terminals
10	Jumper for the exclusion of the Earth Fault: oo = Earth Fault detected (Default); oo = Earth Fault ignored
11	Power supply main module connector
12	Programmable outputs and auxiliary power supply terminals
13	Terminals for phone line connection
14	USB port
15	RS485 serial port
16	Fire and Fault relay outputs
17	SC outputs
18	Opening to insert the zone location text strip

Figure 5: BAQ140T24 Switching-power-supply



Callout	Description
1	Switching-power-supply closure rivet
2	Switching-power-supply anchor
3	Voltage switch (230V)
4	Cable: connects the switching power supply to the main board (connected at factory)
5	Switching power supply fuse protects against overload:BAQ140T24 = F 4A 250V
6	Switching-power-supply screws
7	Mains power terminals (230V~ 60/50 Hz)
8	Auxiliary power-supply terminals (27.6 V)
9	Fine trimmer for the switching-power-supply output voltage
10	Thermal probe connector
11	Switching-power-supply anchor hole (2)
12	Mains indicator LED (switching power supply)

Note:

- Before connecting the fire control panel to the PC for the PC programming phase, remove the jumper of the main board. See Figure 4, item 10. When the programming phase finishes, replace the jumper to ensure the Earth fault or Leakage to Earth is detected.

- To silence the buzzer permanently during installation, engage the control panel at access level 3 and remove the Jumper J5. See Main module parts Figure 4, item 7. A disabled buzzer causes the zonal LEDs to flash and a “BUZZER OFF” string displays alternately with the date and time on the panel user interface. As a result of this procedure, the timeout for the installer does not change. To reactivate the buzzer, replace the Jumper J5 when the installation process completes.

Installation

⚠ CAUTION:

Installation of the control panel must take place strictly in accordance with the instructions in this guide and in compliance with the local laws and bylaws in force.

Prior to commencing the installation of the control panel, take adequate precautions to prevent damage to the sensitive electronic components on the display board and control board due to electrostatic discharge. Discharge any static electricity accumulated by touching a convenient earthed object such as an unpainted, copper radiator pipe. Repeat the process at regular intervals during the installation process.

Installing the control panel

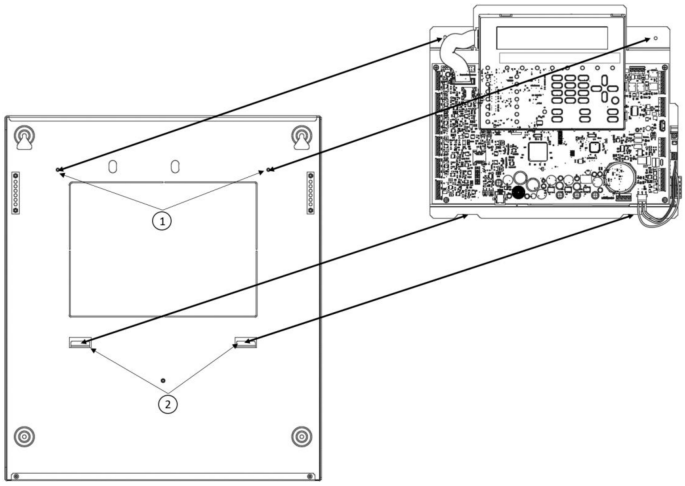
Work carefully through the following steps. See Figure 2 and Figure 4 for further information. Install the FC500IP module before mounting the control panel as described in the paragraph Installing the FC500IP board.

⚠ CAUTION:

- Place the panel in a clean, dry position where there is no shock or vibration present, and at least two meters away from pager systems or any other radio transmitting equipment.
- Separate fire alarm cables from all other wiring unrelated to the fire alarm system.

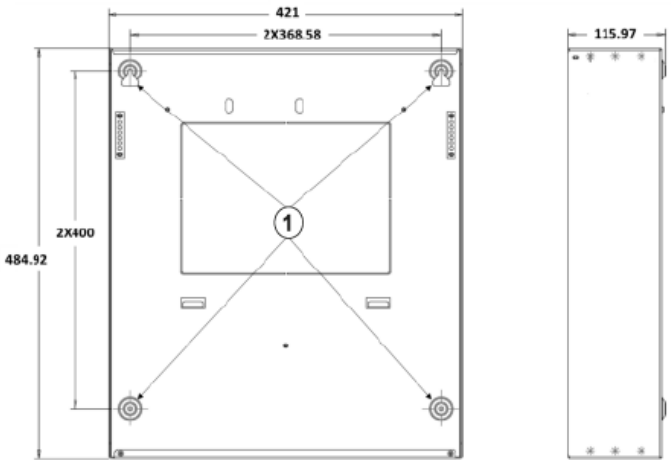
1. Identify a suitable mounting location on the wall for the control panel.
2. Remove the two screws from the cover and open the control panel. See Figure 2, item 2. Lift the lower part of the cover and push upwards to fully remove the cover from the panel assembly.
3. Disconnect the earth cables at the top left and right of the control panel chassis. See Figure 3, item 4.
4. Remove the chassis, including power supply and control board, from its fixings by unscrewing the screws on the chassis. Remove the top left and right screws completely. Push the chassis upwards and remove. See Figure 3, item 11. Do not remove the power supply or control board from the chassis. Handle the chassis carefully to avoid damage and place it safely to one side.
5. Level and hold the empty cabinet up to the wall. Mark the positions for the four mounting holes on the wall.
6. Drill the holes at the marked positions on the wall. Check for water pipes and electrical wiring before drilling.
7. Insert the top two screws halfway. Hang the panel on the top two screws and tighten them securely.
8. Insert the bottom two screws and tighten them securely.
9. Refit the chassis using the two resting features at the bottom of the cabinet and the top two mounting screws.
10. Reconnect the earth lead to the main board. See Figure 3, item 6.
11. Insert the installation cables into the cabinet using the cable entry knockouts at the top of the cabinet. Use the knockouts for all the cables and secure the cables through the cable ties. See Figure 2, item 5.
12. When all installation cabling is complete, check the cabling to ensure that it is free from short circuits, open circuits, earth faults, and crossed connections.
13. Program the control panel in accordance with the instructions in the *FC503 and FC506 Addressable Fire Control Panels User Manual* and the *FC503 and FC506 Addressable Fire Control Panels PC Programming Manual*.
14. Test the entire system. Ensure that you test the control panel, detectors, fire warning, and fire control devices.
15. Remove any debris from the cabinet.
16. Attach the cover to the hooks and rotate the cover down to close it. Secure the cover at the bottom with two screws. See Figure 2, item 2.

Figure 6: Chassis mounting details



Callout	Description
1	Mounting studs
2	Mounting slots

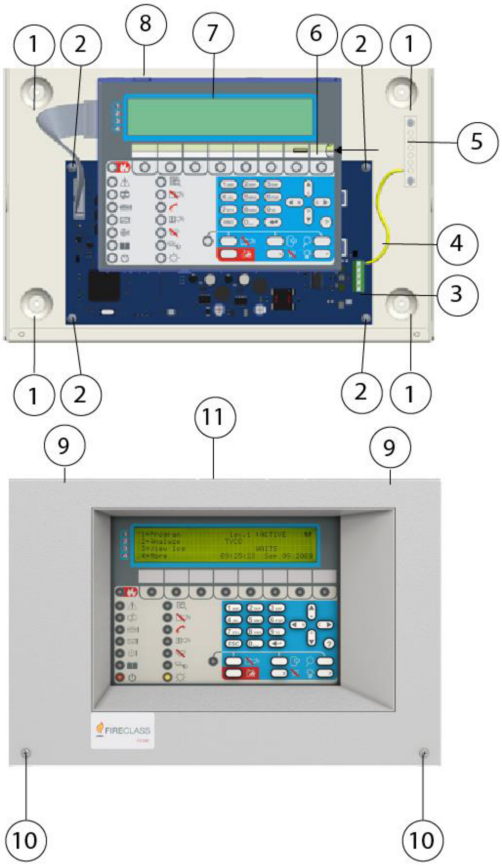
Figure 7: Cabinet dimension details



Note: All dimensions are in mm.

Callout	Description
1	Mounting holes

Figure 8: FC500 repeater installation



Callout	Description
1	Holes for cabinet mounting (four)
2	Screws to secure main module (four)
3	Connector for the repeater RS485 interface
4	Earthing cable
5	Terminal for the earth connection wires
6	LED label slot
7	User interface repeater board
8	Knockouts for cables ducted externally (four) (One on each side)
9	Hooks to secure the cover on the panel (two)
10	Screws to secure cover (two)
11	Repeater panel cover

Inserting the LED and keys labels in the repeater user interface

To insert the LED and keys labels in the repeater user interface, work through the following steps. See Figure 8.

1. Remove the screws, and open the FC500 repeater. Corresponding to the A or B in the overlay, insert the relevant LED and keys Labels. See Figure 8, item 10.
2. Check that the labels are correctly inserted and close the repeater FC500.

Installing the FC500 repeater

Repeaters can be wall mounted, or flush mounted to an outlet box or similar.

Follow these steps when installing an FC500 Repeater. See Figure 8.

1. Lay the connection cables. Refer to the section Connecting the FC500 repeater.
2. Remove the screws and open the repeater FC500. See item 10.
3. If you are flush mounting the repeater, go to step 4. If you are wall mounting the repeater, drill the anchor screw holes. See item 1.
4. Pull the wires through the wire entry, then using the anchor screws, secure the repeater to the wall. See item 8.
5. Complete the connections to the terminal board of the RS485 Interface, as described in the Connecting Repeaters section. See item 3.
6. Connect the earth wire to the threaded support on the board, as shown in Figure 8. See item 5.

Installing the client panel

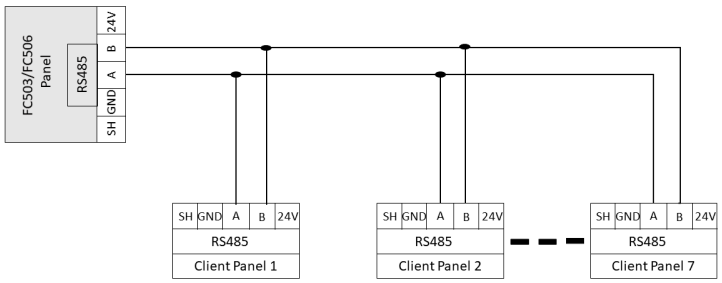
Either the FC503 or FC506 panel can act as a client for the FC503 or FC506 master panel.

To install an FC503 or FC506 client, complete the following steps:

1. To install the control panel, see Installing the control panel.
2. Complete the connection to the terminal board of RS485 interface.
3. Connect terminal [A] of the master panel to the terminal [A] of the client panel.
4. Connect terminal [B] of the master panel to the terminal [B] of the client panel.

   In total, 7 client panels can be connected to one master.

Figure 9: Connecting client panel



Description of the terminals

This section describes the control panel terminals.

FC503

Main loop 1

Loop 1 (sub loop 1)

- +LEFT: Positive signal
- - LEFT: Negative signal (return)
- +RIGHT: Positive signal
- - RIGHT: Negative signal (return)
- SH: Cable shield terminal.

Loop 2 (sub loop 2)

Loop 2 (sub loop 2) terminals are the same as Loop 1 (sub loop 1) terminals.

Loop 3 (sub loop 3)

Loop 3 (sub loop 3) terminals are the same as Loop 1 (sub loop 1) terminals.

Note:

- The three sub loops of the panel can manage up to 250 addressable devices.
- The maximum current load for the three loops must not exceed 1A.

FC506

Main loop 1

Loop 1 (sub loop 1)

- +LEFT: Positive signal
- - LEFT: Negative signal (return)
- +RIGHT: Positive signal
- - RIGHT: Negative signal (return)
- SH: Cable shield terminal.

Loop 2 (sub loop 2)

Loop 2 (sub loop 2) terminals are the same as Loop 1 (sub loop 1) terminals.

Loop 3 (sub loop 3)

Loop 3 (sub loop 3) terminals are the same as Loop 1 (sub loop 1) terminals.

Main loop 2

Loop 4 (sub loop 4)

Loop 4 (sub loop 4) terminals are the same as Loop 1 (sub loop 1) terminals.

Loop 5 (sub loop 5)

Loop 5 (sub loop 5) terminals are the same as Loop 1 (sub loop 1) terminals.

Loop 6 (sub loop 6)

Loop 6 (sub loop 6) terminals are the same as Loop 1 (sub loop 1) terminals.

Note:

- The six sub loops of the panel can manage up to 500 addressable devices or a maximum of 250 in a single main loop.
- The total length of the cables connected to the three loops must not exceed 2000 m.
- The maximum current load for the three sub loops must not exceed 1A.

Telephone line

Le

Terminals for connecting the external telephone line.

Li

Terminals for connecting the internal telephone line. Connect these terminals to other telephone devices that need to share the same phone line as the fire panel.

There is also a terminal for connecting the earth wire.

Fire

[NC][NO][C]

The following features describe the **[NC][NO][C]** fire output:

- This is a non-supervised fire output; a dry contact relay for non-supervised devices.
- The fire output activates by default when the first fire event occurs.
- Deactivation of the fire output occurs during the panel reset.
- The fire output may be muted; see the default programmable option=NOT silenceable.
- It is not possible to disable the fire output.
- The fire output may be programmed to work differently, only with the FC503_FC506 software.
- During standby status, terminal [C] closes to terminal [NC].
- In the event of fire, terminal [C] closes to terminal [NO].

Note: EN54-2 certification applies only when the fire output is not C or J or G (EN 54-1) type. Therefore, you must not use this output to manage fire alarm devices, fire or fault transmission devices, or an automatic fire alarm system.

Fault

[NC][NO][C]

This is a non-supervised fault output; a dry contact relay for non-supervised devices.

The fault output activates when:

- The first fault event occurs.
- In the case of a logic fault.
- In the case of a total loss of power.

Other features of this fault output include:

- Deactivation of this fault occurs during the panel reset.
- It is not possible to silence the fault output.
- It is not possible to disable the fault output.
- The fault output may not be programmed to work differently.
- During standby status, terminal [C] closes to terminal [NC].
- In the event of fault, terminal [C] closes to terminal [NO].

Note: EN54-2 certification applies only when the fault output is not J (EN 54-1) type. Therefore, you must not use this output to manage fault transmission devices.

SC1, Sounder circuit

This sounder circuit is a supervised, silenceable, bypassable or disabled bell output for the alarm signaling devices. Terminals for the connection of devices that are activated with the positive 24V must be supervised.

During standby status, negative pull-down to 0 V on [+] terminal; positive pull-up to 27.6 V on the [–] terminal. When the control panel is in alarm status, positive pull-up to 27.6 V on the [+] terminal; negative pull-down to 0 V on the [–] terminal.

Silence the SC1 using the menu command **DISABLE.**

Note: You cannot program this output, it activates every time the control panel goes into ALARM status.

SC2, Sounder circuit

This sounder circuit is a supervised, silenceable, bypassable or disabled programmable bell output, for the panel alarm signaling or panel delay to alarm or panel warning or panel fault or 1,2,3 or 4 software zones(OR) alarm, or 1,2,3 or 4 software zones(OR) warning or 1,2,3 or 4 software zones (OR) fault or 1,2 or 3 points(OR) alarm or 1,2 or 3 points(OR) delay to alarm or 1,2 or 3 points(OR) warning or 1,2 or 3 points(OR) fault. During standby status, negative pull-down to 0 V on [+] terminal; positive pull-up to 27.6 V on the [–] terminal. When a programmed event occurs, positive pull-up to 27.6 V on the [+] terminal, negative pull-down to 0 V on the [–] terminal. You can force the SC1 and SC2 outputs to standby by resetting the control panel. The SC outputs hold standby status for the programmed silence time. If alarm conditions are present when the programmed silence time expires for the SC1 or another programmed event for the SC2, they reactivate.

ⓘ **Note:**

- SC1, SC2 accept devices that operate within SELV limits only.
- The SC2 output, if programmed as SC1, is type C.
- If using a 2-wire connection loop, the EN54-2 certification only applies when the total number of devices, including detectors and manual callpoints, does not exceed 32.

Auxiliary outputs

OC1-OC2

These outputs are silenceable, bypassable or disabled, unsupervised and programmable. These are open-collector terminals for the panel alarm signaling (default) or panel delay to alarm or panel warning or panel fault or 1,2,3 or 4 software zones(OR) alarm, or 1,2,3 or 4 software zones(OR) delay to alarm, or 1,2,3 or 4 software zones(OR) warning or 1,2,3 or 4 software zones(OR) fault or 1,2 or 3 points(OR) alarm or 1,2 or 3 points(OR) delay to alarm or 1,2 or 3 points(OR) warning or 1,2 or 3 points(OR) fault, which will be close to ground, when the connected event becomes active, and will remain in this state until the generating event has ended (so after a manual reset or a fault restore).

You can program the output OC1 to signal the telephone line failure so it can combine with a relay, for switching from the primary phone line to the reserve line.

You can also force the OC1 and OC2 outputs to standby by resetting the control panel.

The OC1 and OC2 outputs activate with a delay equal to the delay to alarm time when the programmed event occurs.

ⓘ **Note:** EN54-2 certification applies only when OC1 and OC2 outputs are not C or J or G, EN 54-1 type. Therefore, do not utilize this output to manage the fire alarm device or fire or fault transmission devices or automatic fire alarm system.

24R [GND]

Resettable auxiliary power supply to devices that operate at 24 V, 1A max. are powered by the following standby batteries:

- Positive (27.6 V) on terminal [24R];
- Negative on terminal [GND].

ⓘ **Note:** This power supply disconnects for 2 seconds when resetting the control panel, so it is suitable for devices that restore when the power supply disconnects.

24A [GND]

Auxiliary power supply for devices that operate at 24 V, 1A max. always are guaranteed by the following batteries:

- Positive (27.6 V) on terminal [24A];
- Negative on terminal [GND].

RS485

24V|B|A|GND|SH

These are the terminals for the FC500 repeater, (maximum 8). Types of terminals include:

- Serial bus terminals [A] and [B];
- 27.6 V power voltage terminals [GND] and [24V].

ⓘ **Note:** The maximum cable run allowed is 1000 m.

Battery

+BAT-

Terminals to connect the batteries inside the FC503, FC506 control panel.

The system wiring

Internal and external wiring:

ⓘ **Note:** If you use conductors with a total cross-sectional area of 0.5 mm^2 or greater, use the procedure in the IEC 60332-1-2 and IEC 60332-1-3 standards.

If you use conductors with a total cross-sectional area of less than 0.5mm^2, use the IEC60332-2-2 standard.

⚠ **CAUTION:**

Bunch high voltage leads (230V) separately from low voltage leads (24V). Bunch leads in a way that avoids contact with other wiring and components.

ⓘ **Note:** Use only shielded cable for all connections, with one end connected to the SH terminal of the control panel and the other one left free.

Connecting addressable devices

The control panel FC503 has one main loop or three sub loops for addressable analogue devices. The control panel FC506 has two main loops or six sub loops for addressable analogue devices. The maximum number of connecting

addressable devices for one main loop is 250 addressable analogue fire detectors and analogue devices such as input modules and output modules.

Every detector and module connected to the loops must have a unique address. You can use two or four wires for the loop connections.

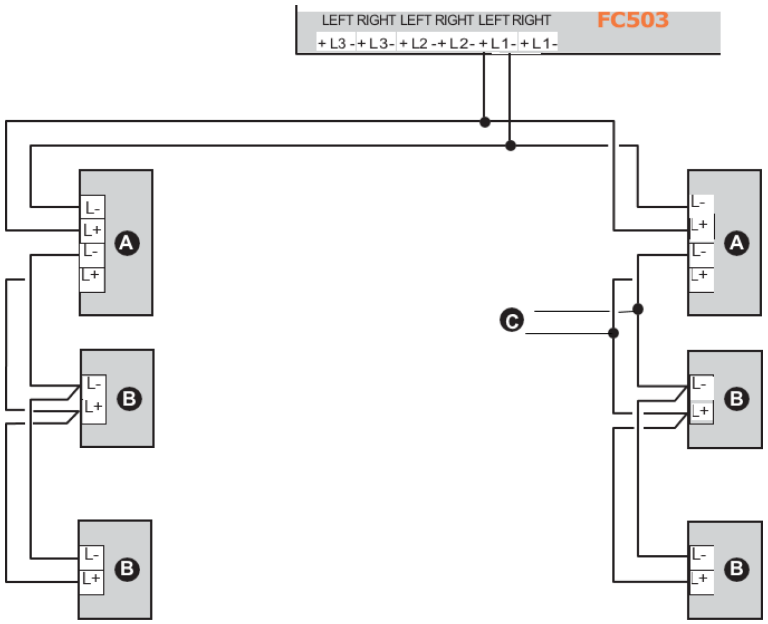
Specify the loop connection type during the programming phase. The following figures illustrate the loop connections:

- Figure 10 illustrates the 2-wire connection to Loop 1.
- Figure 11 illustrates the 4-wire connection to Loop 2.

Whatever the type of connection performed, ensure that any short or open circuit in the wiring does not lead to the loss of more than 32 detectors. It is necessary to fit an isolator every 32 detectors.

If using a 2-wire connection type, you can connect addressable analogue fire detectors and analogue devices such as input and output modules on the left and right sides. There are two spur circuits per sub loop.

Figure 10: Wiring diagram of a 2-wire connection



Callout	Description
A	Isolators
B	Compatible analogue devices (Fire detector, Input modules, Output modules, Manual callpoints)
C	T connection

Connecting the FC500 repeater

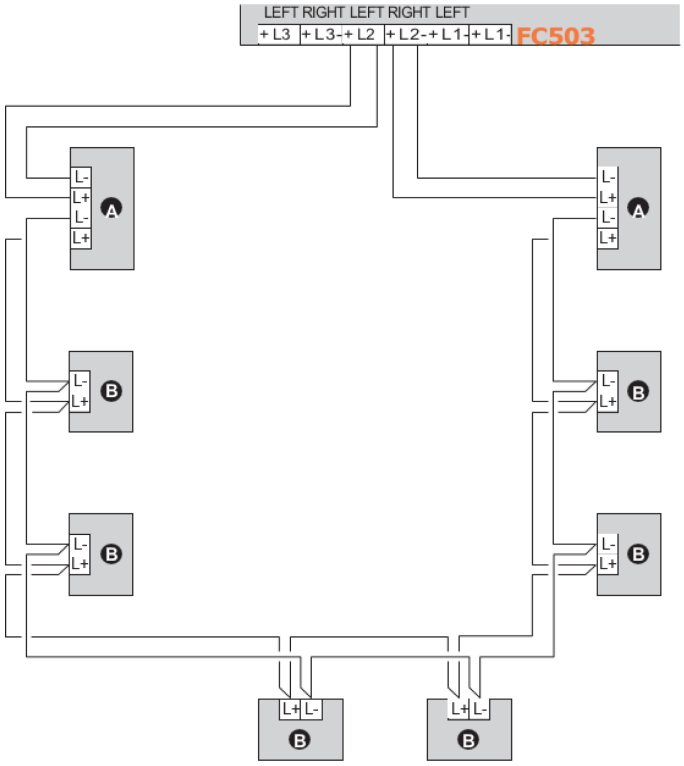
For an example of how to connect two FC500 repeaters, see Figure 12.The RS485 port of the FC503, terminals [GND], [A], [B] and [24V], accepts up to eight FC500 repeaters. Terminals [A] and [B] supply the power (27.6 V) to the repeater panels.

When a mains fault occurs, the repeaters decrease the absorbed power, switching off the LCD display backlighting. By pressing a key, the LCD display backlighting switches on again for 20 seconds. However, the absorption of the repeaters continues to run down the backup batteries and decreases the stand-by supply time of the system.

As there is only one control panel in the system, it must supply the repeaters with power, unless a power supply station is in the system.

Use only shielded cable, with one end connected to the earth terminal of the control panel and other left free; secure the continuity between several segments of connection.

Figure 11: Wiring diagram of a 4-wire connection



Callout	Description
A	Isolators
B	Compatible analogue devices (Fire detector, Input modules, Output modules, Manual callpoints)

Figure 12: Wiring diagram of eight (max) FC500 repeaters connected to the RS485

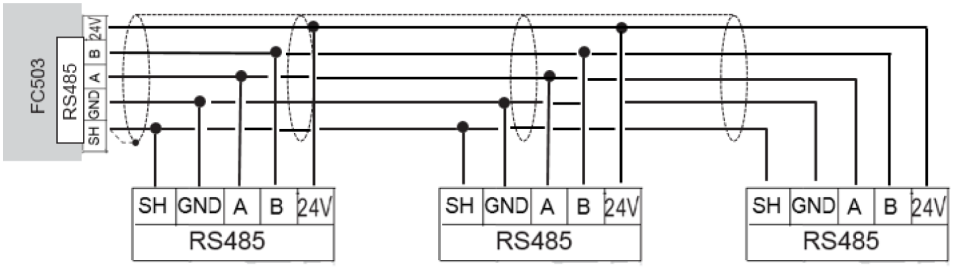
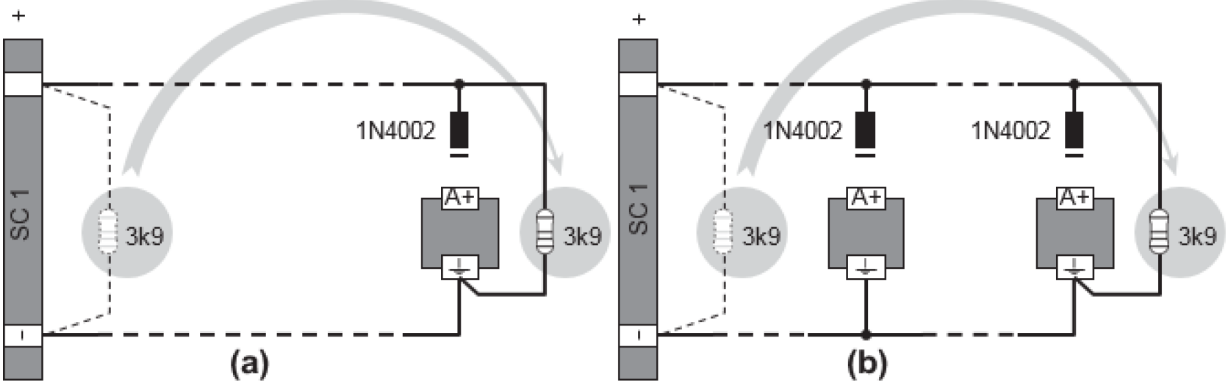


Figure 13: Wiring diagram of the connection of a single device



Callout	Description
a	Connecting to several devices
b	Connecting to bell outputs (device activated by positive (27.6 V) on terminal [A+])

Connecting output devices

The control panel has non supervised outputs and two bell outputs.

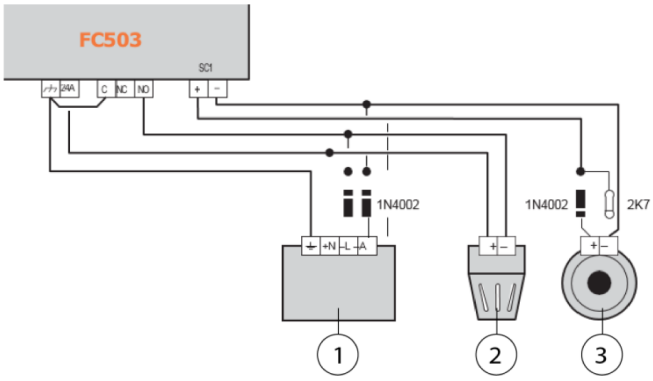
Connect output devices to the loops using output modules.

Bell outputs

The bell outputs are indicated by the letter SC and their address number.

The SC1 and SC2 bell outputs are supervised, silenceable, and bypassable or disabled. SC2 is also programmable.

Figure 14: Wiring diagram: Non-silenceable and silenceable output connections



Callout	Description
1	Self-powered siren CALL-R24
2	Flasher
3	Bell

Force the bell outputs to standby using the **SILENCE** button. When a user acknowledges an alarm, you can silence the audible signaling devices and leave the visual signaling devices active until alarm conditions cease.

For example, a connection similar to the wiring diagram in Figure 14 activates the flasher, the bell and the visual and audible signaling device of the self-powered siren in alarm conditions.

Using the **SILENCE** button stops the horn, but not the flasher, which continues to signal alarm status until you press the **RESET** button.

Connecting the CSG

The CSG connects to the control panel using the serial RS232 port for remote services. The CSG board serial port connects to the COM1 (PC_LINK) port on the control panel.

The CSG can be installed in two configurations, inside the Fire Panel enclosure or in a separate enclosure close coupled to the Fire Panel.

Note: For more information about installing the CSG in FireClass panels, refer to the *Connected Services Gateway Installation Instructions 579-1285* manual.

Connecting the power supply

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

CAUTION:

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. For example, the automatic isolating switch.

DANGER:

C.I.E in overvoltage category II. If C.I.E is subjected to transient voltages that exceed those for its design overvoltage category, it requires additional transient voltage protection to be provided external to the equipment.

Pollution degree: PD2

This control panel is powered from the Mains (230 V~ 60/50 Hz) through a switching power supply, located inside the case. The FC503 and FC506 control panels provide housing for two 12 V, up to 17 Ah batteries inside the panel or two 12 V, 38 Ah in an external metal box for power during Mains failure. See Figure 19.

The battery must be a VRLA (valve regulated lead acid) type. The battery must comply with all applicable standards

indicated in paragraph M.2.1 of standard EN 62368-1:2014 “Requirements (safety of batteries and their elements)”;
In this case, the battery must comply with the standards: IEC60896-21:2004 and IEC 60896-22:2004.

The battery must have an enclosure with flammability class UL94V-1 or better.A skilled professional must install and replace the battery.

The non-volatile memory holds the programmed data at all times. In the event of MAINS failure, the AMBER Power Supply LED turns ON. The control panel checks the batteries at all times. In the event of a low battery, no Battery or any battery related fault, the Battery Trouble LED turns ON. If this occurs, restore the Mains power before the batteries empty, otherwise the system shuts down.

Connecting the mains supply

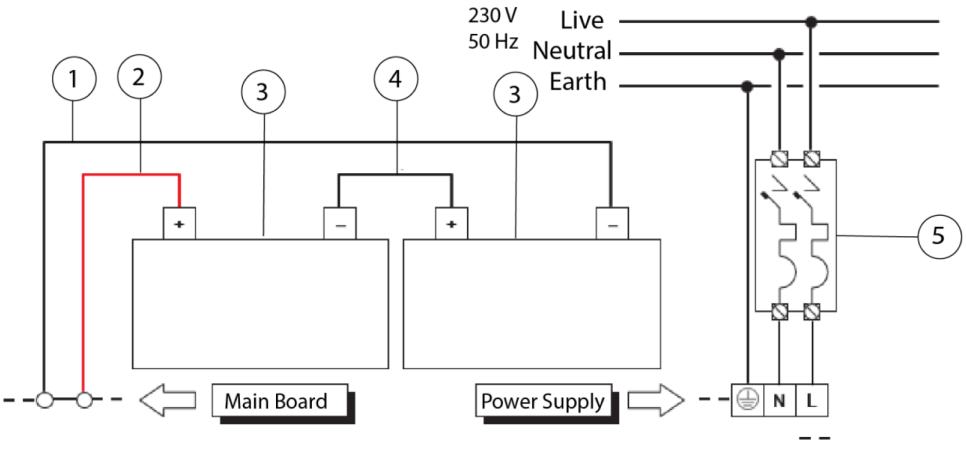
CAUTION:

Do not allow the power cable to cross over other wiring. The power cable must be routed and held firmly in place by a two cable tie. See Figure 3.

Follow the below steps to connect the Mains Supply:

1. Locate the backup batteries in the cabinet. See Figure 3. Secure the batteries to the panel, using the cable ties, in the appropriate opening.
2. Using the jumper supplied, connect the batteries in series.
3. Observing the battery polarity, connect the battery terminals to terminals -BAT+ on Main Board. Wires are supplied.
4. FC503 and FC506 use 17 Ah or 38 Ah @ 12 V Power Sonic batteries or similar.
5. Connect the switching power supply BAQ140T24 with the external power supply (mains). Connect the **Earth** wire to the terminal 7 on the main board. See Figure 4.
6. Connect the **Neutral** wire to terminal [N], and the **Live** wire to terminal [L] on the terminal block **7**. See Figure 4.
7. Connect the connector or cable 4 in Figure 5 to the main board connector 9 in Figure 3. The control panel resets on power up.

Figure 15: Wiring diagram for the power supply



Callout	Description
1	Black wire
2	Red wire
3	Battery 12V
4	Jumper
5	Automatic Isolating Switch

Thermal probe

The control panel supports the KST thermal probe. The probe optimizes the battery charging process by regulating the charge voltage in accordance with the battery temperature. Work carefully through the following instructions. Refer to Figure 15, Figure 16 and Figure 19.

Connecting the thermal probe to the control panel

Note: The panel comes with a KST thermal probe installed to connector 10 on the power supply. See Figure 5.

1. Use the trimmer 9 in Figure 5 to adjust the voltage. Refer to the graph in Figure 16 and Table 6.

For example: if the probe is located in an ambient temperature of 20°C, the output voltage must be 27.489V.

Important: The probe temperature must be considered during voltage adjustment.

2. When the voltage adjustment is complete, attach the thermal probe to the battery. Refer to Figure 19.This will provide an optimum level of thermal conductibility.
3. Connect the batteries to the battery terminal on the panel main board.

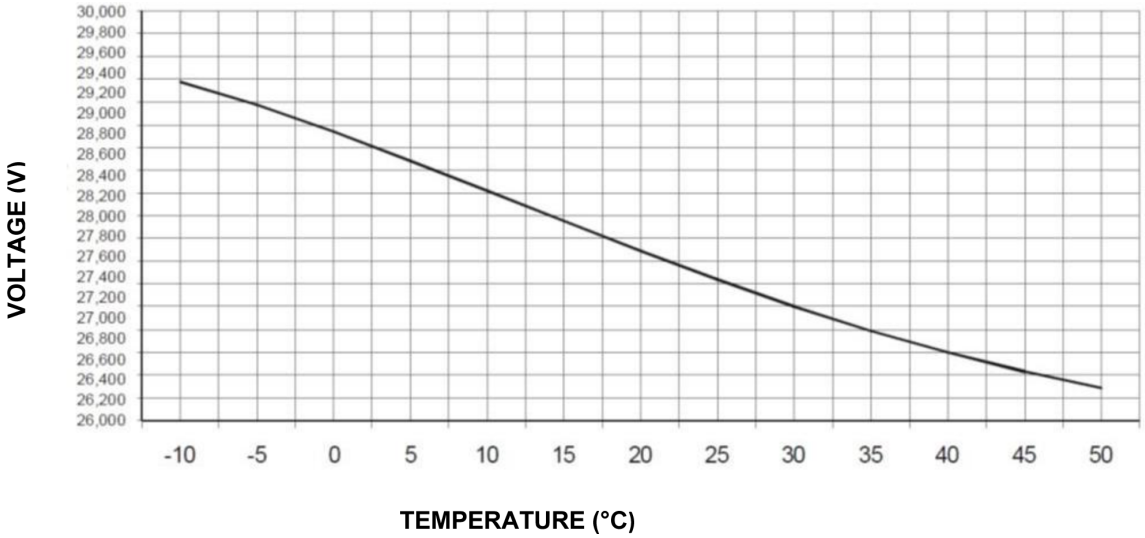
CAUTION:

Before removing the probe, disconnect the battery from the main board. Removing the thermal probe causes the switching power supply voltage to rise to 27.6 V or greater. This damages the battery.

If you are disconnecting the battery and you are required to work without the thermal probe (EN54 approval will be lost), adjust the switching power supply output voltage using the trimmer (46) as per Table 6. Reconnect the batteries only if their voltage equates to 27.6 Vdc or less.

To verify battery efficiency, the charger circuit measures the internal resistance of the batteries. To ensure you receive an accurate reading, use only the cables supplied; longer cables or those that have an insufficient section may incorrectly simulate an inefficient battery.

Figure 16: Switching power supply output voltage graph



Finding the output voltage using the graph

1. Indicate the probe temperature on the TEMPERATURE (°C) axis.
2. Draw a line from the temperature value point up to the curve **a)** and draw a line from the intersection point across to the VOLTAGE (V) axis.
3. 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.

Figure 17: Switching power supply output voltage chart

TEMPERATURE (°C)	-10	-5	0	5	10	15	20	25	30	35	40	45	50
VOLTAGE (V)	29.980	28.770	28.537	28.283	28.018	27.752	27.489	27.240	27.002	26.788	26.597	26.428	26.282

Finding the output voltage using the chart

1. Select the nearest value to the probe temperature on the TEMPERATURE (°C) row.
2. Read the respective value on the VOLTAGE (V) row.
3. 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.

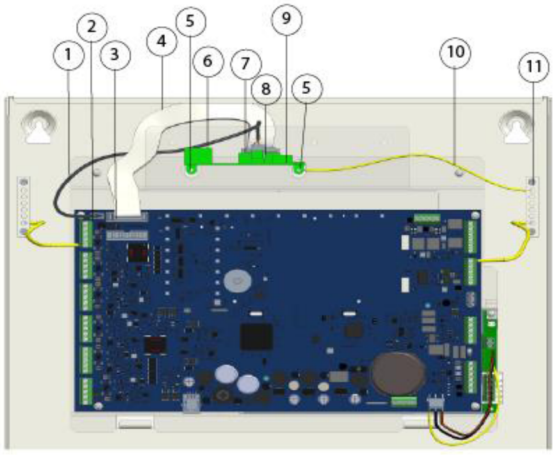
Installing the FC500IP board

Install the IP module into the base of the control panel, as shown in Figure 18. Follow these instructions to install the FC500IP board.

CAUTION:

- Before installing the FC500IP module, disconnect the control panel from its power supply, the mains, and the batteries.
- You must connect the IP module to the earth of the electricity supply system.
- You must insert the earth cable (item 10) between the fixing bracket of the module, the screw (item 5) and the earth terminal (item 11).

Figure 18: FC503 connection with the FC500IP



Callout	Description
1	PC Link cable
2	Serial port RS 232 (PC LINK)
3	Module IP (FC500IP) connector
4	Flat cable for the connection with FC500IP
5	FC500IP fixing screws
6	Ethernet connector
7	PC Link connector
8	Flat cable connector
9	FC500IP board
10	Cable for earth wiring of the FC500IP
11	Earth Terminals

Do not remove the wiring already present on the screw (item 11).

1. Open the control panel by unscrewing the two screws, then lift the cover from the bottom to separate it from the chassis. See Figure 2, item 2.
2. Remove the fastening screw between the control board and the chassis. See Figure 3, item 6.
3. Unlock the control board support and user interface using a flat screwdriver.
4. Lift the control board and user interface display from the base.
5. Insert the IP module below the chassis and align the mounting holes given.
6. Put the IP module screws through the holes on the chassis. See Figure 18, item 5.
7. Assemble the control board again in place with the help of four screws. See Figure , item 6.
8. Re-fit the control board and display and secure the screw.
9. Connect the IP module connector (Figure 18, item 8) to the control panel connector (item 3) using the supplied flat cable (item 4).
10. If you only need to manage the control panel through the IP, connect the IP module connector (Figure 18, item 7) to the control panel connector (item 2) using the supplied PC link cable (item 1).
11. Connect the cable (item 10) between the screws (item 5) and (item 11). See Figure 18.
12. Connect the Ethernet connector (Figure 18, item 6) to the LAN using an Ethernet cable. **Note:** Use a category 5 or greater Ethernet cable, STP, or FTP.
13. Reconnect the control panel to the power supply.
14. Program the IP Module as described in the section PC Programming.

Installing the 38Ah battery metal box

Work carefully through the following steps for the FC503 and FC506 fire panel. See Figure 19.

1. Remove the two screws on the cover and open the metal box.
2. Drill the anchor screw holes. Check for water pipes and electrical wiring before drilling.
3. If necessary remove the surface conduit wire knockouts of the metal box, using a hammer or similar tool.
4. Secure the metal base to the wall.
5. Secure the cable conduit union with the cabinet using HB Flame Class or higher lock nuts. See Figure 19.
6. Pull the wires through the cable entry and connect them as shown in Figure 19. See the Connecting the power supply section.

Maintenance

To ensure the system operates normally, you must carry out regular testing and an installer must provide periodic maintenance in accordance with local laws.

For the maintenance of other devices such as detectors and modules, follow the dedicated instructions for the devices.

Users must carry out the following operations regularly:

- Use a damp cloth to remove dust from the control panel cabinet. Do not use solvents of any kind.
- Using the **Lamp Test** key, check that the LEDs and buzzers function properly.

The following operations must be carried out regularly by qualified persons only:

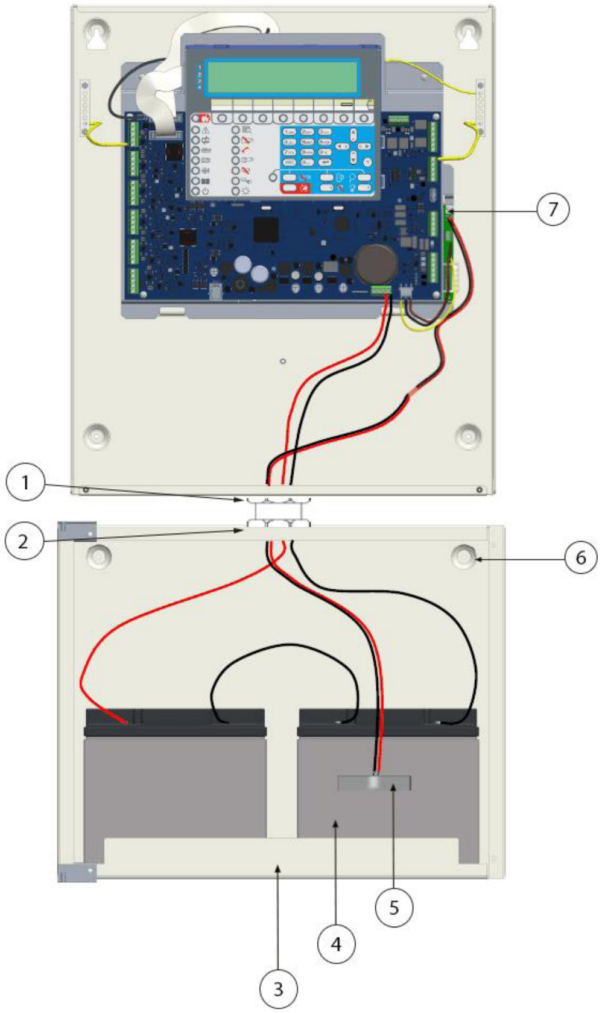
- Ensure that the batteries are sufficiently charged and functioning properly. If not, replace them immediately.
- Ensure that all cables and connections are intact.
- Ensure that there are no unrelated objects inside the control panel case.
- Ensure that the control panel can process a fire alarm and operate the regular sounders and outputs subsequent to a fire alarm incident. If there is a facility for transmitting fire alarm signals to a central station, ensure that signal comes through correctly.

Verifying the functionality of the circuit

The purpose of verifying the circuit's functionality is to ensure the circuit can detect faults.

1. Connect one of the loops' SH terminals to the ground.
2. Verify that the fire panel correctly reports the fault
3. Remove any connection points previously made.

Figure 19: Control panel and 38Ah Batteries metal box connection (accessory item)



Callout	Description
1	Nuts on Control Panel
2	Nuts on 38Ah Batteries cabinet
3	38Ah Batteries cabinet (Accessory item)
4	38Ah Batteries
5	Thermal probe
6	Holes for cabinet mounting
7	Connector for Thermal probe connections

Programming from the panel

The following section provides an overall view of using the user interface programming (main panel) of the control panel.

For PC Programming help, refer to the *FC503 and FC506 Addressable Fire Control Panels PC Programming Manual*.

Using the system

Manage the FC503 and FC506 systems from the user interface (main panel) or through the FireClass FC500 (FC501_FC503_FC506) Console application. The user interface (main panel) allows access to three authorized access levels. The three access levels are:

1. **Level 1** (**lev.1** or **L1**) allows read-only access to the parameters. The options included in lev.1 are:
   - **ANALYZE** key views the status of the: LOOP, DEVICE, SW ZONES, OUTPUT, NETWORK, TELECOM, OPTIONS, LOG, FW Vers., and PANEL
   - **View LOG**
   - **View lists** key views the lists of: DIS. ZONES, DIS. DEVICES, DIS. PARTS, WALK TEST, FAULTS, WARNINGS and Dev. in TEST
2. **Level 2** (**lev.2** or **L2**) is referred to as the User Level. To access L2, enter the USER PIN (Access Level 2). L2 includes all the operations of L1 and access to the **MODIFY** and **DISABLE** keys. The additional options included in L2 are:
   - **MODIFY** key for: Init MSG (MESSAGE), L2 USER PASSWORD, DAY/NIGHT, TIME and DATE, CLEAR LOG and WALK TEST
   - **DISABLE** key for: DIS LISTS, SW ZONES, OUTPUT, NETWORK, COMMUNIC, FIRE RELAY **Note:** Disable Devices, User Passwords and Sounders are only possible at L3
3. **Level 3** (**lev.3** or **L3**) is also referred to as the Installer Level. To access L3, enter the INSTALLER PIN (Access Level 3). L3 includes all of the operations of L1 and L2 and you can also program the system from L3. The programming phase allows you to program the control panel and peripheral devices including detectors, modules, and repeaters in detail. The additional options included in L3 are:
   - AUTO, DEVICES, SW ZONES, OUTPUTS, NETWORK, MAP DEVICE, USB, SYSTEM, DEFAULT, and L3 PWD.

ⓘ **Note:** This section shows the operations managed at L3 (Installer Level). Refer to the *FC503 and FC506 Addressable Fire Control Panels User Manual* for further details about the operations managed at L1 and L2 (User Level).

Operating the system from the panel

Use the alphanumeric keypad, the cursor keys, the **ESC** key, and the **ENTER** key to manage the system from the user interface (main panel).

Alphanumeric keypad

Use the alphanumeric keypad to create labels and enter data and codes. The alphanumeric string cannot exceed 20 characters.

Each time the alphanumeric key is pressed in the selected position, pointed by the cursor, the characters printed on the key will appear in sequence and cyclically.

Table 6: Alphanumeric keypad functions

Key	Sequence
1	ABC1
2	DEF2
3	GHI3
4	JKL4
5	MNO5
6	PQR6
7	STU7
8	VWX8
9	YZ *blank* 9
0	*blank* 0

ⓘ **Note:** Long press (press for more than 1 s) the **0** key to clear the entered data and return the cursor to its starting point.

Cursor keys

Table 7: Cursor keys functions

Key	Function
Up	Use for upper-case letters
Down	Use for lower-case letters
Right	Use to scroll along the line
Left	Use to scroll along the line

ESC and ENTER keys

Table 8: ESC and ENTER key functions

Key	Function
ESC	Use to cancel the operation and return to the previous screen
ENTER	Use to confirm the entered text and proceed or use in the MAIN screen to signal a local programming activity followed by a panel reset

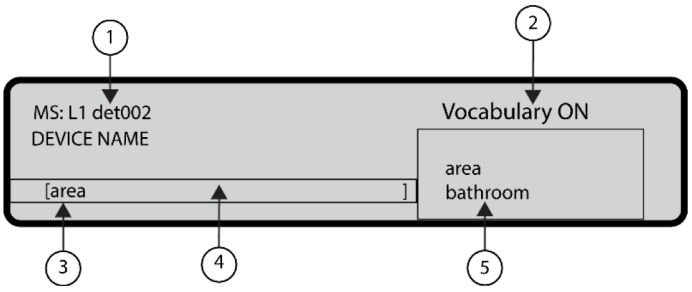
Assistant text composition

To simplify the entry of text strings, an assisted procedure has been included, based on a pre-compiled list of 128 vocabulary words with a maximum of 18 characters. When one of the numeric keys is pressed to enter a letter, the first word in the list that begins with that letter will be inserted. The **Up** and **Down** arrows will load the next or the previous word in the list.

Activate the assisted entry procedure by pressing the **Up** key for more than 3 seconds. Deactivate the assisted entry

procedure by pressing the **Down** key for more than 3 seconds. See Figure 20.

Figure 20: Assisted entry procedure



Callout	Description
1	Device coordinate
2	Assisted procedure active
3	Cursor
4	Entry area
5	Vocabulary area

When the assisted entry procedure is active, the string Vocabulary ON blinks on the upper right area of the LCD display. In the Vocabulary area the word currently selected in the row aligned with the Entry area displays. The word that precedes it in the vocabulary displays in the upper row while the next word displays in the lower row. In the Entry area the words used to compose the label display.

To enter a word, press the numeric key (more than one time if necessary) related to the first letter of the word that needs to be entered. If this word is not correct, scroll through the vocabulary using the **Up** and **Down** keys until a suitable word is found. During the vocabulary scan, the word in the middle row is entered in the Entry area at the cursor position. Use the **Left** and **Right** keys to move the cursor to the beginning of each word.

Single selection

Use single selection to select a single value between a set of possible values. The maximum number of values is 8.

ON off

^

The selected value displays in upper case. The selection of a new value will automatically deselect the previously selected value.

In this phase the keypad and keys have the following functions:

Alphanumeric keypad

No function is related to the alphanumeric keypad.

Cursor keys

Table 9: Cursor key functions in single selection

Key	Function
Up	No function
Down	No function
Right	Use to move the cursor to the next value position and select the value pointed to.
Left	Use to move the cursor to the previous value position and select the value pointed to.

ESC and ENTER keys

Table 10: ESC and ENTER key function in single selection

Key	Function
ESC	Use to cancel the operation and return to the previous screen
ENTER	Use to accept the programmed string. The user interface moves to the next programming parameter screen, if any, or returns to the MAIN screen signaling a local programming activity followed by a panel reset.

Multiple selection

Use multiple selection to select more than one value between a set of possible values. The maximum number of values is 8.

SUN mon tue wed thu **FRI SAT**

^

The selected values are displayed in upper case.

In this phase, the keypad and keys have the following functions:

Alphanumeric keypad

No function is related to the alphanumeric keypad.

Cursor keys

Table 11: Cursor key functions in multiple selection

Key	Function
Up	No function
Down	No function
Right	Use to move the cursor to the next value position and select the value pointed to
Left	Use to move the cursor to the previous value position and select the value pointed to

ESC and ENTER keys

Table 12: ESC and ENTER key function in multiple selection

Key	Function
ESC	Use to cancel the operation and return to the previous screen
ENTER	Use to accept the programmed string. The user interface moves to the next programming parameter screen, if any, or returns to the MAIN screen signaling a local programming activity followed by a panel reset

Date and time

Use date and time to enter the date and time.

The default format for date and time is:

hh: mm: ss dd/mm/yy

^

It is also possible to enter the date and time in the alternative time format:

hh: mm: ss mm/dd/yy

^

In this phase the keypad and keys have the following functions:

Alphanumeric keypad

Use the alphanumeric keypad to enter the date and time numeric value.

Note: Long press the **0** key to clear all the entered data.

Cursor keys

Table 13: Cursor key functions in date and time

Key	Function
Up	No function
Down	No function
Right	Use to move the cursor to the next digit position
Left	Use to move the cursor to the previous digit position.

ESC and ENTER keys

Table 14: ESC and ENTER key function in date and time

Key	Function
ESC	Use to cancel the operation and return to the previous screen
ENTER	Use to accept the programmed string. The user interface moves to the next programming parameter screen, if any, or returns to the **MAIN** screen signaling a local programming activity followed by a panel reset.

Numeric entry

Use numeric entry to enter numeric data up to 20 digits.

[ ]

^

In this phase, the keypad and keys have the following functions:

Alphanumeric keypad

Use the alphanumeric keypad to enter the numeric value.

Note: Long press the **0** key to clear all the entered data.

Cursor keys

Table 15: Cursor key functions in numeric entry

Key	Function
Up	No function
Down	No function
Right	Use to move the cursor to the next digit position
Left	Use to move the cursor to the previous digit position.

ESC and ENTER keys

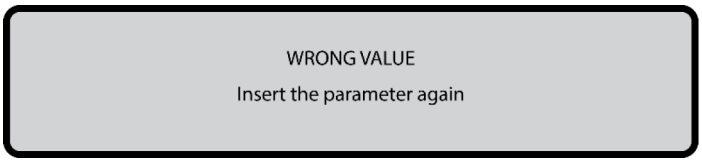
Table 16: ESC and ENTER key function in numeric entry

Key	Function
ESC	Use to cancel the operation and return to the previous screen
ENTER	Use to accept the programmed string. The user interface moves to the next programming parameter screen, if any, or returns to the MAIN screen signaling a local programming activity followed by a panel reset.

Note: To program each parameter or option inside the system, the same screen will be used. The screen can adapt itself to the most appropriate program mode for the parameter to program.

If you enter an incorrect value, an error message displays for 5 seconds. See Figure 21.

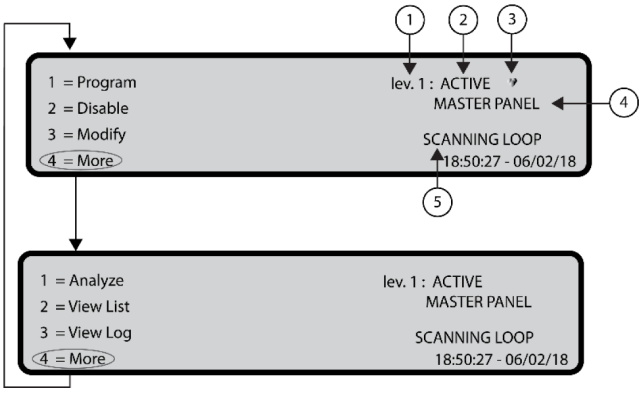
Figure 21: WRONG VALUE screen



MAIN screen - accessing the system

When you access the panel for the first time after installation, you will be prompted to choose the display language. When you select the language, the MAIN screen displays. See Figure 22.

Figure 22: MAIN screen



Callout	Description
1	Access level
2	Control panel status
3	If blinking, the control panel is working properly
4	Control panel name
5	Current phase

In this phase, the keypad and keys have the following functions:

Alphanumeric keypad

Table 17: Alphanumeric keypad function in MAIN screen

Key	Function
1	Display Program or Analyze
2	Display Disable or View List
3	Display Modify or View Log
4	Select between groups of related functions of keys **1, 2**, and **3**

Cursor keys

Table 18: Cursor key functions in MAIN screen

Key	Function
Up	Use to increase the brightness of the LCD display
Down	Use to decrease the brightness of the LCD display
Right	Use to increase the contrast of the LCD display
Left	Use to decrease the contrast of the LCD display

ESC and ENTER keys

Table 19: ESC and ENTER key function in MAIN screen

Key	Function
ESC	Use to exit the MAIN screen and to move from the user interface to the front screen or event driven screen, if any. If you press the ESC key for more than 3 seconds, the panel will access level 1.
ENTER	No function

Note: When the panel starts its normal activity and there is no access to the user interface for a period of 30 seconds, the user interface leaves the MAIN screen and reaches the front screen. For more information, refer to the description of the MAIN screen in the *FC503 and FC506 Addressable Fire Control Panels User Manual*.

Insert password

Select the **1** key, Program, from the MAIN screen to insert the installer password required to operate at L3. The default installer password is 00000. All digits will be masked with an asterisk.

In this phase, the keypad and keys have the following functions:

Alphanumeric keypad

Use the alphanumeric keypad to select the **0** key and access the display.

Cursor keys

No functions are related to the **Up**, **Down**, **Right**, or **Left** keys.

ESC and ENTER keys

Table 20: ESC and ENTER key function in insert password

Key	Function
ESC	Use to return to the previous screen or to clear the entered digits of a password.
ENTER	Use to accept and verify the password.

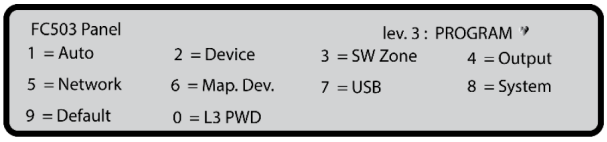
If the password is incorrect or missing, an error message will appear. See Figure 23.

Figure 23: Wrong password screen

PROGRAM screen

From the MAIN screen, press the **1** key to select the PROGRAM screen. Enter the password. See Figure 24.

Figure 24: PROGRAM screen



In this phase, the keypad and keys have the following functions:

Alphanumeric keypad

Table 21: Alphanumeric keypad function in PROGRAM screen

Key	Function
1	**Auto**: starts the auto-learning of the loop devices and the RS485 network devices (repeater only).
2	**DC Dev**: starts the selection and programming screen of the loop devices.
3	**SW Zone**: starts the programming screen of the software zones.
4	**Output**: starts the programming screen of the Outputs.
5	**Network**: starts the programming screen of the RS485 network.
6	**Map Device**: activates the On Demand device mapping feature.
7	**USB**: starts the programming screen for the management of the USB memory stick.
8	**System**: starts the programming screen of the system parameters.
9	**Default**: forces a default setting restore procedure.
0	**L3 PWD**: starts the screen to insert the L3 password (Installer code). See 0 Key-insert modify password.

Cursor keys

No functions are related to the **Up**, **Down**, **Right**, or **Left** keys.

ESC and ENTER keys

Table 22: ESC and ENTER key function in PROGRAM screen

Key	Function
ESC	Use to cancel the operation and to return to the MAIN screen.
ENTER	No function

0 Key - insert modify password

On the PROGRAM screen, press the **0** key to modify the Level 3 Installer password. The default password is 00000 and every digit will be masked by an asterisk.

In this phase, the keypad and keys have the following functions:

Alphanumeric keypad

Use the alphanumeric keypad to insert a 5 digit password. The first digit must be **0** for INSTALLER 1 (Main Installer) and **9** for INSTALLER 2. The panel verifies the correct entry of the identification digit. In the case of an error, a denial tone is generated.

Cursor keys

No functions are related to the **Up**, **Down**, **Right**, or **Left** keys.

ESC and ENTER keys

Table 23: ESC and ENTER key function in insert modify password screen

Key	Function
ESC	Long press (press for more than 1 s): use to clear all the entered digits Short press (press for less than 32 ms): use to abort the enter password procedure and return to the Calling screen.
ENTER	Use to accept and verify the password.

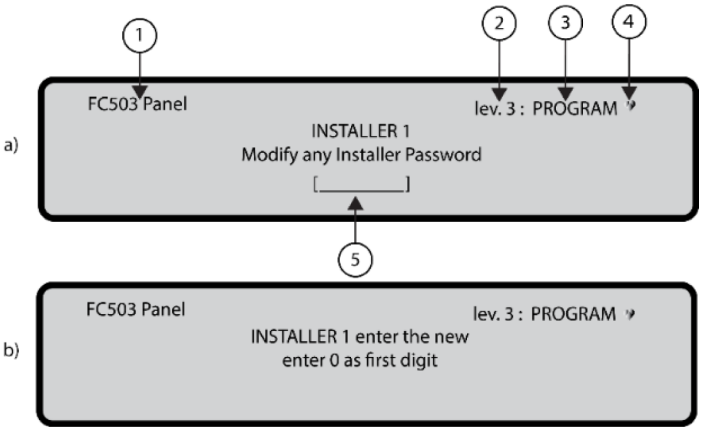
If the password is incorrect, the Wrong Password screen will display for 5 seconds. See Figure 23.

To avoid entering duplicate passwords, use a specific digit as the first digit of your password. Refer to Table 24 for the first digit of the password for each user or installer.

Table 24: First digit of password

User or Installer	First digit of password
USER 1	1
USER 2	2
USER 3	3
USER 4	4
USER 5	5
USER 6	6
USER 7	7
USER 8	8
INSTALLER 1	0
INSTALLER 2	9

Figure 25: Modify password screen



Callout	Description
1	Control panel name
2	Access level
3	Control panel status
4	If blinking, the control panel is working properly
5	Field to insert password

Auto

Use the Auto option from the PROGRAM menu to enroll the loop devices and the RS485 network devices automatically for repeater FC500.

The Auto option consists of three main phases:

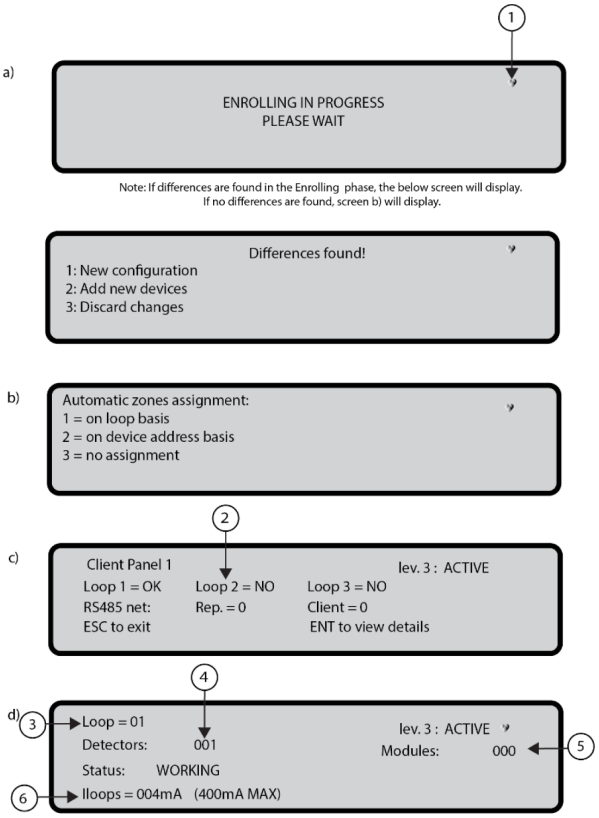
1. Auto-enrolling
2. Auto-addressing
3. Devices mapping.

Key- Auto-enrolling (auto-learning)

Auto-enrolling (auto-learning) can be done during the installation phase and after changes of the loop and network configurations.

Use the **1** Key to select the Auto option. See Figure 26.

Figure 26: Auto scan results screen



Callout	Description
1	If blinking, the control panel is working properly
2	List of present loop with the autoscan result
3	Num. analysed loop
4	Num. found detectors
5	Num. found modules
6	Value of the current in the three loops, in real time. Data is updated every 5 s.

In this phase, the keypad and keys have the following functions:

Alphanumeric keypad

No function is related to the alphanumeric keypad.

Cursor keys

No functions are related to the **Up**, **Down**, **Right**, or **Left** keys.

ESC and ENTER keys

Table 25: ESC and ENTER key function in auto-enrolling

Key	Function
ESC	Use to cancel the operation and return to the MAIN screen
ENTER	No function

If an open circuit is detected when the auto-enrolling is launched, you are prompted to launch the procedure to locate the loop break. The number of devices visible on the left and right side of the loop is calculated and displayed on the LCD.

If a double address fault is detected when the auto-enrolling is launched, you are prompted to switch on the LEDs of the involved devices.

Note: If the faults are generated in unsteady situations, for example with devices which start or stop working randomly or faulty contacts between wires, the result of the new operations may be misleading.

Sounders triggered by

Sounders triggered by allows you to activate the sounders on the control panel alarm or on the zone alarm by default. The enroll procedure on the control panel LCD prompts you to choose whether to activate the enrolled sounders on the control panel alarm or the zone alarm.

Automatic zone assignment

After a few seconds, the panel will prompt you to choose the type of automatic zone assignment. This feature allows you to assign the zone to each enrolled detector and define the first trigger zone for the activation of all outputs channels in the enrolled modules.

The possible schemes used to assign the zones are displayed on the panel during the enroll process:

1 = on loop basis

2 = on device address basis

3 = no assignment

See Figure 26, d.

The three different schemes are:

Scheme 1: All the devices located on each sub loop will be assigned to a separate zone.

For example, all the devices located on Loop 1 (sub loop 1) will be assigned to zone 1 and all the devices located on Loop 2 (sub loop 2) will be assigned to zone 2.

Scheme 2: Each zone contains two device addresses. For Main Loop 1 on FC503, assign devices from zone 1 to zone 125. For Main Loop 1 on FC506, assign devices from zone 1 to zone 125 and for Main Loop 2 on FC506, assign devices from zone 128 to zone 253.

Examples of zone assignments are:

For Main Loop 1

The first two addresses are assigned to zone 1.

The next two addresses are assigned to zone 2.

The last addresses (249 and 250) are assigned to zone 125.

For Main Loop 2

The first two addresses are assigned to zone 129 The next two addresses are assigned to zone 130.

The last addresses (249 and 250) are assigned to zone 253.

Note: For Main Loop 1 on FC503, do not assign devices to zones 126, 127, and 128.

For Main Loop 1 and Main Loop 2 on FC506, do not assign devices to zones 126, 127, 128, 254, 255, and 256.

Scheme 3: All the devices found on the loop are assigned to zone 0, system zone.

The previous zone assignment schemes are also applied to the first trigger zone in the case of output only devices such as sounders, beacons, and SNM modules or output channels of input output devices.

For devices already addressed (1-250) the zone assignment procedure is the same as explained above. See Figure 26, d.

For devices that are not addressed, if you choose **ESC** at the end of Auto addressing, the panel assigns the zone based on the loop, but if you choose **ENTER** the panel assigns the zone based on its address.

In this phase, only the alphanumeric keypad is active.

Alphanumeric keypad

Use the alphanumeric keypad to select the appropriate zone assignment scheme 1 to 3:

Table 26: Alphanumeric keypad function in the programming screen

Key	Function
1	Scheme 1
2	Scheme 2
3	Scheme 3

Sounders triggered by

On this screen, the installer is prompted to choose whether to activate the enrolled sounders on:

1. Zone Alarm
2. Panel Alarm

Warning enrolling (auto-learning)

When there are differences between the current configuration and the enrolling (auto-learning) results, the Modify any Installer Password screen appears. See Figure 25, b.

In this phase, the keypad and keys have the following functions:

Alphanumeric keypad

Table 27: Alphanumeric keypad function in warning enrolling

Key	Function
1	Use to delete the old configuration and accept the new configuration.
2	Use to accept only the differences detected between the new and the previous configuration. The new devices are added, while the devices that are no longer present are removed. This applies both to the loop devices and 485 network devices.
3	Use to discard the current configuration that is detected. The previous configuration is still valid.

Cursor keys

No functions are related to the **Up**, **Down**, **Right**, or **Left** keys.

ESC and ENTER keys

Table 28: ESC and ENTER key function in warning enrolling

Key	Function
ESC	Use to cancel the operation and return to the MAIN screen
ENTER	Use to activate the device details screen

The fields Loop1, Loop2, and Loop3 show if there are any devices connected. In Autoscan OK or NO, you can view details on the Loop. See Figure 26, c. The RS485net: Rep shows the number of repeaters found on the network RS485.

In this phase the keypad and keys have the following functions:

Cursor keys

Table 29: Cursor key functions in loops

Key	Function
Up	Use to show information relating to the next loop
Down	Use to show information relating to the previous loop
Right	No function
Left	No function

ESC and ENTER keys

Table 30: ESC and ENTER key function in loops

Key	Function
ESC	Use to cancel the operation and to return to the MAIN screen
ENTER	Use to accept the device selection and activate the loop device programming

Note: When the enrolling is done, the devices programming data, except their assigned names, restore to the factory defaults. Any previous configurations are lost.

Auto-addressing procedure

Auto-addressing creates a sequence of operations to make all the devices accessible by the panel without executing any previous configuration action on the devices during their installation phase. Use the auto-addressing procedure instead of the FC490ST programming tool for loop devices and instead of manually assigning device addresses. The auto-addressing procedure is also used in the device mapping phase to determine or set the geographical position of the devices on the site.

Note: In the program menu of the loop devices, a new item appears. This allows you to switch on and off the device LED to activate the device LED from the control panel user interface in order to easily identify the device on a given field.

The auto addressing procedure is part of the loop devices enroll process in the FC503 and FC506 panels.

To initialize the loop devices enroll process follow these steps:

1. Press the **1** key to enter the PROGRAMMING mode. Enter the default INSTALLER PIN (00000). Each digit is masked by an asterisk.
2. Select option 1: AUTO.

When all the devices are initialized in the Loop, the panel prompts you to choose the type of automatic zones assignment:

1. = According to the loop
2. = According to the addresses of the devices
3. = Do not assign. When this choice is made, the user can reach the results phase by:
   - Pressing the **ENTER** key to activate the AUTO-ADDRESSING phase

     or
   - Pressing the **ESC** key to go to the FAULT screen (not addressable devices).

By default, any addressable device has the address 255. The fire panel examines the serial number of each device and assigns it an address from 1 to 250.

If the control panel finds a device with a different address than the default, it leaves the address set on that device.

The control panel is ready to work at this time with the default basic programming.

Optionally, you can set the system addresses differently. To set the system addresses differently, complete the following steps:

1. Press the **ENTER** key, so the fire panel initiates the MAPPING DEVICES phase.
2. In the MAPPING DEVICES phase, activate all the input devices including detectors, input modules, and manual call points in sequence. Return to the front of the fire alarm control panel.
3. Report the sequence of activation on the map of system. The fire panel will store the activation sequence.
4. Use the user interface **Up** and **Down** keys to examine the first activated device. Select the device. When you select the device, the address blinks. If necessary, change the address. Press **ENTER** to confirm and the address becomes fixed.

   ⓘ **Note:** When Reset is running, the command keys are inoperative. To switch to the programming phase of the device, press the **ENTER** key again.

Second phase of auto-addressing

In the second phase, examine the sounders, the beacons, and the output module.

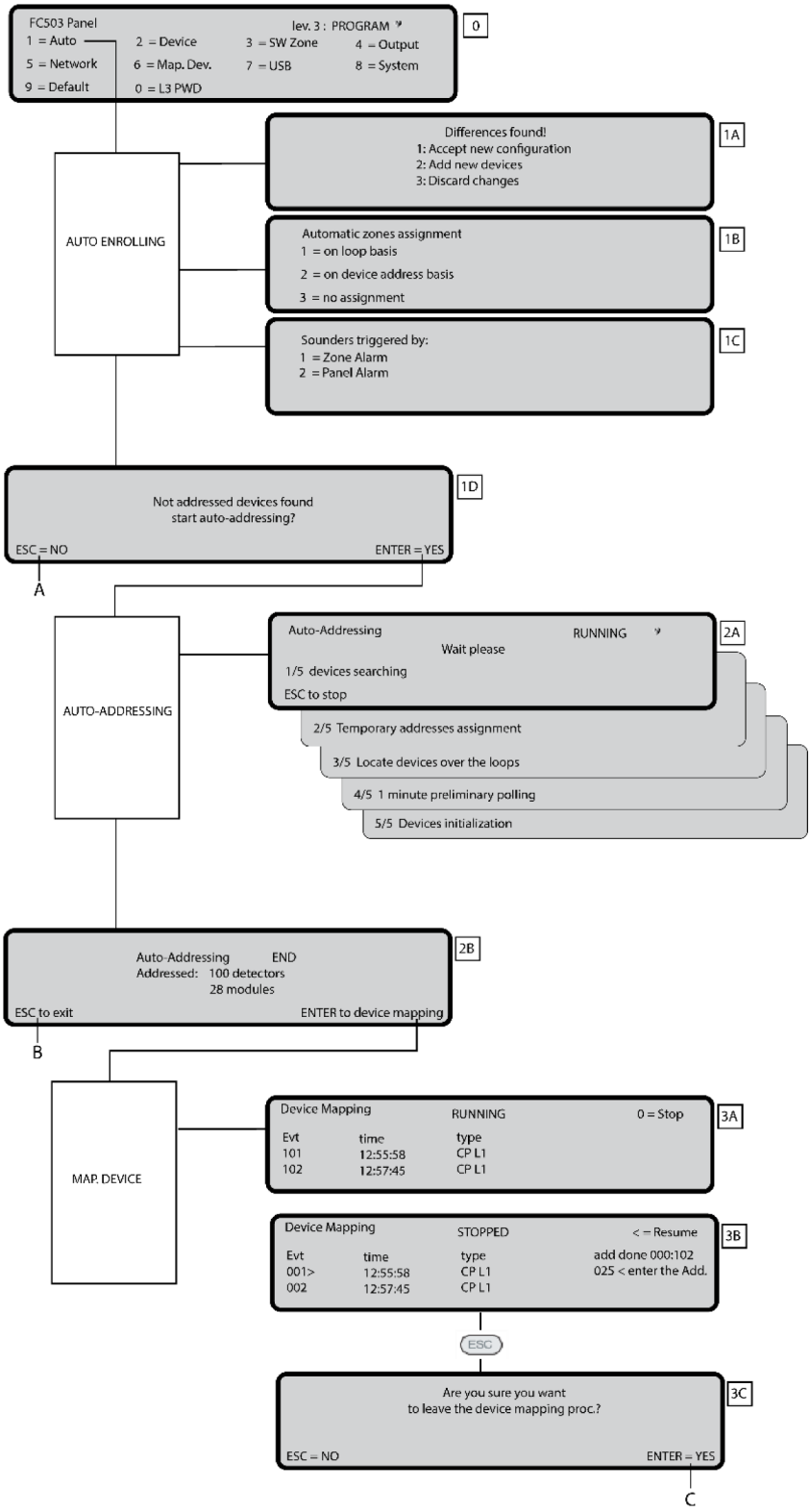
Locate the devices by scanning the list of auto-addressed devices.

When you reach an output-only device, the device becomes active until a new device is selected or the permanent address is entered. Activation is signaled by a sounder starting to sound, a beacon starting to flash, or an output module illuminating its LED.

Unique indicates that it is the only device of its type on the loop. For example, if only one FC410DDM module is used in the system, it is tagged as Unique and it is not necessary to activate it if you know where it is.

ⓘ **Note:** The enroll process does not take place until all of the loop wiring issues have been resolved. Use the auto-addressing procedure when there are NG1 devices on the loop or it has no effect. The device mapping process does not take place until all of the double address faults have been removed.

Figure 27: Programming option AUTO



Key – Device

The Device option in the PROGRAMMING menu activates the screen used to select and program the devices on the loops. See Figure 27.

Choose the loop

For more information, refer to *View devices* in the *FC503 and FC506 Addressable Fire Control Panels User Manual.*

In this phase, the keypad and keys have the following functions:

Alphanumeric keypad

Table 31: Alphanumeric keypad function in choose the loop

Key	Function
1	Loop 1
2	Loop 2
3	Loop 3

Cursor keys

Table 32: Cursor key functions in choose the loop

Key	Function
Up	No function
Down	No function
Right	Use to select the next available loop
Left	Use to select the previous available loop

ESC and ENTER keys

Table 33: ESC and ENTER key function in choose the loop

Key	Function
ESC	Use to delete the procedure and return to the previous screen
ENTER	Use to accept the choice and activate the corresponding programming screen

The selected device field shows the currently selected device. See Figure 28. The add field is used to enter the address of the selected device. The scroll bar of available devices shows the addresses and the class of all devices configured in the selected loop.

The address of the device is represented by three digits and the class of the device is represented by a single character. The class of the device is either *d* for detector or *m* for module.

For example: d087

The scroll can be viewed by using the cursor keys or entering a device address in the add field.

Choose the device

In this phase, the keypad and keys have the following functions:

Alphanumeric keypad

Use the alphanumeric keypad to enter the address of the selected device. If the address entered does not exist, the next available device is selected.

Cursor keys

Table 34: Cursor key functions in choose the device

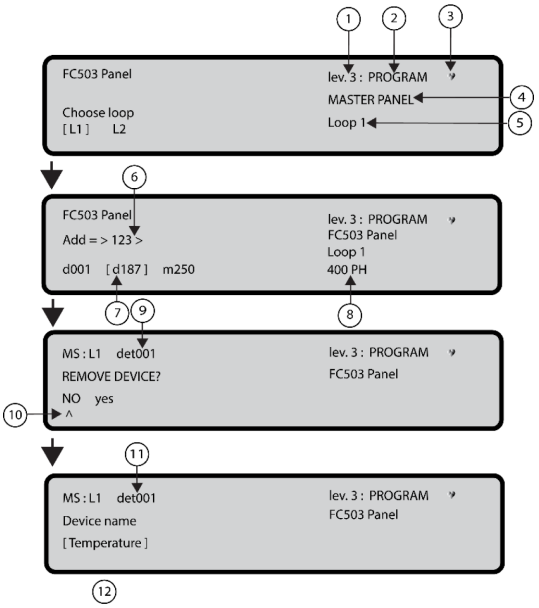
Key	Function
Up	No function
Down	No function
Right	Use to select the next available device
Left	Use to select the previous available device

ESC and ENTER keys

Table 35: ESC and ENTER key function in choose the device

Key	Function
ESC	Use to delete the procedure and return to the previous screen
ENTER	Use to accept the selection and activate the corresponding programming screen

Figure 28: Selecting and programming devices on the loop



Callout	Description
1	Access level
2	Control panel status
3	If blinking, the control panel is working properly
4	Name of control panel
5	Name of loop
6	Programmed address
7	Selected address
8	Selected device
9	Detector to program
10	Select
11	Detector to program
12	Parameter to program

Table 36: Values table of the programming devices

Heat detector	Smoke detector	Smoke + Heat detector	Heat + CO detector	Heat + Smoke + CO detector
Remove device? No Yes	Remove device? No Yes	Remove device? No Yes	Remove device? No Yes	Remove device? No Yes
Working Mode: DAY: A2S CR A1R		Working Mode: DAY: Temp=A2S A1R DIS	Working Mode: DAY: CO=Default Enhanced Disabled	Working Mode: DAY: Universal High Immunity
Working Mode: NIGHT: A2S CR A1R		Working Mode: NIGHT: Temp=A2S A1R DIS Smoke=Default Enhanced Disable	Working Mode: NIGHT: CO=Default Enhanced Disabled	Working Mode: NIGHT: Universal High Immunity
		Working Mode: DAY: Smoke=Default Enhanced Disable	Working Mode: DAY: Temp=A2S A1R DIS	
		Working Mode: NIGHT: Smoke=Default Enhanced Disable	Working Mode: NIGHT: Temp=A2S A1R DIS	
Detector label	Detector label	Detector label	Detector label	Detector label
Assigned zone	Assigned zone	Assigned zone	Assigned zone	Assigned zone
Detector base	Detector base	Detector base	Detector base	
Standard Isolator Relay Sounder Addressable	Standard Isolator Relay Sounder Addressable	Standard Isolator Relay Sounder Addressable	Standard Isolator Relay Sounder Addressable	
Callpoint label	Generic module	DDM module		
Remove device? No Yes	Remove device? No Yes	Remove device? No Yes		
Callpoint label	Module label	Module label		
Assigned zone		Detector type CNV conventional GSO 4-20mA source GSI 4-20mA sink		
	Channel to program	Channel to program		
Generic digital input channel (loop devices)	Generic digital output channel (loop devices)	DDM input channel		

Table 36: Values table of the programming devices

Heat detector	Smoke detector	Smoke + Heat detector	Heat + CO detector	Heat + Smoke + CO detector
Working mode B NO C NO C NC				
Input label	Output label	Input label		
Assigned zone	Trigger zone#1	Assigned zone		
	Trigger Zone#2			
	Trigger zone event ALA Alarm DLY Delay to alarm WAR warning FAU Fault TST Test DK Double Knock			
	Silencable On Off			
	Trigger zone#3 Trigger zone#4 Trigger point#1 Trigger point#2 Trigger point#3			
Base assigned zone	Base assigned zone	Base assigned zone	Base assigned zone	Base assigned zone
R LED assigned zone	R LED assigned zone	R LED assigned zone	R LED assigned zone	R LED assigned zone

Note: The underlined options are the default options

Loop devices programming screen

After selecting the loop and the device, the option LED displays. See Figure 28. The LED option allows for the location of the selected device in the site, lighting its LED when the option ON is selected.

Note: Press the **ENTER** key to validate the selection. If the device has no LED, the device sounder or beacon is activated. The option OFF removes the device signalling. The option SKP exits the feature and moves to the normal device programming sequence.

Remote LED

After programming other parameters, it is possible to enable the activation of the programmable remote LED of a detector.

The detector has an output used to drive the remote LED. The output is activated only for the detector alarm to which it belongs. It is possible to program it to activate for other events as the activation occurs for other panel outputs and for the detector alarm to which it belongs.

Note: In the console, that is accessible through the programming screen for the detectors, you can configure the remote LED. You can also configure the assigned zone for the remote LED through the console or the panel UI.

Separated programming of the sounder and beacon

Select Separated programming of the sounder and beacon when any of the following devices are selected:

FC410LPAV (all versions)

FC430LPASB

FC430SAB (with **FC430SB**)

FC410LPS-R/W (certified EN54-23)

FC410LPBS (certified EN54-23)

FC430LPBSB (certified EN54-23)

In the programming menu choose the channel, sounder or beacon you wish to program.

Before the alarm conditions, the user interface will display:

SOUNDER = BEACON

YES NO

If you choose YES, the alarm conditions are selected and applied to both channels. If you choose NO, the channel

selection is displayed and the alarm conditions are valid for the selected channel.

3 Key - SW zone

The SW zone option in the PROGRAMMING menu activates the screen used to select and program the software zone. See Figure 27, 0.
In this phase, the keypad and keys have the following functions:

Alphanumeric keypad

Use the alphanumeric keypad to select the zone number (ID).

Cursor keys

Table 37: Cursor key functions in SW zone

Key	Function
Up	No function
Down	No function
Right	Use to select the next available SW zone
Left	Use to select the previous available SW zone

ESC and ENTER keys

Table 38: ESC and ENTER key function in SW zone

Key	Function
ESC	Use to delete the procedure and return to the previous screen
ENTER	Use to accept the SW zone selection and activate the loop device programming screen

If the SW zone does not exist, the following warning screen displays for 5 seconds: "WRONG VALUE! Enter the parameter again". After 5 seconds the user interface returns to the chosen SW zone screens.

Zone name

Enter the zone label (20 characters maximum) using the alphanumeric entry procedures.

SW zone in WALK TEST

After selecting the SW zone, enable or disable the option Zone in WALK TEST (OFF).

- If the option All Devices (ALL) is selected, all the devices assigned to the zone in the WALK TEST mode do not generate an alarm if they are activated but do reach the TEST status.
- If the option detector (DET) is selected, only the detectors assigned to the zone in the WALK TEST mode will not generate an alarm in the case of their activation but will reach the TEST status.
- If the call points (CP) option is selected, only the call-points assigned to zone in WALK TEST mode will not generate alarm in the case of their activation but will reach the TEST status. The presence of a zone in WALK TEST mode is signaled by the TEST yellow LED on the User Interface. More than one zone can be put in WALK TEST mode at the same time.

In this phase the keypad and keys have the following functions:

Alphanumeric keypad

No function is related to the alphanumeric keypad.

Cursor keys

Table 39: Cursor key functions in SW zone in WALK TEST

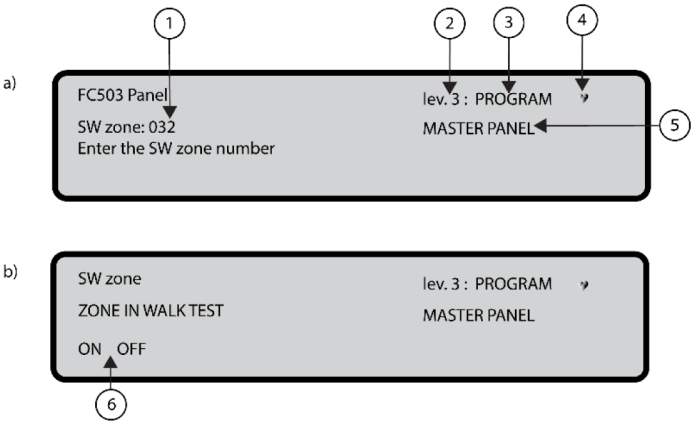
Key	Function
Up	No function
Down	No function
Right	Use to select the next ON-OFF-ALL-det-CP
Left	Use to select the previous ON-OFF-ALL-det-CP

ESC and ENTER keys

Table 40: ESC and ENTER key function in SW zone

Key	Function
ESC	Use to delete the procedure and return to the programming screen
ENTER	Use to accept the selection and activate the corresponding programming screen

Figure 29: Selecting and programming SW zone



Callout	Description
1	Index of SW zone program
2	Access level
3	Control panel status
4	If blinking, the control panel is working properly
5	Name of control panel
6	Select between ON or OFF

Sounders on (3s)

If YES, every test event (input activation) activates the sounders in the same zone for 3 seconds.

SMOKE DELAY (60s/30min)

For each zone, program the delayed activation of smoke detectors according to the following schedule:

If the smoke level exceeds the alarm threshold, the panel does not signal anything at first. After 60 seconds, if the smoke level is still above the threshold, the system goes into alarm condition. Otherwise, there are no signals. If a new alarm from the same detector or the activation of another sensor in the same zone occurs within 30 minutes, the alarm of fire panel triggers.

In this phase, the keypad and keys have the following functions:

Alphanumeric keypad

No function is related to the alphanumeric keypad.

Cursor keys

Table 41: Cursor key functions in smoke delay

Key	Function
Up	No function
Down	No function
Right	Use to select ON-OFF
Left	Use to select ON-OFF

ESC and ENTER keys

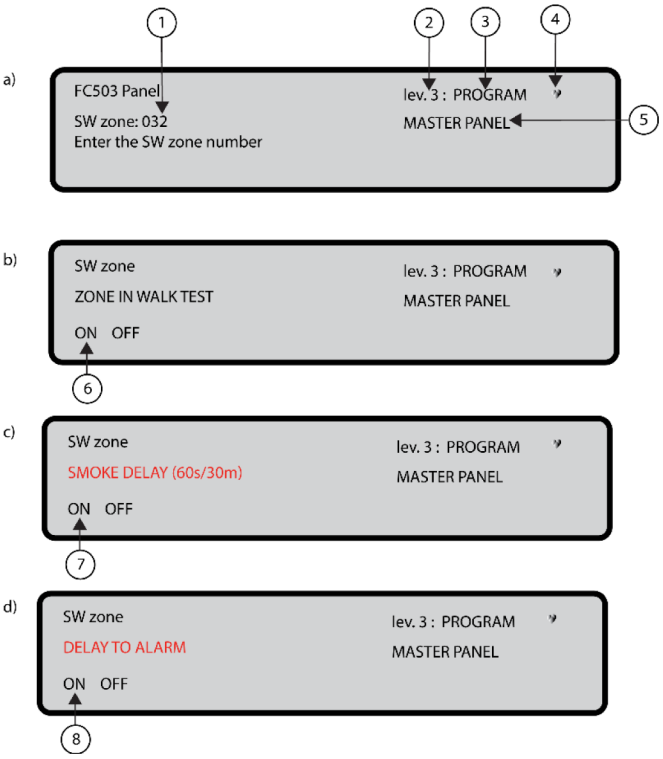
Table 42: ESC and ENTER key function in smoke delay

Key	Function
ESC	Use to delete the operation and return to the previous screen
ENTER	Use to accept the selection and activate the programming screen

Delay To Alarm

For each zone, you can program the activation of a common delay to alarm delay of 9 minutes. The procedure and the functionality of the cursors, **ESC**, and **ENTER** keys are the same as the SMOKE DELAY parameters. See Figure 30, d.

Figure 30: Programming option delay detector alarm verification



Callout	Description
1	SW zone index to program
2	Access level
3	Control panel status
4	If blinking, the control panel is working properly
5	Name of selected control panel
6	Select the option
7	Select the option
8	Select the option

DLY ALARM TIME (min)

If ON is selected for the option Delay to Alarm you can enter the zone relevant delay to alarm time. The possible value ranges from 0 (no delay) to 9 minutes. The value may be incremented or decremented in steps of 1 minute using the **Up** or **Down** keys.

4 Key – output

The output option, the **4** key in the programming menu, activates the panel on the board output programming screen. Use the output option to select the type of panel on the board output, followed by the programming procedure for that output. See Figure 27, 0.

Choose output

In this phase, the keypads and the keys have the following functions:

Alphanumeric keypad

Use the alphanumeric keypad to enter the number of SC output.

Cursor keys

Table 43: Cursor key functions in choose output

Key	Function
Up	Use to show the next output category (SC-OC)
Down	Use to show the previous output category
Right	No function
Left	No function

ESC and ENTER keys

Table 44: ESC and ENTER key function in smoke delay

Key	Function
ESC	Use to cancel the operation and return to the previous screen
ENTER	Use to accept the selection, activate the output selection, and activate the loop device programming screen if the output exists. Otherwise a warning screen is displayed for 5 seconds "WRONG VALUE! Enter the parameter again". After 5 seconds the user interface moves back to the screen for selecting the outputs.

When the output has been programmed, including type and identification number, and the **ENTER** key is pressed to accept the selection, enter the label for the output.

Set As SC1

When set as YES, the relevant output will behave as the Sounder Circuit 1 (SC1). This allows redundant output circuits to drive site sounders. The default setting is NO. Setting the option to YES will end the programming sequence for that output.

Note: The panel onboard open collector outputs (OC1, OC2) may not be programmed to act as SC1.

Panel Alarm Trigger

When the **PANEL ALARM TRIGGER?** option is set to YES, the relevant output becomes active on the panel alarm condition. Alternatively, a more specific trigger condition may be defined for the output. The default setting is YES.

Disablement Trigger

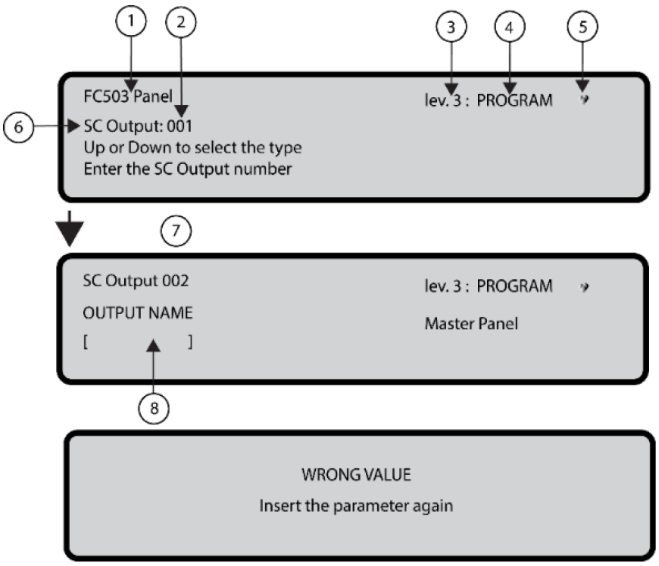
The **DISABLEMENT TRIGGER?** option activates the relevant output if any system part is disabled. The default setting is NO.

Note: This parameter is made available only if the parameter PANEL ALARM TRIGGER for the same output is set to NO. Setting the parameter to YES will end the programming sequence for that output. Outputs which have this option programmed are not silenceable.

This feature is also available for the panel FIRE relay and the FC410RIM, FC410SIO, FC410MIO, FC410QMO, FC410QRM, FC410QIO, and FC410TSM loop modules.

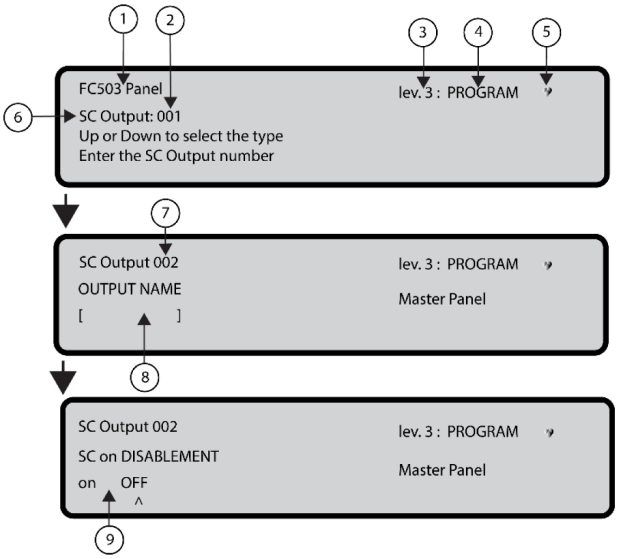
- **OUTPUT NAME**
- **TRIGGER ZONE 1**
- **TRIGGER ZONE 2**
- **TRIGGER EVENT**
- **SILENCEABLE**
- **MONOSTABLE**

Figure 31: Programming SC active on disablements



Callout	Description
1	Control panel name
2	Output number
3	Access level
4	Control panel status
5	If blinking, the control panel is working properly
6	Output type
7	Output number
8	Insert output label

Figure 32: Selecting and programming SC active on disablement options



Callout	Description
1	Control panel name
2	Output number
3	Access level
4	Control panel status
5	If blinking, the control panel is working properly
6	Output type
7	Output number
8	Insert output label
9	Select ON or OFF

Output Name

Enter or modify the relevant output name using the alphanumeric keypad. The maximum number of characters is twenty.

Trigger Zone 1

Select the first zone for which events, defined later, the output will become active. The entry 0000 means No Zone. Numeric entry modes range from 0 to 128 for FC503 and 0 to 256 for FC506.

Trigger Zone 2

Select the second zone for which events, defined later, the output will become active. The entry 0000 means No Zone. Numeric entry modes range from 0 to 128 for FC503 and 0 to 256 for FC506.

Trigger Event

Define, for both trigger zones, the event types valid to activate the relevant output. The event type codes are shown in Table 45.

Table 45: Trigger Event Codes

Code	Event Type
ala	Alarm
dly	Delay to Alarm
war	Warning
fau	Fault
tst	Test
dk	Double Knock

You can select more than one trigger event using the multiple selection mode. The selected events are valid for all trigger zones.

When zones trigger condition act in OR mode, it is sufficient that the trigger condition of a single zone is matched to activate the output.

Silenceable

Use SILENCEABLE to select if the output stays active until the **SILENCE/RESOUND SOUNDERS** key is pressed (on option set) or stays active until the **RESET** key is pressed (off option set).

When a SILENCEABLE output is silenced, you may reactivate it by pressing the **SILENCE/RESOUND SOUNDERS** key again.

Monostable

Set MONOSTABLE to ON to automatically deactivate the relevant output when the MONOST. OUTPUT TIME elapses.

The MONOST. OUTPUT TIME is set in the SYSTEM section of the PROGRAM menu and its value is valid for all outputs.

6 Key – Map Device

The Map Device option activates the On Demand Map Device feature to modify the devices addressing scheme in a working system. See Figure 27, 0.

Use the On Demand Map Device option in a system where the addressing scheme is well known, because all devices are singularly addressed using the service tool or the device mapping feature embedded in the loop enroll process (**1** key). This feature is not intended to acquire new devices on the loops. Use the Enroll feature to acquire new devices on the loops.

In contrast to the device mapping feature embedded in the loop enroll process, the On Demand version does not automatically modify devices labels and assigned zone.

ⓘ **Note:** All the devices, including the unique type devices are added to the activated list. The only output type devices are treated as described in the standard device mapping procedure. They will be singularly activated when selected in the list.

In this phase the keypad and keys have the following functions:

Alphanumeric keypad

Use the alphanumeric keypad to enter the new address value from 0-9.

Cursor keys

Table 46: Cursor key functions in map device

Key	Function
Up	Long press: use to start the automatic scroll to the previous event in the list Short press: use to scroll to the previous event in the list.
Down	Long press: use to start the automatic scroll to the next event in the list Short press: use to scroll to the next event in the list.
Right	Use to program the selected device
Left	Use to continue the mapping procedure

ⓘ **Note:** To stop the automatic scroll, short press the **Up** or **Down** key.

ESC and ENTER keys

Table 47: ESC and ENTER key function in map device

Key	Function
ESC	Use to end the mapping procedure and exit
ENTER	Use to confirm the entered address value

7 Key – USB

The USB option in the PROGRAMMING menu activates the USB programming screen. Use the 7 key to select the USB programming screen. See Figure 27, 0. The USB programming screen includes the following options:

1. Extra
2. Load Audio
3. Save Audio
4. Load programming
5. Save programming
6. FW Upgrade
7. Save LOG

In this phase the keypad and keys have the following functions:

Alphanumeric keypad

Use the alphanumeric keypad to select the USB activities:

Table 48: Alphanumeric keypad function in USB

Key	Function
0	Load the two languages present in the USB key flash memory while the panel is running. Download the two languages from the CD supplied with the panel or from the FireClass website.
1	Load the audio file containing the voice messages from the USB pen drive to the panel
2	Save the current audio messages from the panel to the USB pen drive.
3	Load the programming data from the USB pen drive to the panel (*).
4	Save the current panel programming data from the panel to the USB pen drive.
5	Upgrade the panel Firmware from the USB pen drive (**) (***).
6	Save the current LOG data in the panel from the panel to the USB pen drive.

Note:

- (*) The loaded data will overwrite the current data in the panel.
- (**) The file containing the expected FW version to upgrade the panel has to be present in the FW directory in the pen drive.
- (***)To do the firmware upgrade of the FC500 repeater is not possible using the USB pen drive.

Cursor keys

No functions are related to the **Up**, **Down**, **Right**, or **Left** keys.

ESC and ENTER keys

Table 49: ESC and ENTER key function in USB

Key	Function
ESC	Use to exit from the USB activity result screen
ENTER	No function

Note: The default first language is Italian and cannot be overwritten. The default second language is English and can be overwritten at the first panel power-up or at the end of the FW upgrade process of the control panel. The available second language files are contained in a folder on a USB stick connected to the control panel before the first power up. The loaded languages are the languages of the control panel. See Figure 33Figure 33 and Figure 34Figure 34. At the end of the FW upgrade process, the panel will start the procedure Language strings download from USB key at the first panel power-up to load the correct version of the required language. See Figure 35Figure 35.

Figure 33: Display On Demand Device Mapping

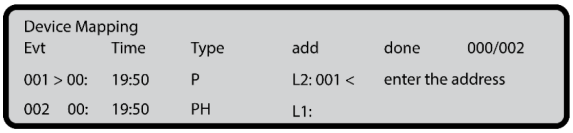


Figure 34: Example USB activity

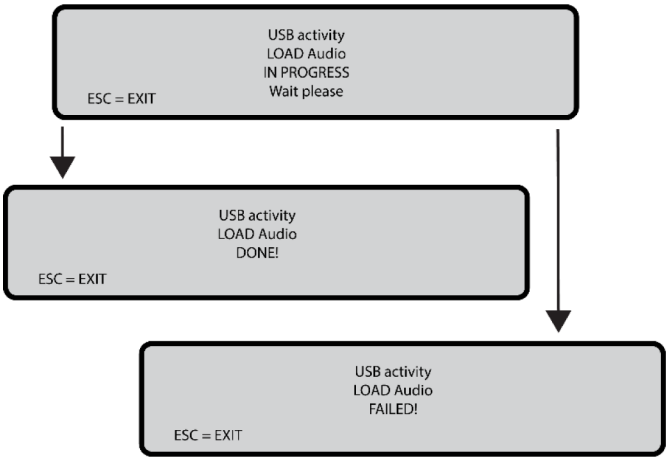


Figure 35: USB activities

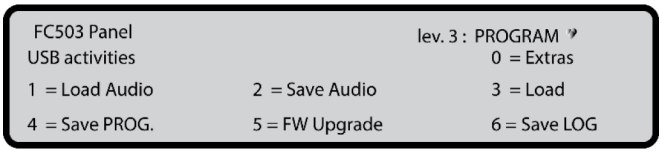
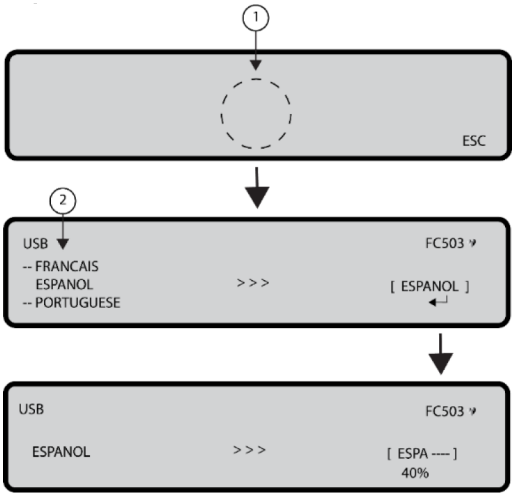


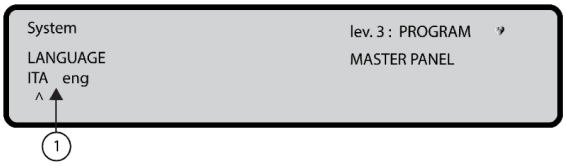
Figure 36: LCD screen sequence



Callout	Description
1	Language list waiting page
2	List of languages in the USB memory stick

Note: At the end of the process the initial configuration steps will continue. If the language string transfer process from USB to panel fails, a fault page is displayed and the default Italian language is restored.

Figure 37: Select the language of the system



Callout	Description
1	Choose language

8 Key – System

Use the System option in the **PROGRAM** screen to activate the system language selection screen. See Figure 27, 0.

Note: Other languages can be loaded from the software.

After selecting the language, program the following options:

- PANEL ID
- PANEL TYPE (FC503 or FC506)
- BATTERY TYPE (17Ah or 38Ah)
- DAY/NIGHT MODE or AUTO
- DELAY TO ALARM TIME.
- COPY ON ZONE?
- MONST. OUTPUT TIME
- ENABLE SCREEN SAVER
- Wire Loops

In this phase the keypad and keys have the following functions:

Alphanumeric keypad

No function is related to the alphanumeric keypad.

Cursor keys

Table 50: Cursor key functions in system

Key	Function
Up	No function
Down	No function
Right	Use to select the next option
Left	Use to select the previous option

ESC and ENTER keys

Table 51: ESC and ENTER key function in system

Key	Function
ESC	Use to cancel the operation or return to the MAIN screen
ENTER	Use to accept the selection

Panel ID

Enter up to four digits to identify the configuration file system. Ensure you can distinguish it from other configuration files.

- PANEL TYPE (FC503 or FC506)
- BATTERY TYPE (17Ah or 38Ah)

Day / Night / Auto

The display for programming Day, Night, or Auto mode is shown. If you choose Auto mode, set the transition time from one mode to another. See the LED Day/Night mode LED change status.

Delay to alarm time

Enter the Delay to alarm time in minutes. The maximum time is 9 minutes. The total time for Delay to alarm time and investigation time should not exceed 10 minutes.

Copy on zone?

Select the YES option using the cursor keys to copy the same Delay to alarm time in all the zones.

Monst. Output Time

Enter the period of time that the outputs, with the monostable option set, will stay active when triggered. The value ranges from 1 minute to 30 minutes with a default value of 3 minutes. The mono-stable output time is valid for the entire system.

ENABLE SCREEN SAVER

Select the YES option using the cursor keys to display the customizable front screen. If you select NO, it is permanently removed.

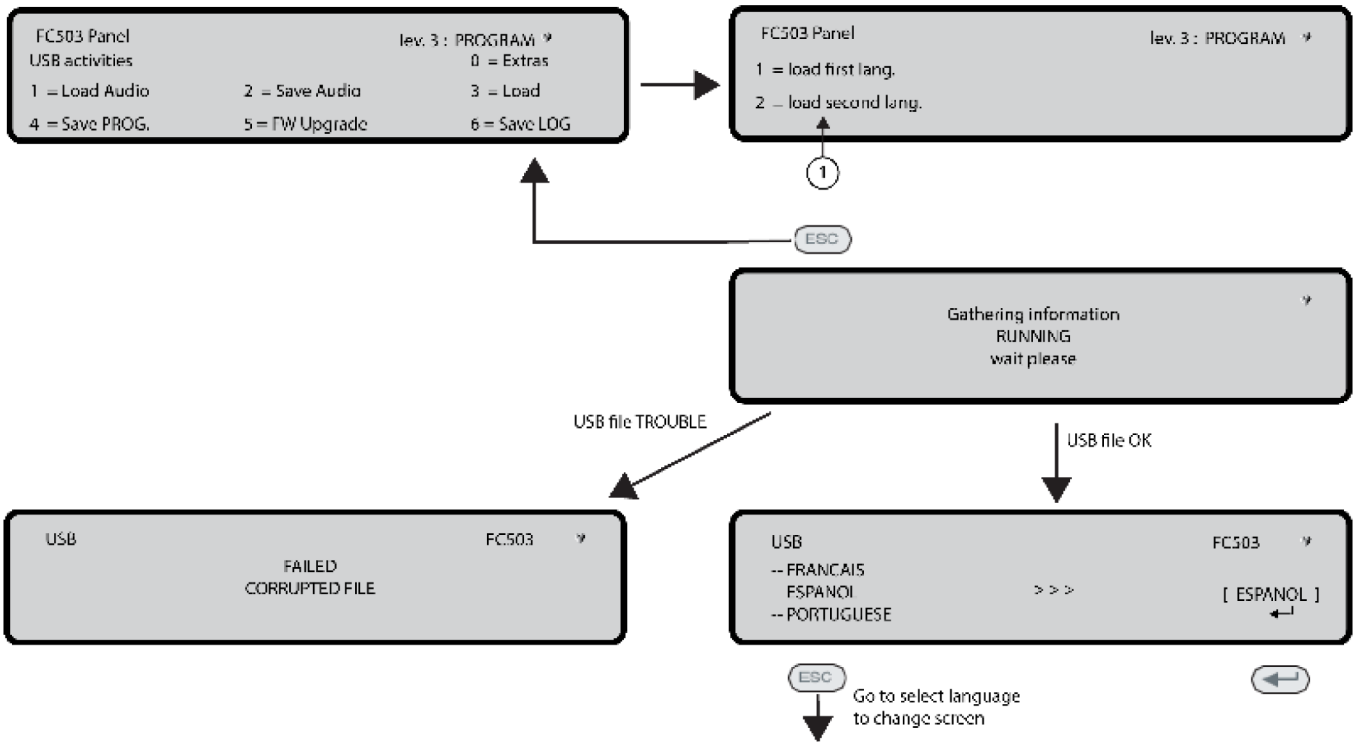
2 Wire Loops

Each loop may be individually set to work in 2 wires mode (multiple selection). When the 2 wires mode is selected, it is possible to connect devices on both the left and right sides of the loops (2 spurs). This allows for the connection of up to 6 spurs to the panel, mimicking a 6 zones conventional panel.

Note:

- In all descriptions of the events, the devices are indicated as belonging to a loop. In the case of open loops, it is not possible to distinguish between the left and right side. Loop concept, therefore, is not meaningful by definition, and localization is performed using zones as in the case of conventional panels.
- If devices are addressed by the service tool, set them in the 6 zones which correspond to the 6 spurs by assigning the correct zone to each device using the PC console or a control panel LCD.
- If devices are not addressed, a mapping procedure is performed to locate each device and assign the correct zone to it.

Figure 38: Language strings download during panel run time

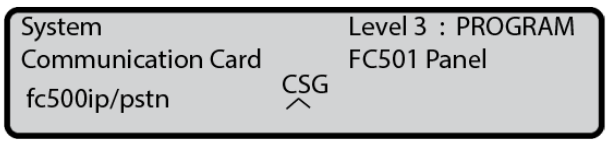


Callout	Description
1	Choice of language

Communication card

The panel can run either PSTN/IP or CSG functionality at one time. By default, PSTN/IP functionality is selected. To establish panel communication with the gateway, select the CSG option from the **Program** > **System** submenu. See Figure 39.

Figure 39: Selecting the CSG option



If PSTN/IP is selected and the option is changed to CSG or if CSG is selected and the option is changed to PSTN/IP, the panel displays **The system will restart** on the UI for 5 seconds and then restarts.

Note:

- Restart functionality is provided from the **Program** > **System** sub-menu in the UI.
- If you select the Communication Card option using the FC500 Console, you must restart the panel manually to apply the new settings.

9 Key- Restore default

Use the Restore default option from the PROGRAMMING menu to restore the default setting.
Use the **9** Key to select restore default. See Figure 27,0

Figure 40: Restore Default

In this phase, the keypad and keys have the following functions:

Alphanumeric keypad

No function is related to the alphanumeric keypad.

Cursor keys

No functions are related to the **Up**, **Down**, **Right**, or **Left** keys.

ESC and ENTER keys

Table 52: ESC and ENTER key function in restore default

Key	Function
ESC	Use to cancel the operation or return to the previous screen
ENTER	Use to start the default settings restore procedure

Note: If the motherboard of the panel is connected with a FC500IP module, the procedure to restore factory Default (**9** key) has no effect. To restore the FC500IP module to factory default, refer to the procedure for the FireClass FC500 (FC501_FC503_FC506) Console software.

FC500 repeater address

After the FC503 or FC506 control panels have been connected, the FC500 repeater verifies the presence of the address and its conformity at the first start-up. If the address is correct, the repeater starts to work. If the address is not correct, you need to enter a new address. The display on Figure 41 is shown.
In this phase, the keypad and keys have the following functions:

Alphanumeric keypad

Use the alphanumeric keypad to insert the 1 digit address.

Cursor keys

No functions are related to the **Up**, **Down**, **Right**, or **Left** keys.

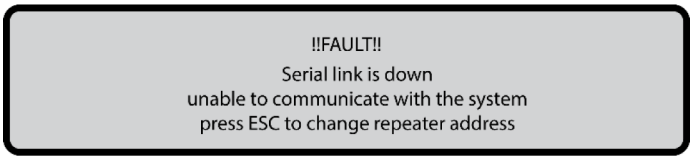
ESC and ENTER keys

Table 53: ESC and ENTER key function in NEW repeater address

Key	Function
ESC	Cancel the operation or return to the previous screen
ENTER	Confirm the address

Note: If the address of a repeater is changed by mistake, the system shows the message in Figure 38. You can change the address of the repeater using the ESC key.

Figure 41: Serial link is down



Modify

Accessing the MODIFY menu

To access the MODIFY menu from the MAIN screen, enter the INSTALLER 1 (default is 00000) or INSTALLER 2 (default is 99999) password. Each entered digit is masked with an asterisk symbol.
The INSTALLER 1 and INSTALLER 2 users can access all the options described in the User Manual.
Refer to the *FC503 and FC506 Addressable Fire Control Panels User Manual* for User Access details and further information.
Both INSTALLER 1 and INSTALLER 2 users can access option **9** Sounders.
Only the INSTALLER 1 can access option **7** Password.

Disable

Accessing the DISABLE menu

To access the **DISABLE** menu from the **MAIN** screen, enter the INSTALLER 1 or INSTALLER 2 password. Each entered digit is masked with an asterisk symbol.
The INSTALLER 1 and INSTALLER 2 users can access all the options described in the user manual. Refer to the *FC503 and FC506 Addressable Fire Control Panels User Manual* for more information.
Both INSTALLER 1 and INSTALLER 2 users can access option **9** Sounders. Only the INSTALLER 1 user can access option **7** Password.

7 Key - password (DISABLE)

The password (DISABLE) option is only enabled if you enter the master INSTALLER PIN in the control panel. The default PIN is 00000.

The **7** Key is used to select the DISABLE password option. Select the option to DISABLE or ENABLE the corresponding password. See Figure 42.

Select the password

In this phase, the keypads and the keys have the following functions:

Alphanumeric keypad

Use the alphanumeric keypad to select the identification number of the password.

Cursor keys

Table 54: Cursor key functions in select the password

Key	Function
Up	Show the next type of password
Down	Show the previous type of password
Right	No function
Left	No function

Note: The types of passwords are User password or INSTALLER password.

ESC and ENTER keys

Table 55: ESC and ENTER key function in select the password

Key	Function
ESC	Cancel the operation or return to the previous screen
ENTER	Confirm the selection

Disable the password

In this phase, the display shows the current status of the selected User or Installer password. The possible actions are: ENABLE or DISABLE.

Alphanumeric keypad

No function is related to the alphanumeric keypad.

Cursor keys

No functions are related to the **Up**, **Down**, **Right**, or **Left** keys.

ESC and ENTER keys

Table 56: ESC and ENTER key function in disable the password

Key	Function
ESC	Cancel the operation or return to the previous screen
ENTER	Confirm the selection and move to the **MAIN** screen followed by a panel reset

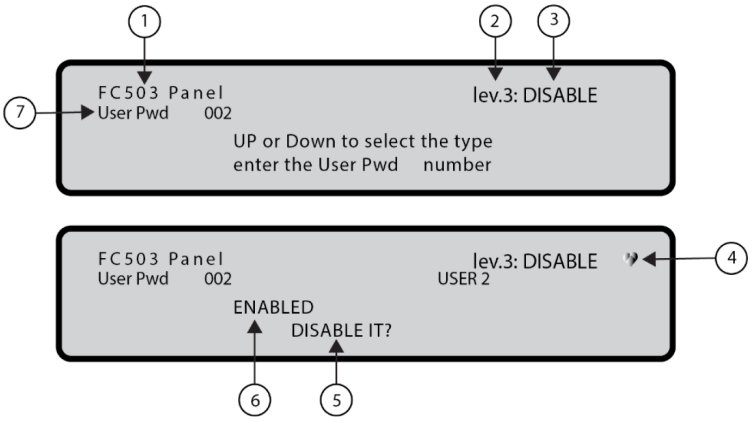
9 Key- sounders

The sounders option is visible only if you enter the Control Panel using the INSTALLER 1 (default 00000) or INSTALLER 2 (default 99999) password. Each entered digit is masked with an asterisk. Use the sounders option to enable or disable all the sounders on the board or on the loop: SC1, SC2, loop sounder outputs (SAM, SAB, SNM, AV bases Symphoni sounders).

Press **1** to enable all sounders: the event *ALL SOUNDERS ENABLED* is memorized into the log.

Press **2** to disable all sounders: the event *ALL SOUNDERS DISABLED* is memorized into the log.

Figure 42: Display enabled or disabled password



Callout	Description
1	Control panel name
2	Access level
3	Control panel status
4	If blinking, the control panel is working properly
5	Request to enable or disable
6	Current status
7	Password type

Quick start-up procedure

This procedure allows for the quick start-up of the FC503 and FC506 fire detection system.

When the loops are wired, electrically verified, and all the devices have been installed in to the loop, it is possible to connect the loops terminals to the panel.

Note: Before powering on the fire control panel, connect the Earth Line.

By default the setting of switch 45 is set to mains voltage 230 V.

Procedure

1. Turn on the panel and start the FW procedure to verify or program information for the user interface and the panel. This information includes:
   - language selection
   - panel identification number
   - panel type (**FC503** or **FC506**)
   - installed batteries capacity (17 Ah or 38 Ah)
2. When the data has been verified or programmed, enter the date and time. This ensures consistency of the log file. The panel starts the first system initialization verifying the loops integrity.

   Note: The panel in this phase is configured to manage closed loops (4 wires loop). If it is connected to a spur (2 wire loop), it generates broken loop faults.

   At the end of this first initialization phase, the user interface displays on the MAIN screen with the capability to accept the command and control functions.
3. Select the function Program by pressing the **1** key.
4. Insert the Installer password. The default Installer password is 00000.

   Note: Every digit is masked by an asterisk.
5. Choose an option by pressing the **1** key. The enrolling procedure starts.

This procedure is divided into three main phases:

1. Auto-learning
2. Auto-addressing
3. Device Mapping

You can stop the *AUTO* option at the end of each phase; the results are different.

1 Auto-learning

In the auto-learning phase, the panel looks for all the devices on the loop already addressed with the service tool.

During this phase, enter what pattern of automatic assignment of zones to be applied to found devices (see Figure 27,1B) and enter the sounder's triggering scheme (see Figure 27, 1A).

If the panel is already configured, any differences are indicated and you need to decide on how to proceed. See Figure 27, 1A. In this case, the scheme *of Automatic assignment of the zones* is applied only to any new devices found.

If you stop the AUTO option at the end of the first phase the following results occur:

- The FC503 control panel takes over all devices with an address between 1 and 250.
- The FC506 control panel 1st loop takes over all devices with an address between 1 and 250 and the 2nd loop takes over all devices with an address between 1 and 250.
- The programming device at their default configuration.
- Automatic assignment of labels.
- Automatic assignment of the zones according to the scheme chosen during that phase.
- The output channels of the modules enable to activate on fire alarm of the assigned zone. The sounders, sounders and beacons, sounder bases, AV (Audio Visual) bases, and the FC430SNM modules activate according to the trigger scheme chosen in in this phase. If you choose to assign all devices to system (no zone auto assignment), all of the output modules, sounders and beacons are triggered by the Panel alarm condition.
- The faults NOT PROGRAMMING DEVICE and wrong addresses are generated in the case of not addressed devices or with address greater than 250, respectively.

See Figure 27, 1A.

Note: If the enrolling result differs from the previously stored loop configuration a warning message displays and it is possible to reject the present enrolling result, maintaining the previous configuration, or accept them. See Figure 27, 1A.

Auto-addressing

The second phase of auto-addressing starts if any devices have been identified as not addressed during the auto-learning phase or have an address greater than 250. During this phase, all the not addressed devices are detected. The panel assigns them a temporary address and configures them at default.

See Figure 27, 2A.

If you stop the AUTO option at the end of the second phase, the following results occur:

- The auto assignment of the address to the not addressed devices
- The control panel takes over all devices
- The programming devices to their default configuration.
- Automatic assignment of labels.
- Automatic assignment of zones based on a loop of belonging.
- The output channels of the modules, sounders and beacons is set to active on the alarm of the assigned zone. See Figure 27, B.

3 Device mapping

The third and last phase activates on demand at the end of the auto-addressing phase.

In this phase, the following options are possible:

- Locate the positioning in the system of all the devices through their activation.
- In the case of output modules only, sounders or beacons, the devices are suitably activated by the panel (see Figure 27, 3A).
- Carry out a preliminary test of the system.
- Program the most important parameters of each located device.

- Automatically assign labels to all devices.
- Automatically assign the zones based on the assigned addresses of the devices.
- Automatically configure the output channels of the modules, sounders, and beacons to activate on the alarm of the assigned zone.

Table 57: Messages and required actions during the enroll process in function of the loop and panel configuration.

LOOP		PANEL	MESSAGE			
			Differences found!		Automatic zones assignment	Not addressed devices found Start auto-addressing
1	All devices not addressed	DEFAULT				*
2	Some devices addressed + Some devices not addressed	DEFAULT			(Applicable only to already addressed devices) *	*
3	All devices addressed	DEFAULT			*	
4	Fully addressed Same configuration	CONFIGURED				
5	Fully addressed Different configuration	CONFIGURED	*	New configuration	(Applicable only to all already addressed devices) *	
				Add devices	(Applicable only to new already addressed devices) *	
6	Same configuration + Not addressed devices	CONFIGURED				*
7	1 Different configuration [1] + Not addressed devices	CONFIGURED	*	New configuration	(Applicable only to all already addressed devices) *	*
				Add devices	(Applicable only to the new already addressed devices) *	*

1 **Note:** (*) indicates that the message is displayed and relevant action is executed.

The third phase represents a powerful and flexible tool that allows you to draw the plant being in front of the panel and without the use of a PC and its SW configuration.
A series of controls have been designed to prevent the generation of incorrect or unmanageable conditions.
Assign each device an address. Ensure that the address meets the following conditions:

- The address does not belong to an older generation device from the FC400 series.
- For **FC503**: The address is in the range of 1 to 250.
- For **FC506**: The address for the first loop is in the range of 1 to 250 and the address for the second loop is in the range of 1 to 250.
- The address belongs to a new generation device and the device is present in the list of located devices.
- The address is not a duplicate of an automatically assigned address.

In each case at the end of the device mapping phase a check is performed to detect the presence of doubles addresses.

See Figure 27, C. In this case the involved addresses are indicated and it is not possible to end the procedure until the error condition is removed.

Note: You can launch the procedure for the device mapping outside the AUTO function by activating the localization programming function (key **6** on the PROGRAM status). Localization activates the procedure for devices mapping on demand, on a system already configured, and without the need to proceed to their activation. It is meant to correct errors or change the system on the run and use all the features and capabilities described above.

System default

- **Zone assignment**

To mimic a conventional panel, the acquired device over the loops are automatically assigned to a predefined zone. The two scenarios for zone assignment are:

1. If you exit at the end of the Auto addressing phase without executing the Device Mapping process, the zone assignments are:
   Zone 1: all the devices located on Loop 1 (sub loop 1)
   Zone 2: all the devices located on Loop 2 (sub loop 2)
   Zone 3: all the devices located on Loop 3 (sub loop 3)
2. If you execute the Device Mapping process, the device address to zone assignments at the end of the process are:

For Main Loop 1

The first two addresses are assigned to zone 1

The next two addresses are assigned to zone 2

:

:

The last addresses (249 and 250) are assigned to zone 125

For Main Loop 2

The first two addresses are assigned to zone 129 The next two addresses are assigned to zone 130

:

:

The last addresses (249 and 250) are assigned to zone 253

Note: For Main Loop 1 of FC503, do not assign devices to zones 126, 127, and 128.

For Main Loop 1 and Main Loop 2 of FC506, do not assign devices to zones 126, 127, 128, 254, 255, and 256.

If an address is not manually assigned to a device, either through the FC490ST or during the device mapping phase, no zone is assigned to it.

The previous zone assignment schemes are also applied to the first trigger zone in the case of output only devices such as sounders, beacons, and SNM modules or output channel of the input output devices.

Note: In the case of non-zone assigned, the output channel trigger event is the panel alarm.

System default parameters

Temperature Detector	Default values
Label	See note 1 (**)
Enablement	Enabled
LED blink	On
Assigned zone	(see: "Zone assignment)
Base type	Normal
Use zone setting	Yes
Day operating mode	A2S
Night operating mode	A2S

Smoke Detector	Default values
Label	See note 1 (**)
Enablement	Enabled
LED blink	On
Assigned zone	(see: "Zone assignment)
Base type	Normal
Use zone setting	Yes
Day smoke sensitivity	Medium
Night smoke sensitivity	Medium

Smoke + Temperature Detector	Default values
Label	See note 1 (**)
Enablement	Enabled
LED blink	On
Assigned zone	(see: "Zone assignment)
Base type	Normal
Use zone setting	Yes
Day temp. operating mode	A2S
Day smoke operating mode	Normal
Day smoke sensitivity	Medium
Night temp. operating mode	A2S
Night smoke operating mode	Normal
Night smoke sensitivity	Medium

CO + Temperature Detector	Default values
Label	See note 1 (**)
Enablement	Enabled
Led blink	On
Assigned zone	(see: "Zone assignment)
Base type	Normal
Use zone setting	Yes
Day temp. operating mode	A2S
Day CO operating mode	Normal
Day CO sensitivity	Medium
Night temp. operating mode	A2S
Night CO mode	Normal
Night CO sensitivity	Medium

Modules	Default values
Label	See note 1 (**)
Enablement	Enabled
LED blink	On

Modules	Default values
Activation unit (where applicable)	Off
Act as SC1 (where applicable)	Off

Input Channels	Default values
Enablement	Enabled
Channel label	See note 1 (**)
Trigger zone #1	Address related See Zone assignment
Operating mode	Style C, NO
Use zone setting	Yes

Output Channels	Default values
Enablement	Enabled
Channel label	See note 1 (**)
Assigned zone	None
Trigger zone #1	Address related See Zone assignment
Trigger zone #2	None
Trigger zone #3 (where applicable)	None
Trigger zone #4 (where applicable)	None
Trigger point #1	None
Trigger point #2	None
Trigger point #3	None
Silenceable	Yes
Active on disablement (where applicable)	Off
Trigger on event	Zone Alarm
Delay from alarm	Off
Silenceable	Yes
Sounder pattern (where applicable)	7Hz fast sweep
Sounder volume (where applicable)	High Beacon
Enablement (where applicable)	Enabled
Beacon flash rate (where applicable)	0.5Hz

DDM module	Default values
Label	See note 1 (**)
Enablement	Enabled

DDM module	Default values
LED blink	On
External power	On
Detector type	4/20 mA Source
Threshold set	Set #1
Input Channels	
Enablement	Enabled
Channel Label	See note 1 (**)
Assigned zone	Address related (see Zone assignment)
Use zone setting	Yes

TSM module	Default values
Label	See note 1(**)
Enablement	Enabled
LED blink	On
External power	On
Input function	Door monitoring
Loop monitoring	Off
Door monitoring event	Fault
Monitoring time	30s
Input Channels	
Enablement	Enabled
Channel Label	See note 1(**)
Assigned zone	Address related (see Zone assignment)
Operating mode	Style C

Callout	Description
NO Output channel	
Enablement	Enabled
Channel Label	See note 1 (**)
Trigger zone #1	Address related See Zone assignment
Trigger zone #2	None
Trigger point #1	None
Trigger point #2	None
Trigger point #3	None
Silenceable	Yes
Trigger on event	Zone Alarm
Delay from alarm	Off

Zones	Default values
Label	Zone AAA(*)
Enablement	Enabled

Zones	Default values
Walk test	Off
Detector warning	Off
Delay to alarm	Off
Drift compensation	Off
Double knock	Off
Smoke verification	Off
Disablement	Off
Delay to alarm duration	0s

Onboard programmable outputs	Default values
Enablement	Enabled
Channel label	Tttt y (see note 2 (****))
Assigned zone	None
Trigger zone #1	None
Trigger zone #2	None
Trigger zone #3	None
Trigger zone #4	None
Trigger point #1	None
Trigger point #2	None
Trigger point #3	None
Silenceable	Yes
Active on disablement (where applicable)	Off
Trigger on event	None
Delay from alarm	Off

General options	Default values
Investigation delay	300s
Main fault delay	1m
Delay to alarm	60s
Silence duration	60s
Reset	2s
Loop 1 wires	4 wires
Loop 2 wires	4 wires
Loop 3 wires	4 wires
Day/Night mode	Day mode
SC1 disablement	Enabled PSTN
Communicator enablement	Not operative
IP Communicator enablement	Not present
NETWORK enablement	Disabled
Delay from alarm #1	0s
Delay from alarm #2	0s

General options	Default values
Delay from alarm #3	0s
Delay from alarm #4	0s
Delay from alarm #5	0s

PSTN communicator	Default values
Tone check	On
Start playing after	Selection
Call attempts	3
Iteration	3
Call all tele-monitoring numbers	No
Call all voice message numbers	No
Telephone number label	TEL.NUMBER xx (see note 3 (*****))
All Telephone numbers behavior	None
Trigger events	Panel alarm, Panel Fault
Message #1 to #7	Prerecorded

Note:

1. (**) Automatically assigned Module label. Automatically assigned Module channel label The label is composed by a first part containing the module acronym and address followed by the brief description of the channel using the acronym printed on the module PCB.
   The label is composed by a brief description of the device followed by its address.
   xxx = module acronym
   yyy = module address
2. For example *DDM098: Ingresso A* is the default label for input 1 of the FC410DDM module at address 98.
   (****) tttt represent the onboard output type (4 chars), SC outputs -> tttt=*SC*
3. Programmable outputs -> tttt=OC y = output number
   (*****) xx represent the telephone number ID (2 digits).

Accessories

The following is a list of accessories for FC503 and FC506 control panels with a description of the main features. For further information about these accessories, refer to the instructions supplied with the accessories or download them from the FireClass website: http://www.fireclass.com

FC500IP IP module

The FC500IP is an IP module which is used to connect the FC503 or FC506 fire panel to a LAN.
The IP Module may be connected to a LAN using a private IP address or a DHCP address. The same procedures may be

performed using the FireClass FC500 (FC501_FC503_FC506) Console application, either through the serial port or the network. With a public IP address and access to the internet, you can manage and monitor the control panel from anywhere in the world.

4B Universal base

The 4B Universal base is for use with the FC460, FC400, and FC600 series of detectors.

The base may be fixed directly to:

- British (fixing centers 50 mm) or European (fixing centers 70 mm) conduit box
- 4B EM Euro Mounting Box
- The suspended ceiling, through the CTA adapter
- Directly to the ceiling

FC460H or FC400H Addressable heat detector

The FC460H or FC400H detector is intended to plug into the following:

- 4B 4” Universal Base
- 4B-I 4” Isolator Base
- FC430SB Low Power Sounder Base
- FC430LPSB Loop Powered Addressable Sounder Base
- FC430LPASB Loop Powered Addressable Sounder/Beacon Base.

Software within the controller is used to interpret the returned heat values to raise an alarm or other appropriate responses according to the type of detector configured in the FireClass FC500 (FC501_FC503_FC506) Console. The mode of the detector may be:

- EN54-5 A1R, rate-of-rise normal ambient
- EN54-5 A2S, fixed 60**°**C
- EN54-5 CR, rate-of-rise high ambient

FC460P or FC400P Addressable optical smoke

The FC460P and FC400P optical smoke detectors form part of the FC460 and FC400 series addressable fire detectors.

- 4BI 4” Isolator base
- 4B 4” Universal base
- FC430SB Low power sounder base
- FC430LPSB Loop powered addressable sounder base
- FC430LPASB Loop powered addressable sounder beacon base.

Software within the controller is used to interpret the returned optical and heat values to raise an alarm or other appropriate response according to the type of detector configured in the FireClass FC500 (FC501_FC503_FC506) Console.

FC460PH or FC400PH Addressable optical smoke & heat detector

The detector is intended to plug into one of the following:

- 4B 4” Universal base
- 4B-I 4” Isolator base
- FC430SB Low power sounder base
- FC430LPSB Loop powered addressable sounder base
- FC430LPASB Loop powered addressable sounder/beacon base

Software within the controller is used to interpret the returned optical and heat values to raise an alarm or other appropriate response according to the type of detector configured in the FireClass FC500 (FC501_FC503_FC506) Console. The mode of detector may be:

- Optical smoke only detector (sensitivity high, normal, or low)
- Optical (sensitivity high, normal, or low) and heat fixed temperature 60°C (A2S)
- Heat only rate-of-rise (A1R) detector (no sensitivity selection)
- Heat fixed temperature 60°C (A2S) (no sensitivity selection)
- Heat rate-of-rise (A1R) detector and optical smoke (sensitivity high, normal, or low)
- HPO (Advanced) smoke detector (sensitivity high, normal, or low)
- HPO Enhanced with heat fixed temperature 60°C (A2S)
- HPO Enhanced rate-of-rise (A1R).

FC460PC Addressable optical smoke & heat detector & CO

The high performance FC460PC detector detects smoke, temperature, and CO. It can accurately determine the presence of all types of fires and has an exceptional immunity to false alarms.

The functionalities of the FC460PC detector are:

Self-monitoring, self-testing, status indicator, remote LED, and threshold compensation. FC460PC is compatible with the existing bases.

FC410LI Line isolator module

The FC410LI line isolator module is designed to be used on the FC addressable controller loop circuits. It monitors the line condition and when detecting a short circuit will isolate the affected section while allowing the rest of the addressing circuit to function normally.

The purpose of the FC410LI line isolator module is to ensure that, on a looped addressable system, no short circuit fault can disable more detection devices then would be lost on a conventional non-addressable fire circuit.

FC410MIM Mini input module

The FC410MIM mini input module is designed to monitor fire contacts, such as extinguishing system control, ventilation control, fire door control etc. The module provides one identifiable detection spur which is capable of monitoring multiple normally open contacts or a single normally closed contact. The FC410MIM may be mounted in any electrical enclosure with sufficient depth to accommodate FC410MIM and the contacts monitored by the IN+ and IN- terminals, i.e., no field wiring. The remote LED (if required, not supplied) must be located within the same electrical enclosure.

FC410MIO Small addressable multi I/0 module

The FC410MIO multi I/O module has three class B inputs and two outputs from latching relays. The class B inputs can monitor fire contacts such as extinguishing system control, ventilation control, and fire door control. The two relays outputs are dry form C that provide volt-free relay changeover contacts. A maximum of two HVR800 high voltage relay modules can be individually driven and controlled by an FC410MIO if all HVR800s are powered by 24VDC or 24VAC. In this application, the HVR800s are controlled by the two latching relays on the FC410MIO. A maximum of four HVR800 high voltage relay modules can be individually driven and controlled by an FC410MIO if all HVR800s are powered by 120 VAC or 240 VAC. In this application, the HVR800s are controlled by the four control outputs (O1+/O1- to O4+/O4-) on the FC410MIO.

FC410SIO Single input and output module

The FC410SIO single input and output module is designed to provide a monitored open collector input and a volt free relay changeover output.
FC410SIO can switch up to 2 A @ 24 VDC.

FC420CP Addressable break glass callpoint (indoor)

The FC420CP addressable break glass callpoint is designed to monitor and signal the condition of a switch contact that is operated by activating the break glass element. The type of alarm generated by the callpoint is configured in the FireClass FC500 (FC501_FC503_FC506) Console. The FC420CP call point meets the requirements of EN54 Pt.11. The FC420CP is fitted to a standard surface mount plastic back box, standard single gang metal plaster box (35 mm for flush mounting) or standard single gang metal plaster box (25 mm) with back box.

FC421CP Addressable break glass callpoint (outdoor)

The FC421CP weatherproof addressable break glass callpoint is designed to monitor and signal the condition of a switch contact that is operated by activating the break glass element. The type of alarm generated by the callpoint is configured in the FireClass FC500 (FC501_FC503_FC506) Console. The FC421CP callpoint meets the requirements of EN54 Pt.11. The FC421CP is fitted into a standard weatherproof break glass callpoint housing.

FC430SAB/SAM Sounder base address modules

The FC430SAM and FC430SAB sounder base address modules are designed to control a loop powered sounder base for use with the FC system. The FC430SAB variant has an integral beacon. They may also be used to drive a relay base. The units are used to supply the address decoding in place of a detector, thus providing a loop powered sounder when used in conjunction with an FC430SB. The modules are colour matched to the sounder bases. The FC430SAM and FC430SAB are locked into the base using the locking device integral to the sounder base.

FC430SB Loop low power sounder base

The FC430SB loop low power sounder base provides an additional sounder function on the FC addressable loop circuit. The FC430SB loop low sounder base requires an associated detector in order to operate, as it uses the address of the detector that is fitted to it. Removal of the detector or loss of power to the loop will cause the sounder to cease operating. A maximum of 30 sounder bases at full volume may be connected to the loop.

4B-I Isolator base

The FC460 and FC400 series detectors, as supplied, use a common 4B-I isolator base assembly. The base may be fixed directly to:

- British (fixing centers 50 mm) or European (fixing centers 70 mm) conduit box
- FC450EMB European mounting box
- Directly to the ceiling

FC490ST Loop service tool

The FC490ST loop service tool is used to program the loop address into FC addressable devices. The FC490ST displays information and performs tests on devices. It has a 32 character backlit LCD alphanumeric display, arranged in 2 rows of 16 characters and four soft keys, F1, F2, F3, and F4. Power for the FC490ST is derived from 4 AA size nickel metal hydride rechargeable batteries. You can also run it from an unregulated +12 VDC input. Examples include a car cigarette lighter connection or a 110 230 VAC mains adaptor which will also recharge the batteries.

FC410CIM Contact input module

The FC410CIM FC addressable contact input module is designed to monitor fire contacts such as extinguishing

system control, ventilation control, or fire door control etc. The FC410CIM can be configured as:

- Two spur circuits (Class B) monitoring multiple normally open contacts, with short circuit giving a fault output
- Two spur circuits (Class B) monitoring single normally closed contacts, with short circuit giving a fault output
- Two spur circuits (Class B) monitoring multiple normally open contacts, with short circuit giving an alarm

FC410DIM Detector input module

The addressable FC410DIM provides the ability to connect and interface one or two zones of 24 VDC 2-wire conventional detectors (non-addressable) to the fire alarm controller.

The FC410DIM monitors the status of detectors and wiring to detectors and signals detector and wiring status back to the controller.

FC410RIM Relay interface module

The FC410RIM relay interface module provides one volt-free relay changeover contact on a latching relay. The relay is controlled by a command sent from the FC fire controller through the addressable loop. The relay state (activated, deactivated, or stuck) is returned to the controller.

FC410BDM Beam detector module

The FC410BDM Beam Detector Interface Module is designed to interface FIRERAY 50 Beam Detectors to the FC Digital Addressable Loop. It cannot be used with other types of beam detectors. The FC410BDM monitors the Fire and Fault contacts and monitors for open and short circuits on the connections between the interface and the beam detector. For remote siting of the FIRERAY 50 an optional BTM800 terminal module can be used with 4 core cable.

The FIRERAY 50 transmitter and receiver units are mounted in the same housing.

The FC410BDM loop powered beam detector interface module is contained on a double sided printed circuit board (PCB) which is fitted into a custom built fascia plate with a protective cover being fitted over the PCB, leaving only the connection terminals exposed. The fascia plate is then fitted onto a standard dual-gang back box with BESA fittings.

FC400CH Addressable carbon monoxide + heat detector

The FC400CH carbon monoxide plus heat detector forms part of the FC400 series addressable fire detectors.

The detector is intended to plug into the following bases:

- 5B 5” universal base
- FC450IB 5” isolator base
- FC430SB low power sounder base
- FC430LPSB loop powered addressable sounder base
- FC430LPASB loop powered addressable sounder beacon base

The detector is designed to transmit digital signals to a remote FireClass controller, which represent the status of the carbon monoxide and the heat elements of the detector. Software within the controller is used to interpret the returned carbon monoxide and heat values to raise alarm or other appropriate response according to the type of detector configured in the FireClass FC500 (FC501_FC503_FC506) Console.

801RIL Remote LED Indicator

The 801RIL remote indicator is used where a detector LED is not visible. For example, when the detector is mounted in a roof void or lift shaft. The 801RIL is mounted to a single gang electrical box and is supplied with 2 x M3.5 screws.

801HL Remote LED indicator

The 801HL remote indicator is used where a detector LED is not visible. For example, when the detector is mounted in a roof void or lift shaft.

The 801HL provides a larger indicator for use in place of the 801RIL when longer distances are involved or in VdS influenced markets.

The 801HL can be mounted to any suitable flat surface and has fixing centres at 60 mm and 80 mm.

HVR800 High voltage relay

The HVR800 high voltage relay interface is a non-addressable multi-voltage relay module (operating from 24 VDC, 24 VAC, 120 VAC, and 240 VAC). The encapsulated HVR800 provides a 10 amp volt-free contact that can be used to extend the contact ratings of FC410RIM Addressable Relay Module applications.

If all HVR800s are powered by 120 VAC or 240 VAC, a maximum of four HVR800s can be individually driven and controlled by an FC410MIO small addressable multi-input and output module. For AC operation, no external DC power supply unit is required to operate the relay. When used to switch 24 VDC, the HVR800 must be provided with an external 24 VDC supply which should be switched through the clean relay contacts of an FC410MIO or FC410RIM.

DPK4 and DPK4I

The DPK4 and DPK4I duct probe units have been developed to detect smoke in ventilation ducts. These duct probe units can used in combination with a wide range of detectors and are suitable for addressable and conventional systems. The duct probes can operate across a wide range of air velocities from 1 m/s to 20 m/s. The duct probe units have a built-in FireClass universal base 5B. There is a range of aluminium probe tubes available for air ducts up to 1500 mm.

FIRERAY 50/100-Optical Beam Smoke Detector

The detector comprises of a transmitter and receiver contained within one enclosure.

The transmitter emits an infrared light beam that is reflected through a prism mounted directly opposite and with a clear line of sight. The reflected infrared light is detected by the receiver and analysed.

The detector has a maximum lateral detection defined by the local national standard. As a guide, a common lateral distance of 7.5 m will be used in this guide. Use the latest beam detector standards EN54 part 12, VdS2095 or BS5839 part 1 for further guidance.

The optimal beam distance from the ceiling will be bet- ween 500 mm and 600 mm. Use the Local National Standards for guidance.

Range:

Fireray 100 = 50 to 100 m

Fireray 50 = 5 to 50 m

Coverage area:

Fireray 100 = up to 1500 sqm

Fireray 50 = up to 750 sqm

Fireray 3000

The FIRERAY 3000 optical beam smoke detector is ideal for applications where the line of sight for the infra-red (IR) detection path is narrow and where the building structure uses reflective surfaces. The unit emits a narrow beam of IR light in order to monitor for smoke and is controlled using a compact low level controller. It allows for the installation of 2 detectors for each system controller. There is a 2-wire interface between controller and receiver. For each detector there are separate fire and fault relays. The FIRERAY 3000 has been designed so that it can be installed by one operator with its laser assisted alignment methods combined with easy to use alignment LED's offering visual feedback. Integrated laser alignment aid can be activated at the controller or at the receiver head.

Range: 5 to 120 m, configurable per set of detectors

Fireray 5000

The FireRay 5000 motorised and auto-aligning infrared optical beam smoke detector can be installed with up to 4 detector heads per system. When the detector heads are connected, using the Easifit First Fix system, an integral LASER, which is aligned along the optical path of the beam, can be activated. This allows the reflective prism to be sighted quickly. When the LASER has been used to coarsely align the beam, the auto-optimise beam alignment system takes over and automatically steers the beam into the optimum position. The system controller retains one set of fire and fault relays that is common to all detectors installed.

Range: Each detector is configurable from 8 m to 100 m.

FC410LPSY and FC410LPAV Loop

The FC410LP series of loop powered addressable sounder and sounder-beacons are designed to be driven from a FireClass control panel through the addressable loop. The FC410LP series of sounders and sounder beacons consist of:

- **FC410LPSYR**: sounder (indoor use) - red housing
- **FC410LPSYW**: sounder (indoor use) - white housing
- **FC410LPSY**: sounder IP65 (outdoor use) - red housing
- **FC410LPAVR**: sounder-beacon (indoor use) - red housing
- **FC410LPAVW**: sounder-beacon (indoor use) - white housing
- **FC410LPAV**: sounder-beacon IP65 (outdoor use) - red housing

The sounder has two volume settings: High (103 dB ±3) or Low (90 dB ±3)

The beacon has two flash rates: Slow Flash (1/2 Hz) or Fast Flash (1 Hz).

The FC410LP devices are synchronised, but not synchronous with other FireClass sounders (FC410SNM) and beacons (FC430SAB).

The first flash of the beacon is synchronised with the start of the tone.

The FC410LP devices have a built in two port isolator.

FC410LPBS-R/W Loop powered sounders and sounder-beacons (EN54-23)

The FC410LPBS series of loop powered addressable Sounder/ Sounder-Beacons are designed to be driven from a FC503 or FC506 control panel through the addressable loop. The FC410LPBS series of sounders and sounder beacons consists of:

- **FC410LPBS-R**: sounder (indoor use) - red housing
- **FC410LPBS-W**: sounder (indoor use) - white housing
- **FC410LPAV**: sounder-beacon IP65 (outdoor use) - red housing

The sounder has two volume settings High (103 dB ±3) or Low (90 dB ±3).

The beacon has two flash rates slow flash (1/2 Hz) or fast flash (1 Hz).

The FC410LPBS devices are synchronised, but not synchronous with other FireClass sounders and beacons of the FC400 series.

The first flash of the beacon is synchronised with the start of the tone. The FC410LPBS devices have a built in two port isolator.

FC430LPSB and FC430LPASB loop powered addressable sounder beacon base

The FC430LP series of loop powered addressable sounder and sounder- beacons are designed to be driven from an FC503 or FC506 control panel through the addressable loop. Tone, volume, and flash rates are set in the FireClass FC500 (FC501_FC503_FC506) Console. The sounder has four volume settings High (90 dB ±3), Mid High (80 ± 3dB), Mid Low (70 ± 3 dB) or Low (60 dB ± 3). The beacon has two flash rates Slow

Flash (1/2 Hz) or Fast Flash (1 Hz). The FC430LP Series have a built-in line isolator.

FC430LPBSB Loop powered addressable sounder/beacon base (EN54-23)

The FC430LPBS series of loop powered addressable sounder and sounder- beacons are designed to be driven from an FC503 or FC506 control panel from the addressable loop. Tone, volume, and flash rates are set in the FireClass FC500 (FC501_FC503_FC506) Console.

The sounder has four volume settings High (90dB ±3), Mid High (80 ±3dB), Mid Low (70 ±3dB), or Low (60 dB ±3). The beacon has two flash rates Slow Flash (1/2 Hz) or Fast Flash (1 Hz). The FC430LPBS Series have a built-in line isolator.

Table 58: EN54-2

FireClass product code (Current Dev.)	FireClass device name (Current Dev.)	Description	FireClass product code (EN54-23 Dev.)	FireClass device name (EN54-23 Dev.)
516.800.758	FC430LPASB	Loop powered beacon sounder base	516.800.973	FC430LPBSB
516.800.763	FC410LPAVR	Loop powered beacon sounder (indoor use) red	516.800.970	FC410LPBS-R
516.800.764	FC410LPAVW	Loop powered beacon sounder (indoor use) white	516.800.971	FC410LPBS-W
516.800.766	FC410LPAV	Loop powered beacon sounder IP65 (outdoor use)	516.800.972	FC410LPBS

Note:

It is possible to substitute old devices with the correspondent new ones (EN54-23) and to keep the same program data. When the old device is physically removed from the loop, the control panel will signal the No answer fault. When the new device with the same address is connected to the loop, the control panel will restore the No answer fault and automatically update its internal database with the new device type.

It is not possible to substitute new EN54-23 devices with old devices that are not EN54-23 approved.

FC410SNM Sounder notification module

The FC410SNM Sounder notification module provides an output, in response to a command signaled from a controller, to activate a number of polarized and suppressed sounders. The sounders are powered from an independent power supply and the module is capable of passing up to a maximum current of 2 A. For example, 24 VDC 50 mA company sounders or a mixture of different current rated sounders not exceeding a maximum current of 2 A.

The possibility of the configuration of extinction, although present in the FC410SNM module, is not available for FC503 and FC506 control panel.

Note: The extinction configuration is not available in the FC503 or FC506 modules.

FC410TSM Door control module

The FC410TSM door control module closes a fire door in case of alarm or fault. The door is normally kept open by electromagnets. The door control module disconnects the electromagnets from power supply in order to allow the door to close. The FC410TSM has a relay changeover output and a monitored input. The FC410TSM contains an integrated line isolator and self-monitoring circuits (monitoring of communication with a panel, loop power monitoring), which enables the fire door to be closed when communication with a panel is lost for longer than 45 s (±5 s) or the loop power drops below Umin=19 V for more than 15 s (± 5 s). In addition, the FC410TSM monitors the external 24 V supply.

FC410DDM Universal fire and gas detector module

The FC410DDM provides the ability to connect and interface 2 zones of 20 VDC 2-wire conventional fire detectors, or two 4-20 mA signaling sensors, to the FireClass fire alarm controller. The FC410DDM monitors the status of the detectors and the wiring to the detectors and signals detector and wiring status back to the controller. The conventional detector circuits can be configured to monitor 1 or 2 Class B spur circuits. The 4-20 mA signaling sensors may be one of two types:

- Current sinking
- Current sourcing

FC410QMO Quad monitored output module

The FC410QMO module comprises of four relays with selectable wiring supervision.

The output wiring is monitored for any short or open circuit. Spur and Loop configurations are supported.

The module has an integral loop isolator. If it activates, a yellow LED illuminates. The activation remains in place until the short is removed.

FC410QRM Quad relay module

The module provides four voltage free relay changeover outputs. The outputs are monitored with parallel contacts of the relays. Connect the outputs to an auxiliary voltage source to monitor its voltage. Additionally, all the outputs are configurable to the high voltage relay (HVR) mode, which allows you to connect up to four HVR800 modules for switching. For example, 240 V loads galvanically isolated.

The module has an integral loop isolator. If the integral loop isolator activates, a yellow LED illuminates. The activation remains in place until the short is removed.

Maximum relay current: 2 A

Maximum relay voltage: 30 V

FC410QIO Quad input output module

The module provides four monitored digital inputs and four potential free relay changeover outputs.The outputs are monitored with parallel contacts of the relays. The outputs can be connected to an auxiliary voltage source and the voltage can be monitored. Additionally, all the outputs can be connected to the HVR800, for switching high power galvanic isolated loads. For more details, refer to the HVR800 documentation. The module has an integral loop isolator. If this activates, a yellow LED illuminates. The activation remains in place until the short is removed. The digital input monitoring and isolator functions are both configurable.

Maximum relay current: 2 A

Maximum relay voltage: 30 V

FC440SB Addressable Base Sounder

The visual indicating device (VID) sounder-beacons and sounders are loop powered units driven from an addressable controller panel. Set the tone and volume in the FireClass FC500 (FC501_FC503_FC506) Console.

Selectable flash rates are:

1. 1 Hz (flash every second)
2. 0.5 Hz (flash every 2 seconds)

The visual indicating device sounder-beacons are available in ceiling and wall mounted variants, including an outdoor wall version. The FC440SB variants are:

- FC440SW
- FC440SR
- FC445SR
- FC440AIW
- FC440AIR
- FC445AIR
- FC440AIB

FC440AVB Addressable Sounder Base VAD Sounder

The visual alarm device (VAD) sounder-beacons are loop powered units driven from an addressable controller panel. All VADs have a built-in two port loop short circuit isolator.

Configure the settings for tones, volume, beacon flash, and status monitoring using the control panel.

The VADs are available in ceiling and wall mounted variants, including an outdoor wall version. The FC440AVB variants are:

- FC440AVW
- FC440AVR
- FC445AVR
- FC445CAV
- FC440AVB
- FC441AVB
- FC440CAVB

Panel and repeater firmware upgrade quick guide

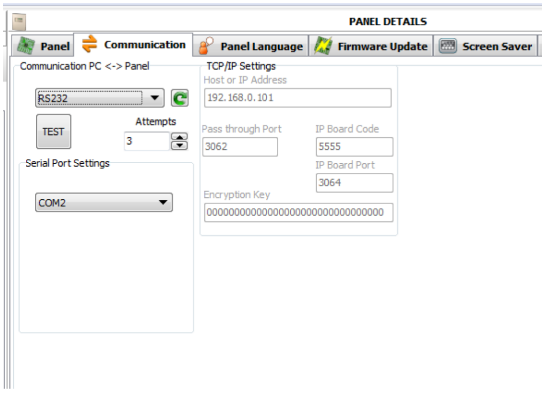
Upgrading firmware using FireClass FC500 (FC501_FC503_FC506) Console software

1. Connect the communication cable of choice (either PC - LINK or USB).
2. If you are using a USB cable, insert the USB cable into the PC host port and install the USB driver when asked.
3. Find the correct drivers in the FireClass FC500 (FC501_FC503_FC506) Console Software installation directory: C:\Program Files\FireClass \FireClass_FC500_Console\Drv.

   Note:

   - For 32 bit Windows™, use the X86 version.
   - For 64 bit Windows™, use the X64 version.
   - Windows may show a driver security warning. In this case, continue with the installation procedure.
4. Proceed to the FireClass FC500 (FC501_FC503_FC506) Console software main screen, select the **Communication** tab and the channel you will use: RS232 (COMx) or USB (USBx).

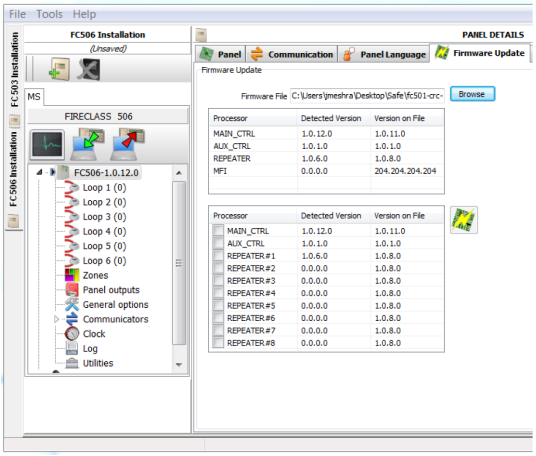
Figure 43: Selecting a channel



5. Proceed to the FireClass FC500 (FC501_FC503_FC506) Console software main screen and select the **Firmware Update** tab.

6. Select **Browse** and load the .BIN packet containing the FW (firmware).
7. The software scans the packet and then shows the FW versions read on file and those detected on the connected panel.

Figure 44: Scanning for firmware versions



8. Select the FW for updating and click the **Start flash** button, as seen in Figure 41.
9. Wait until all the firmware files have been updated (you will receive a confirmation notice from the software).

   Note:
   - You may receive a fault warning during the aux controller or the PTSN communicator updates.
   - When all FW update related faults are automatically restored, the system is considered fully operative again.
10. Verify that the FW version running is the updated version on the **Panel** tab.

Upgrading firmware using the USB pen drive

1. Access the updated firmware packet from the FireClass website; the correct file name has the 'FWxxyyzzBIN' format.

   Note: Ensure that file name for upgrading FW for FC503/FC506 panels is in the following format :

   "FWxxyyzz.bin"

   - FW
   - xx is a major release number
   - yy is a minor release number
   - zz is a test release number
   - .bin

   Rename the file to this format if it's not done already.
2. Get a FAT or FAT32 USB pen drive.
3. Create a folder named 'F_FW' at the root of the USB pen drive.
4. Copy the downloaded file into the 'F_FW' folder.
5. Insert the USB pen drive on a working panel.
6. Click on the **1=Program** menu and select option **7=USB** followed by option **5=FW Upgrade**.
7. Wait until the panel returns to the main page. This procedure takes a few minutes to complete.

   Note: The upgrade procedure may take several minutes to complete

Specifications

The information in this section is aimed at suitably qualified technicians experienced in the installation and commissioning of fire detection and alarm systems, who have also received FIRECLASS training.

Technical features

Table 59: FC503 and FC506 technical features

Control panel	FC503	FC506
Main voltage	230 V~	230 V~
	60/50 Hz -15/+10%	
Aux. outputs nominal voltage	27.6V	
Aux. outputs min. and max. voltage	19.0 ÷ 27.6V	
Minimum output voltage	19.0 VDC ± 5 %	
Maximum current drawn	1.6 A (230V)	
Ripple	1 %	
Maximum internal resistance of the battery and associated circuitry	1 ohm	
Temperature range	-5°C to +40°C	
Storage temperature	-20°C to +70°C	
Operating humidity	Up to 95% non-condensing	
Dimensions (W x H x D)	429.62 mm x 493.17 mm x 126.97 mm	
Weight (Without batteries)	8 kg	

Table 60: FC500 technical features

Repeater	FC500
Operating voltage	27.6 VDC
Maximum current	130 mA
Temperature range	-5 to +40°

Table 60: FC500 technical features

Repeater	FC500
Storage temperature	-20°C to +70°C
Operating humidity	Up to 95% non-condensing
Dimensions (W x H x D)	345.44 mm x 234.61 mm x 55.72 mm
Weight	2.7 kg

Description of the terminals

Table 61 describes the terminals of the main board and switching power.

The first status is the standby (normal) status, followed by the alarm status. The voltage present during the different operating conditions is indicated for each terminal, as well as the maximum current in amps that can circulate.

Table 61: Terminals description

TERM.	Description	v(V)	i(A)
	Main boards		
+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.		
+L3- LEFT	(+)Loop 3-Positive signal, left side. (-)Loop 3-Negative signal (return), left side.		
+L3- RIGHT	(+)Loop 3-Positive signal, right side. (-)Loop 3-Negative signal (return), right side.		
+L4- LEFT	(+)Loop 4-Positive signal, left side. (-)Loop 4-Negative signal (return), left side		
+L4- RIGHT	(+)Loop 4-Positive signal, right side. (-)Loop 4-Negative signal (return), right side		
+L5- LEFT	(+)Loop 5-Positive signal, left side. (-)Loop 5-Negative signal (return), left side		
+L5- RIGHT	(+)Loop 5-Positive signal, right side. (-)Loop 5-Negative signal (return), right side		
+L6- LEFT	(+)Loop 6-Positive signal, left side. (-)Loop 6-Negative signal (return), left side		
+L6- RIGHT	(+)Loop 6-Positive signal, right side. (-)Loop 6-Negative signal (return), right side		
SH	Terminal for connection of the shield of cables		
+RS485-	SERIAL BUS. Terminals to connect the FC500 modules		
[M] [24R]	24 V RESET ABLE AUXILIARY POWER SUPPLY: Negative present on terminal [M]; Positive present on terminal [24R].	27.6	0.5(1)
[M] [24A]	24 V AUXILIARY POWER SUPPLY: Negative present on terminal [M]; Positive present on terminal [24A].	27.6	0.5(1)
[LE] [LI] [-]	Terminal for connection of the external telephone line Terminal for connection of the internal telephone line Terminal for connection of the Earth cable		
[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		

Table 61: Terminals description

TERM.	Description	v(V)	i(A)
	Main boards		
+BAT-	BATTERY CONTROL PANEL POWER SUPPLY	27.6	
[OC1] [OC2]	Programmable Outputs(Open collector)- Silenceable-Bypassable (Disabled)-Supervised (The polarity is not programmable)	27.6	
[SC1] [SC2]	(Programmable, SC2 only),Supervised, Silenceable, Bypassable (Disabled) ALARM Outputs: Panel in Standby → negative on [+] terminal; positive 27.6 V on [–] terminal Panel in Alarm → positive 27.6 V on [+] terminal; negative 0 V on [–] terminal		(2)

Table 62: Current distribution of FC506 control panel

FC506 control panel	
Switching power supply BAQ140T24 (Imax = 5.5 A)	
12 Ah Battery	IBattery_Charge_80%_24H = (12*0.8)/24 = 400 mA
	IFor_panel = 5500 - 400 = 5100 mA
	Panel load distribution
	IMain_Board_Electronics = 250 mA
	ITotal_Loops_1_2_3 (*) = 800 mA @40V (1300 mA @27V)
	ITotal_Loops_4_5_6 (**) = 800 mA @40V (1300 mA @27V)
	ITotal_Outputs (***) = 2000 mA
	IFC500IP = 100 mA (****)
	IResidual = 150 mA
17 Ah Battery	IBattery_Charge_80%_24H = (17*0.8)/24 = 566.66 mA -> 600 mA
	IFor_panel = 5500 - 600 = 4900 mA
	Panel load distribution
	IMain_Board_Electronics = 250 mA
	ITotal_Loops_1_2_3 (*) = 800 mA @40V (1300 mA @27V)
	ITotal_Loops_4_5_6 (**) = 800 mA @40V (1300 mA @27V)
	ITotal_Outputs (***) = 1900 mA
	IFC500IP = 100 mA (****)
	IResidual = 50 mA

Table 62: Current distribution of FC506 control panel

FC506 control panel	
38 Ah Battery	IBattery_Charge_80%_24H = (38*0.8)/24 = 1266.66 mA -> 1500 mA
	IFor_panel = 5500 - 1500 = 4000 mA
	Panel load distribution
	IMain_Board_Electronics = 250 mA
	ITotal_Loops_1_2_3 (*) = 800 mA @40V (1300 mA @27V)
	ITotal_Loops_4_5_6 (**) = 800 mA @40V (1300 mA @27V)
	ITotal_Outputs (***) = 1000 mA
	IFC500IP = 100 mA (****)
	IResidual = 50 mA

Note:

- (*): ITotal_Loops_1_2_3 is the sum of currents absorbed on Loops 1, 2, 3
- (**): ITotal_Loops_4_5_6 is the sum of currents absorbed on Loops 4, 5, 6
- (***): ITotal_Outputs is the sum of the currents drawn by the terminals SC1, SC2, 24A, 24R, 24V-RS485.
- (****): If the FC500IP module is not be used then the relative amount of current (100 mA) can be drawn from the SC1, SC2, 24A, 24R, 24V-RS485 terminals.

Table 63: Current distribution of FC503 control panel

FC503 control panel	
Switching Power Supply BAQ140T24 (Imax = 5.5 A)	
12 Ah Battery	IBattery_Charge_80%_24H = (12*0.8)/24 = 400 mA
	IFor_panel = 5500 - 400 = 5100 mA
	Panel Load Distribution
	IMain_Board_Electronics = 250 mA
	ITotal_Loops_1_2_3 (*) = 800 mA @40V (1300 mA @27V)
	ITotal_Outputs (***) = 3300 mA
	IFC500IP = 100 mA (****)
	IResidual = 150 mA
	IBattery_Charge_80%_24H = (12*0.8)/24 = 400 mA
17 Ah Battery	IBattery_Charge_80%_24H = (17*0.8)/24 = 566.66 mA -> 600 mA
	IFor_panel = 5500 - 600 = 4900 mA
	Panel Load Distribution
	IMain_Board_Electronics = 250 mA
	ITotal_Loops_1_2_3 (*) = 800 mA @40V (1300 mA @27V)
	ITotal_Outputs (***) = 3100 mA
	IFC500IP = 100 mA (****)
	IResidual = 150 mA
38 Ah Battery	IBattery_Charge_80%_24H = (38*0.8)/24 = 1266.66 mA -> 1500 mA
	IFor_panel = 5500 - 1500 = 4000 mA
	Panel Load Distribution
	IMain_Board_Electronics = 250 mA
	ITotal_Loops_1_2_3 (*) = 800 mA @40V (1300 mA @27V)
	ITotal_Outputs (***) = 2200 mA
	IFC500IP = 100 mA (****)
	IResidual = 150 mA

Note:

- (*): ITotal_Loops_1_2_3 is the sum of currents absorbed on Loops 1, 2, 3
- (**): ITotal_Loops_4_5_6 is the sum of currents absorbed on Loops 4, 5, 6
- (***): ITotal_Outputs is the sum of the currents drawn by the terminals SC1, SC2, 24A, 24R, 24V-RS485.
- (****): If the FC500IP module is not be used then the relative amount of current (100 mA) can be drawn from the SC1, SC2, 24A, 24R, 24V-RS485 terminals.

Table 64: Max withdrawable current for FC503 and FC506 control panels

Terminals	Max Current
SC1	0.5 A
SC2	0.5 A
24A	1 A
24R	1 A
24V-RS485	1 A